

AL176

Interviewee: Marion Holder

Interviewer: Doris Edwards

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E: This is Doris Edwards, I am a student at the University of Florida. This interview is for Dr. Samuel Proctor's class in oral history. I am speaking with a Mr. Marion Holder, a local grower of citrus with a small citrus grove in nearby Putnam County. We will discuss the effects of the severe freezes of the 1980's on the citrus industry in north central Florida, as well as Mr. Holder's methods of growth management and cold protection. Now to Mr. Holder.

E: What is your full name?

H: My name is Marion Holder.

E: Middle name?

H: It is Lawrence. My middle name is Lawrence.

E: When and where were you born?

H: I was born in 1930 right here in Gainesville out near where Sam's Warehouse is.

E: Where did you grow up then?

H: I grew up, I have been in Gainesville all my life.

E: Where was it that you grew up, out where Sam's is?

H: Yes, it is 820 Northwest Twenty-fifth Avenue now. In those days it was called Forrest Avenue.

E: Where did you go to school, here?

H: I went to local schools, Gainesville High School, and I went to the University of Florida.

E: So when did you graduate from high school?

H: I graduated from GHS, Gainesville High School in 1948.

E: Did you take any subjects that were interesting more than others?

H: No, I took all the math courses and science courses you have to and english. Gainesville High School was pretty highly rated in those days. We were required, boys were required to take a lot of math and science courses so I took all those.

E: But not the girls, did it matter what they studied?

H: They did not, they were not required to take as much math as the boys were.

E: That is discrimination. What year did you go to the University of Florida?

H: I started in 1948 and I went through the middle of my junior year; that is when the Korean War started. I dropped out in January of 1951 and joined the Navy for four years. Then I came back and finished at the University of Florida in 1956.

E: Like a lot of others. Where were you in the Navy?

H: I was in the Navy, on the *Destroyer*, stationed in Newport, Rhode Island.

E: At the University of Florida, what was your major? What did you major in?

H: I majored in agricultural economics. I took a variety of courses in all the different parts of agriculture school. I took one citrus course in my course of study.

E: So you were always interested in the agriculture?

H: Yes.

E: When you graduated, what was your first job?

H: My first job was my only job. I went to work at Soil Conservation Service right here in Gainesville; it is an agency of the United States Department of Agriculture. I went to work as an agricultural economist on watershed painting team. I stayed with the Soil Conservation Service till I retired in 1983.

E: People do not do that anymore do they, stay at one job?

H: No.

E: So you had always intended to go into agriculture?

H: Some form of agriculture, I was not sure exactly which but the opportunity came along for the Soil Conservation Service. I decided that was for me.

E: It is as good as any. If they are willing to pay, it is as good as any. When did you retire?

H: I retired in 1983.

E: So that gave you how many years?

- H: I have been twenty-one years retired.
- E: The office was in the Federal Building?
- H: Yes, on the second floor of the Federal Building. Right now all of the agricultural agencies have moved out on to Northwest Forty-third Street. The Federal Building is being used more for court offices and that sort of thing. All the USDA people had to move out.
- E: Where and when was your father born – what was his name?
- H: My father's name was Ellis Wesberry Holder, he was born at Sante Fe; that is the little community out about twenty miles northwest of Gainesville. He was born there, his father and his grandfather both lived in that same area so his family goes way back in the history of Alachua county.
- E: But do you know where they came from?
- H: I really do not know what their origin was, I sure don't.
- E: But you know that father, grandfather, and great grandfather were already here?
- H: Yes. Sure 'nuff.
- E: Where did your father go to school, was it also here?
- H: My father went to a little one room schoolhouse out at Sante Fe. He only went to the ninth grade in school. He went down to Crystal River where he had an uncle who was a school teacher. He was really in the eighth grade but his uncle told him he was too big for the eighth grade, so his uncle put him in the ninth grade. He finished the ninth grade and after that he started teaching school. He never went to high school but he taught school for a year or two.
- E: Do you have any information about your grandfather, what he did, when he was born?
- H: I really do not. They were mostly farmers up in the Sante Fe area, most of my father's folks were.
- E: And your mother?
- H: My mother was born in South Carolina but they moved to Florida in 1905 when she was seven years old, I believe. They settled within about two or three miles of where my father lived, so they both grew up in the neighborhood of Sante Fe.
- E: What was her name?

H: Elizabeth Madison Davis.

E: Do you know when she was born?

H: She was born in 1898. She and my dad both were born in 1898. She went to school at Sante Fe; she went to about the sixth or seventh grade, later she went to Massey Business College and learned to be a secretary and do that type work, like a stenographer.

E: Did she have a career?

H: No, she worked for a while in Jacksonville but after they got married in about 1925, she never worked except in the home for the rest of her life.

E: And her parents, do you know anything about where they are from?

H: Her parents came from South Carolina, in fact her grandmother was sent down to Florida when she was a young lady about eighteen years old. When the soldiers was coming back from the Civil War her grandmother was sent down to stay with relatives near Sante Fe, and she married down here. She gave birth to my grandfather and she died a very few weeks after the baby was born. She was only about twenty years old at the time. So, some of the people in the neighborhood took care of the baby and then sent him back to South Carolina when he was about two years old. When he was eighteen, he came back to Alachua and ran into his father on the street here in Alachua and met him. He has lived here ever since, all the rest of his life. His name was Lawrence Davis.

E: Do you have brothers and sisters?

H: I have two brothers. My older brother Ellis lives in Winter Haven, he is retired and he worked for the state Division of Plant Industries. My younger brother Tommy lives down near Mt. Dora. He used to live here in Gainesville, he worked for Sperry Corporation when he was here. He later moved to Maryland to manage a farm for his father-n-law and then he moved back to Mt. Dora where his father and mother-n-law have a farm in the citrus grows. It is a little place called Sorrento; it is just east of Mt. Dora.

E: On your father's farm – he was a farmer, right?

H: No. My father owned this property out near Hawthorne but he was a rural carrier, a postal carrier. He worked for the post office as a clerk for years until he became a rural carrier in 1939; he stayed with that for about thirty years. He retired as a postal employee. He bought this property with a lake on it. He gradually over a period of years added more land to it as it became available. We did not really do a good job of managing it, it was just mostly woodland with

a few cows roaming on it.

E: Your grandparents, they had a farm – what did they grow?

H: They had a farm up around Sante Fe; it was mostly tobacco, truck crops, and corn; they probably had some hogs and cattle. They were small farmers, not very large holdings.

E: They lived mostly on the food and soil that they grew?

H: Yes. That is right. My mother's father also ran a saw mill; my mother's brothers took over the saw mill and even made axe handles out of hickory and white oak. They specialized in axe handles, rough axe handles. My cousin who farms is in that area still runs the old saw mill just as a side line; when he needs some lumber he has the mill to cut it. In the old days the saw mill had a steam engine on it, they ran the saw mill with steam then. They were farmers and had the saw mill business.

E: The house that you grew up in, does it still stand there?

H: Yes, it is still there. It is on 820 Northwest Twenty-fifth Avenue. My son is buying the property now.

E: Oh, he is buying it?

H: Yes.

E: Keeping it in the family?

H: The house was built by 1928. It is a frame house, a small house but a good sound building. On my home place our north boundary is the south boundary of Sam's Warehouse. My dad bought three acres there from the Daly family; the Daly family used to own a big portion of north Gainesville, in fact the Daly house is a part of that holding. The Daly house is considered the oldest house in Gainesville, I believe. Anyway, my dad bought three acres from the Daly family. We used to have a milk cow there and I would do the milking in the morning and night when I was going to school, but now it is all built up all around us so milk cows are not allowed in that area anymore.

E: Right, nor chickens or anything else. How long have you been in the citrus business?

H: Well, just about all my life I have been interested in budding just a couple of trees along the road. I actually got started budding several hundred trees about 1981 I guess, and then I set out my first little grove of about two or three acres in

1983 in the fall just before the first severe freeze that we had in 1983 and 1984.

E: What do you mean by budding?

H: Budding is a form of grafting, and I used sour orange for my root stock. Then I would graft whatever variety I was interested in onto the root stock.

E: This is done throughout the citrus industry; it is a certain root stock and a certain grafting?

H: I have kind of lost track of all the varieties that they use for root stock but there are several types that they use. I use sour orange because it is a little more cold resistant and also more resistant to wet conditions. The fruit has a real good quality because the root stock does influence the quality of the fruit.

E: Of course the cold hardiness is the important part in this north central Florida.

H: In the little nursery that I have now in my backyard, I am budding trees for sale and I am putting them on trifoliate stock.

E: And why did you change it?

H: Well, it is supposed to be even more cold-hardy than sour orange and this far north I would like the most cold-hardy root stock that I can get would be better. I really like sour orange for budding and for my own use but the trifoliate is really considered to be better.

E: But there is always a tradeoff, right?

H: That is right.

E: So, you like the sour orange better, but you use this so what is the disadvantage to the sour orange?

H: For one thing the sour orange is easier for budding for me and you can start budding a little bit sooner in the spring. The trifoliate stays dormant, that is one reason it is more cold resistant. It stays dormant longer and it is later in the spring before we can get started budding. I do not believe that the trees make quite the growth, the size that sour orange makes which for most dooryard planting the trifoliate would be what they would want anyway.

E: Dooryard plantings? Meaning?

H: Just backyard and gardening.

E: Do you believe that the freezes in the 1980's were more severe than before, or

just coincidence?

H: We had more of them in sequence then. We had one in 1983 and 1984, then the next two winters we had freezes that killed my little trees in my grove down to the ground and down to the root stock. For that reason, it seems to have been more severe. We did have some severe freezes back in 1958 and 1962 that did severe damage but that was before I was doing anything. The little grove where mine is located today was only about a ten acre grove on that same site, and it was partly killed in the 1958 freeze and completely killed in the 1962 freeze. We have had some severe ones. We have had given years of moderate winters it seems; that was one reason I was interested in starting one again.

E: Long time.

H: Sure was.

E: Do you feel that having grown up here that the 1980s were just a coincidence, or do you feel that really the climate has changed?

H: I think it is coincidence because I noticed on the news each night when it shows the record lows for that day, the record lows were way back there in the early years, way back before the 1980s. I really think we just had a cold spell, I do not think that it is a trend.

E: However, it has affected the industry in the area.

H: That is right, it surely has. In fact, the place that we own out near Hawthorne, when my dad first purchased it in 1939, we had some tremendous seedling orange trees that were sprouts from the 1899 freeze. They had been growing about forty years, and then they all were killed in the 1958 and 1962 freeze. Each time we have a severe freeze, the citrus industry moves a little further south, so today there are very few citrus trees growing in this area.

E: Every time there is a freeze they are frightened and scoot away.

H: That is right. It is so much of an investment in an orange grove they can not afford to plant them where there is so much risk involved. In my case I have such a small acreage, I feel I can come back and do my own grafting and budding at not a tremendous expense to me. I would not attempt a large acreage this far north I believe.

E: It is not like growing vegetables; if you lose them one year, well never mind.

H: That is right. It takes a little longer on citrus to get started again.

- E: Do you believe that the climate of north central Florida has cooled to the point that citrus is too risky for anyone to plant?
- H: I do not really think so, in fact this year I have had a lot of interest from people; I have sold quite a few trees this year. Once we have two or three years of moderate weather, people get interested in planting citrus, just one or two in their back yard. I tell people they can protect them with cardboard boxes until they get too large for that. The larger the tree is, the more cold resistant it is. I encourage people just to get two or three trees. I do not recommend a big acreage; just as a hobby sort of thing, just to try it.
- E: The bigger tree is not usually so affected by the freeze, but the really severe freezes will affect the big trees.
- H: Yes. The freezes we had in the 1980s (1983, 1984, and on up to 1986), it would kill mature trees no matter what the size of them was. That was evidenced by the fact that they were killed down on into Lake and Orange counties that year. As the tree gets larger it gets cold resistant because it has more mass in the trunk and the limbs. The first thing to get killed is the very tips of the limbs, the real small limbs, the tender parts; but as the tree gets bigger, it is still more resistant.
- E: I suppose you know of other growers that used to be growing around here and have pulled upstate?
- H: Yes. Mr. Barrington, whose land I purchased where my little grove is located, used to have a little ten acre grove there, and he also had other citrus holdings. He was an old time citrus grower. I suppose he was growing citrus back in the 1930s, and he passed away several years ago. While he was still living he gave up on the citrus partly because of his age I guess. There were several other growers whose names I do not know, but there were lots of small groves out near Melrose and down around Orange Lake there are some pretty good size holdings. The Huff family owns some large acreage down there and I do not believe anyone is replanting any of those. So, after a series of freezes people get discouraged; sometimes it is a matter of age versus _____ who has done it all his life. He gets too old to feel like he wants to make a comeback, so there are not many young people who are interested in doing that I do not believe.
- E: You do not consider giving up growing citrus because of the weather? You just keep it small.
- H: No. I have such a small acreage. I have gotten interested in doing it, but I just feel like I just want to keep trying.
- E: So, the root stocks you started out with were all sour orange?

H: Yes.

E: And now you have been using?

H: Trifoliate orange – it is related to citrus; the fruit is not edible, it is just about all seed, but it is related to citrus so it is compatible. Just about all the kumquats and sapsimmers were budded on trifoliate for years. The quality of the fruit from trifoliate is very good too, similar to sour orange, that is another reason it is desirable for root stock, for eating off the tree. For root stocks further down the state, a lot of the commercial groves are on rough lemon. Rough lemon makes, on a per acreage basis, more solids per acre and that is what _____ plants for us is through solids. But an individual fruit off of rough lemon does not have near the eating quality the sour orange or the trifoliate does.

E: The original citrus, the original oranges that were growing here in Florida that maybe the Indians carried the seeds around and so on, that was edible fruit, was it not?

H: Yes.

E: But they did not do any budding?

H: No. They were just seedling trees. You can plant a seed of most any variety and it will grow. For an orange seed, I believe they recorded as many as a dozen plants coming from one seed; it does not split in the middle like an acorn does. It has as many little eyes inside; if you open up a citrus seed you see it peels off in little flakes. Each one of those theoretically could sprout, but normally you only get one or two sprouts from a seed. For seedling trees, a seedling could vary from a parent tree because of cross pollination, whereas a graft would be true to whatever the parent tree would be. A seedling tree is usually pretty close to whatever the parent tree was. It takes a little longer for them to bear, that is the disadvantage of growing from seed. It usually takes seven, eight, or nine years for a seedling from the time the seed is planted for it to produce fruit, whereas if you graft a tree, it might produce an orange, or one or two fruit the next year. It will be in production in three, four, or five years.

E: When do you think that this is changed from just seedlings to just making a real scientific production of it?

H: I really do not know, but I suppose after the turn of the century. I think probably most of those in the 1800s were probably just seedling trees; I believe that is correct. Of course a lot of the citrus came from the Mediterranean area, and some of the citrus came from the Orient. It was that similar and the comquat (they all have Japanese names) were from the Orient.

E: When did they bring those?

H: I really do not know, but it must have been probably in the early 1900s or late 1800s, but I am not positive about that.

E: Of your grove, what percent do you have in oranges versus hybrids, or grapefruit?

H: I have a total of about 400 trees, and I have about 100 naval oranges which is about 25 percent of my grove. I have about the same number of hammond orange, which is a good early eating orange. I have a little over 100 chinese honey which is a mandarin type fruit, it is like a loose skin tangerine. Those three varieties, the naval, hammond, and chinese honey make up three-fourths of my grove. I have about fifty grapefruit trees, a few red grapefruit and a few white grapefruit. I have about ten trees of *meniola*_ tangelo and about ten trees of *satsuma*, and just a few one or two trees of different variety that I have. I have two or three kinds of grapefruit, a couple of other tangelo trees, and two or three blood oranges; so, I have a total of about fifteen different fruit. Mainly it is naval orange, hammond orange, grapefruit, and chinese honey.

E: As far as cold hardiness is concerned, the oranges are most cold hardy, right?

H: The mandarin type and the tangerine types are generally considered a little more cold hardy, orange next, and then grapefruit.

E: But lemons and limes, did anybody ever grow them up here?

H: I have some key limes here in my back yard. They are real susceptive to cold, but they have survived the last two or three years. I guess I set those out about 1990, and they have survived. I have been picking fruit off of them. These are just rooted cuttings, they are not grafted trees. The limes and lemons are not really cold resistant so you do not see very many of them up here.

E: Yes, so they were not grown up here in commercial places.

H: No, I do not believe they were.

E: They are always trying to develop new kinds of oranges, right? There is this new one, ambersweet?

H: Ambersweet, I do not have any of those and I understand they are supposed to be more cold resistant. Of course it has not been really tested I guess since we have not had any severe freezes that I know of since it was produced. I believe that is correct. I do not have any of the trees in my grove, but I have questioned them. What gives it its cold hardiness because its origin is a cross between a

tangelo and an orange at the first cross I believe. Of course a tangelo is a cross between a tangerine and a grapefruit, the grapefruit being less cold resistant; I have often wondered why it would be more cold resistant.

E: Maybe it is just hype.

H: Yes, but it is according to the literature more cold resistant. I do not know for sure because I have never tried to grow any of those. I keep thinking maybe one of these days I will get a couple of them and put it in my grove just to compare it to the other trees.

E: Now oranges mature over a very large part of the year and they are divided into early and?

H: Midseason, and then late fruit. Most of my fruit is early fruit and the reason for that is that we are so far north that once you get a crop of fruit on the tree, if you have early fruit you have a better chance of maturing it before the severe freezes come. Of course you do not always succeed in that, but the fruit I have gets ripe enough to eat from about the end of November till Christmas time. Most of our severe freezes occur after about the end of December up through February; that is one of the reasons I chose the citrus that I do have. However, I have got just a very few trees like the maniola tangelo that matures in January and February, but I only have just a very few trees that I can afford to lose. I would lose the fruit farm if we did have a very severe cold.

E: As you move further down in Florida, the growers change the variety of fruit.

H: One of the big varieties for concentrate is the valencia orange, that is the late orange. The midseason oranges are ____ pineapple oranges, and there are a lot of new varieties that I am not familiar with. I still have the old varieties. The early fruit that I have is hammond and another early orange is the *parson brown*, those are early oranges, round oranges. The midseason would be the pineapple and the valencia. I am not sure what the statistics are for today, but when I was still working for SCS, I remember the valencia orange was probably the largest single acreage because it so desirable for concentrate. It matures in April or May; it has real good solid content, so it is desirable for concentrate.

E: April and May? There are oranges that mature even later than that are there not?

H: There a few varieties, one called ____, and even the valencia would even be good on up into June and July. On the other hand, the early oranges, the hammond orange is getting edible probably in October. It is not at its best until about November. You have some fruit that will be good up until June or July, and then some that start getting edible in late October. So you do not have too

many months in between there that you can not have citrus. The satsuma is another very early fruit, it is a mild fruit like a tangerine – it is a mandarin type. Even when the skin is still green, the fruit is getting sweet enough to be edible.

- E: Of course the color of the fruit or the color of the skin does not really have any effect on the sweetness.
- H: Now some varieties are not sweet until after it has turned color like on the grapefruit. A lot of the citrus fruit just about time it starts to turn is getting edible. It is a matter of taste, I guess for some people; what is tart to one person is sweet to another.
- E: Without mentioning any other areas by name, the differences between Florida and other parts of the United States, do they grow any of the same varieties that we do?
- H: They grow some of the same varieties. The naval orange is grown in California and Texas, I believe. Texas, I think, specializes in grapefruit, they grow more grapefruit than oranges I believe. A lot of these things have changed; they had severe freezes out there too the same years that we had ours. I have not kept up too much with statistics since then, but grapefruit was one of the things that Texas was famous for. Years ago, Florida was producing about 80 percent of the citrus in the world. You hear a lot about California's naval and lemons. One thing about it is that the California naval is more uniform in size; for naval oranges in Florida, a tree might have an orange on it that is the same size as a grapefruit and others real small, so they are not very uniform in size.
- E: Of course each area figures that they grow the best.
- H: Yes, that is right.
- E: Florida says we grow the most tasty, right?
- H: That is right. We say the other fruit does not have as much juice in it as ours when they are skinned and all.
- E: It may look better in the fruit basket, but they are not as juicy.
- H: The Indian River section in Florida has developed a name for itself; part of the reason it is more desirable, I feel, is that it is on sour orange root stock which gives it better eating quality. A higher percentage of the fresh fruit shipped from Florida is shipped from Indian River. In other words, less percentage of ours goes into concentrate than it does throughout the state. For a big part of the rest of the state, the citrus goes into concentrate rather than fresh fruit; however, there is a lot of fresh fruit that the interior grows too, but Indian River has a

higher percentage of fresh fruit than concentrate.

E: Now of course we have competition from Mexico, right?

H: That is right, Mexico and Brazil. Brazil has tremendous plantings. I read back in the 1980s that there was one family in Brazil that controlled an acreage of citrus equal to more than half total acreage in Florida. They are having problems with disease and different kind of adversities down there the same as what we have up here, so I do not know that they still have an awful big acreage. Mexico and Brazil are both competitors, and a lot of U.S. companies are buying concentrate and mixing it. You can look on a lot of your containers and it will say made from juice from Brazil and the United States.

E: Do you think this new NAFTA (North American Free Trade Agreement) is going to affect the sale of citrus here in Florida?

H: I am not that much of a _____, I read one side and I believe one way, then I read something converse to that, but I can not help believe that it is going to hurt Florida citrus because the American public is going to buy the cheapest fruit that they can get. I just believe that Mexico, Brazil, and those countries have cheaper labor and sometimes less descriptions on pesticides and that sort of thing. They are bound to be able to produce it cheaper than Florida can.

E: Not to mention taxes on the land. ____?

H: The skin is too thick, I do not like thick skinned fruit. They ought to see if they need to change the fertilizer. ____.

E: Of course with the citrus industry moving south, they have had a trade off. They may have warmer weather, but they have different soil, right?

H: That is right, yes.

E: So they have to rely more on fertilizers?

H: A few years ago in the 1970s and 1980s, the Soil Conservation Service could give technical assistance to farmers with the drainage, irrigation, and soil problems. We did not even recommend planting citrus on wetland soil, on flatwood type soils because of the high water table, but that drastically changed because most of the plantings these days is on that type soil. They have gone to deep drainage where they can establish a root zone for the trees, so that has just completely changed the type soils that we grow citrus on. In the early days, they planted it on the ridge soils, the well drained soils, and stayed away from the flatwood type.

E: Of course, all those irrigation systems are expensive. So, you have the tradeoff that you are not going to lose the trees to the winter, but you pay.

H: You sure do. That is right. When you are on flatwood soil, the water management is more complicated because the citrus tree is normally a deep rooted tree, but if you put it on flatwood soil, it becomes a shallow rooted tree. You have to maintain that water level fairly constant because if you let it drop too low the roots run out of water, if you let it come to high, they are in the water and you get root damage from too much water. It is really more of a water management problem on the flatwood soil than it is on the well drained soil.

E: Not to mention what it may do to the environment by tinkering with the drainage.

H: They have put in some tremendous groves down in St. Lucie county, over towards La Belle, and all over south Florida just about. Tremendous acreage is growing on flat, wet soils.

E: As far as cold protection is concerned, did you use heaters?

H: I did not use any heaters, I contemplated doing that but someone told me that I would need a heater, a grove burner for each tree this far north. After the 1984 and 1983 freezes, there were lots of heaters for sale, and I was thinking about buying some, but then I figured out how much it would cost for just a few of those. It would probably have costs about ten dollars per burner per night for the diesel fuel, and for the 300 trees I had at the time, I decided that \$3000 was more than I wanted to spend on it. The only protection I gave my trees when they were young was that I backed soil above the union where the graft was made. I would pile the soil up about a foot and one-half or two feet high, just about a two foot diameter corner of soil around the tree and that would protect it above the graft. The idea for that is if it gets killed down to the top of the bank, and that is still above where the graft was made, when you take the soil down from around the tree it will sprout out from above the graft. You will not have to regraft the tree. If you let it get killed down to the root structures you have to go back and reestablish the graft.

E: Now that banking, that is done at the approach of winter? It stays, but you can not keep it on all year, can you?

H: What I have done is wait till the last minute, of course just having a few trees you can do that but if you had a tremendous acreage, you would have to get started earlier. There is a disadvantage, and then you have a warm spell in the winter, the warm moist soil sometimes will cause some problems – fungus, ants, and things that get in that bank and destroy the bark on the tree. I like to not have them banked any longer than I have to. Normally, what I would do a couple days before the coming of real severe cold spell is go out and bank them. I have in

the middle of the winter gone out and pulled part of that bank down to let a little air get in around the tree so it would not decay the bark.

E: If there is cold weather you have to go and put it all back?

H: Yes, I put it all back again. I did that for about three or four years, from 1983 through 1986. You do not lose all that time when it gets killed to the bank, your root is still growing, so then the next year it comes out and makes a lot more growth than if you started all over again. There is an advantage of protecting the tree. It looks pretty bad to see it all killed down to the bank, but you are not losing that much time because by 1987 I was picking fruit off the trees, whereas if I had started from the tree at the first of 1987, I would not have had any fruit.

E: Nowadays they use wraps, some sort of a plastic around the stem of the tree.

H: Yes, I never have used that, but I understand that it is pretty effective too. In a couple of days I can bank my whole grove, so I just use soil around it. The wraps are used more than the soil banking because of the labor.

E: I get the citrus magazine and it is full of advertisements for this kind of a wrap or that kind of a wrap.

H: I never have had any experience with the wraps, so I really do not know much about them.

E: Well, they advertise the type and the material it is made out of, whether it will resist ants, bugs, or fungus.

H: There would be an advantage of that over soil, that is right.

E: Of course, it would have to be bought, as opposed to dirt.

H: I do not know how many years they are usable, but they can be kept and used for several years in succession, I guess. They are not that easily destroyed. That would save a lot on labor. They do have machines attached to tractors for banking; we did a lot of that. They had a conveyor belt on the side that would circle the tree with the tractor and it would shovel the dirt up on the trees. Even that is getting into expense.

E: Not to mention, I would think difficult to get to the trees, I mean trees are seven rows.

H: That is right. Now they are too close to do that. Another thing is that if you are not careful with a citrus tree, the roots go out a tremendous distance, and there are little feeder roots just above the surface; so any time you start digging a

whole or plowing around a citrus tree, you are cutting along the roots. There is a danger of introducing foot rock which I have in my grove somewhat ___, it is a fungus, and anytime you cut roots you have a chance of getting some of that in your root system. The rocks on a large scale are probably your best way to go.

E: There is also a system of wind machines?

H: That is right. They used to set those up down through Lake and Orange counties in the low spots where there were some depressions. The cold tends to settle in the low spots, so they would put those wind machines in the low areas just to get the air circulating so that there would not be quite as much damage to the trees. That was not done a tremendous acreage, you would see them in spots where they had a real cold problem. In fact, as you drive down U.S. 27 years ago after a freeze, (the freezes where it did not kill the whole grove) you could see a line where those depressions where the trees were damaged and up the hill they were not hurt at all. That is where they would sit the wind machines.

E: But, for current wisdom, they do not use the wind machines?

H: I do not believe they do.

E: Then there are sprinklers. Water is also a form of cold protection they say.

H: Yes, but you have to really manage that properly or you will do more damage than you will good. There is a lot of misinformation put out about use of sprinklers, in fact, some of the weather people on t.v. and the newspaper have said to go out and wet your shrubbery down, and to coat it fast so it will protect it against a freeze. You are doing more damage than you are good if you just simply wet it down and ice it over because when that ice starts to evaporate, as the wind blows over it, it will ___ and the temperature will be lower as it starts to evaporate. In order to do any good with sprinklers, you have to apply enough water to weigh more to overcome the rate of evaporation. The stronger the wind, the higher the rate of evaporation, so you have to take into account the wind velocity and other factors. The benefit from sprinkling is not just from coating it with ice, but the benefit is obtained when the water you are applying to the tree is irrigation. When it changes from liquid to solid a tremendous amount of heat is released from that reaction. I can not remember the figures, but it is tremendous. That is the reason you must continue applying water to it and keep it freezing. That is where you get the benefit, not just icing it over because that does not really do much good.

E: They used to have overhead sprinklers.

H: That is what I use in my little grove for irrigation.

E: Now they have these microsprinklers.

H: They have microdrip and all kinds of little spoils. They are evidently pretty effective, but they have to be managed properly; you have to direct the water at the right spot. I do not know if they use those very much in larger trees or not, but especially on younger trees they are. It is a tremendous saver of water; it does not use near the water of a overhead sprinkler. An overhead sprinkler when used for irrigation, on a sunny day and with wind blowing, you lose about 35 or 40 percent through evaporation. The small ones are a lot less loss of water by using those. These days with water conservation being so important, they are using those more.

E: How much time in north central Florida would you need to irrigate?

H: My little grove would survive with no irrigation. You get better growth from your trees and better production if you irrigate somewhat. I have a small irrigation system; it is really not adequate, but I use it when the season gets very dry. I go out and put enough water to feel like I am helping maintain the tree growth properly. It will survive especially if it has a soil that has a clay subsoil. Citrus fruits will get down near the clay and the clay holds moisture pretty well. The old grove that was there before I put my grove in did not have any irrigation, but it was doing fine. It would depend on the type of soil what the benefit would be. As the tree gets larger and the roots get deeper, it will survive pretty well. Most of the groves down the ridge were not irrigated, but they had begun to put irrigation in a lot of them. The old groves were not even irrigated at all. The Indian River section, which is the majority of the flatwood type citrus in the old days, had to maintain water so they were irrigating using the ditches for maintaining water levels in the ditches – that was there source of irrigation. In recent years, I think they have put in overhead irrigation, and now I suppose they are going to the ____ and microjet type irrigation. I do not think that they are using much of the microjet on the large trees, but they are using some. They can not use cold protection on the large trees, I do not believe, but they just wet the soil under the trees and save a lot of water.

E: Of course, as the citrus industry moves further south and they have different land. They are trying to keep the water from drowning the trees, so I do not suppose they need as much drift irrigation.

H: I think that is why they maintain a water table in the groves. They put them on double beds or single beds with deep ditches spaced ever so often so that they can control it and use pumps. Some of them even put them in conservation areas, where during flood times they can pump water into these conservation areas and use that as a source of water to pump out of when they need irrigation water.

E: Since you did not use heaters that you have to light when the weather is getting bad, but rather banked them probably earlier in the season. You did not have to pay much attention to the weather reports and so on because what was done was done, what was not going to get done.

H: I usually watch it because I would wait till the last minute to bank my trees. I would watch to see if I was going to have to go out a day or two ahead of time and start banking. The people that use the heaters would stay up all night and watch the reports. When it would get to a certain temperature, maybe twenty-five or twenty-four degrees, they would have crews on standby to go out and start lighting heaters which is a tremendous chore.

E: Labor intensive also.

H: That is right. Because you would have to start early enough, as the temperature began to drop, you would have to have enough people to get them all fired up before you would have damage to some of the grove. If you waited too late, in the two or three more hours it took to get the heaters lighted, you could have lost some trees.

E: Would you consider that the weather station or television weather reports were accurate enough or did you listen to that all weather radio?

H: I listened to all those, but I think the commercial growers use the state weather station broadcasts more than they would the newspaper or the regular television. In fact, some nights, I have listened to my little weather radio, I have called them on the telephone to get the forecast, I have watched television and turned to the weather station on television. Sometimes, they were in agreement and sometimes they were not, so there is a question as to which one is giving the proper information. It is a real chore and kind of frustrating to know what to do when it is getting down to the borderline and you know you have got to do something. If you think about sprinkler irrigation, I sprinkled my little nursery in the 1983 freezes, and it saved them but you do a tremendous amount of damage because it loads tree up with ice and splits the trees up badly. Sometimes you find out later it was not cold enough to have needed it, but you have already damaged the trees. Information about weather is very important to citrus growers.

E: Of course you do not have citrus growers around, but would citrus growers check with each other?

H: I would imagine they probably do, and kind of get a consensus of what is going on. Of course, I do not because nobody else is growing citrus around me.

E: For cold protection, there is a method where they have changed the distance

that they plant the trees from each other, is that correct?

H: They are doing that and that may be part of the reason, but I think one of the reasons they are putting them together is that a citrus tree will start producing when it is four or five years old. The foliage of the tree is only probably about five or six feet in diameter. If they put them in the traditional old spacing of twenty to twenty-five feet, you have got a lot of wasted space in between there. If you put them closer, you will get more production off those trees, and now they have gone to hedging trees. Whenever two limbs overlap and join trees, it starts shading out the lower branches and you start losing production on those branches. They go in and hedge those trees and that exposes the limbs to the light. Since they have started putting them closer together, they hedge them all and it looks like a hedge roll almost. I think they are putting some of them about ten feet apart in the rows which seems unheard of years ago.

E: Citrus trees as a rule before were not trimmed or shaped.

H: In my grove, I do not trim them; the only time I do any trimming is when I have some broken limbs or that sort of thing. Maybe sometimes a tree will send out what is called a watersprout, a real tender shoot that will stick way out to the side that is real weak, and I will prune that off. Normally, I do not prune my citrus.

E: Yes, it was not done.

H: In fact, I asked Mr. Barrington, the old man that used to own the grove where my grove is, how far apart should I space the trees because I was thinking about setting out some trees. He said the younger they are, the farther apart you put the trees because you expect them to get to be big trees. You do not see very many of those big trees now because they were all killed out in the severe freezes. For some reason, if an orange tree has a good root system, they will be tremendous in size.

E: What is the average length of an orange tree, how long will it grow?

H: It is a lot longer living tree than apple, plums, and pear trees; maybe not pear, but at least apple and peach trees. I really do not know, but the place that my dad purchased in 1939 were root sprouts from the 1899 freeze, so those trees were forty years old then. They lived until the 1962 freeze, so they were sixty years old. The cold is what killed them, but if you did not have a cold climate to contend with, I do not know how long a citrus tree would live. There are some root problems, but lots of times you have trees that do not have root problems, so I would think that they live seventy-five or eighty years. I do not really know, but they have a long life if they do not have some real severe problem.

E: You mentioned earlier about the thorns on trees. I do not think that many people

know that orange trees have thorns when they are small, right?

H: Yes, we used to think that just the old seedling sour oranges had the thorns, but even my grafting trees are not nearly as thorny as my seedling tree would be. The old seedling oranges and the sour orange trees would have thorns probably two and one-half or three inches long which were very sharp. Seems like sometimes the young trees have got quite a few thorns when you first graft them, but when the trees get older, if you look closely you will see thorns on the mature trees. They do not seem to be the problem that they are on young trees or seedling trees which have tremendous thorns. The trifoliate root stock that I use is about the thorniest plant you ever saw. You lose all that because you graft it about four or five inches above ground, so you never have problems from thorns with trifoliate. There are some thorns on grafted trees too, but they are not nearly as severe and long as the seedling trees are.

E: As the tree becomes older, the thorn is shorter, is it a small thorn?

H: I guess that is probably right, but a grafted tree just does not have the size thorn that the seedling tree has. Now the seedling tree will have long thorns even when it is a mature tree. Years ago when we had old seedling trees, a friend of ours at church who was in the military and from Ohio had never been around an orange tree, and he wanted to climb the tree and pick some oranges. He did not realize it had thorns till he got up in the tree; he scratched himself up pretty well before he got out of the tree, but he found out that orange trees do have thorns.

E: It is possible also to have orange blossoms and fruit on the tree at the same time.

H: Yes, in fact, my grove is getting ready to bloom right now. On the early fruits, I should have picked everything off but there is always one or two still clean. That is more so on the valencia orange; the valencia orange blooms the same time the other trees do, yet the fruits not mature until April, May, and June. That is one reason the valencia does not have quite as heavy a crop as the other trees because it has competition with the old fruit still on the tree and the new blooms forming. With just about all citrus you could leave the early fruit on if you did not want to pick it off; it would still be usable until January or February and that is the time trees start to bloom. Mine are in full bloom now and it is just the first of March.

E: So you do not have to pick the fruit off? Will it stay for a while without rotting?

H: It is not like an apple or a peach; once they get ripe you have to pick it off or it will drop. An orange usually drops off a tree only if it has been damaged or if there is something wrong with it. An orange will stay on the tree from the time it first gets ripe right on through the season. That is the beauty of oranges; you do

not have to pick them off all at one time, you can pick them as you need them just for _____ use.

E: A new method of cold protection they talk about is modern thinking and grove maintenance and how they are an important part of keeping the ground clean.

H: I do not disc my grove.

E: What is discing?

H: Discing is pulling a disc behind a tractor to cultivate the soil to destroy weeds.

E: Turning it over?

H: Yes, turning the soil over. You would expose the soil to the sun and you would get some radiant heat from the exposed soil. I do not do that. I mow my middles with a mowing machine behind my tractor, and then I spray with a weed control herbicide around my trees where I can not get to them with my disc. The reason I do not disc is because the feeder roots on citrus is very close to the surface of the soil. If you are discing you have to put herbs on the disc to keep them from digging too deeply in the shallows, but even those will cut the little feeder roots. I feel like that it is important not to do that because you are possibly introducing _____ into your roots, and you are also cutting the roots which are needed to pick up moisture. I realize that you get a little less cold protection than you would if you had the bare ground, but I feel like the benefits from keeping the roots are more important than what little cold protection I would get. In the years that my trees have gotten damaged from the cold, it would not have made any difference if I had bare sand or grass because it just got so cold it would have killed them anyway.

E: So between the trees or under the trees, it can either be turned over ground or you can let grass grow but it is mowed.

H: I mow my middles and I spray around the weeds, but after the tree grows a little better, it pretty well shades out underneath the tree itself. So you do not have as much weed problem under the tree after they get a little older, but when they are young, they will have a real weed problem if you do not do something with it. All the oranges and grapefruits have a bushy type growth, they shape them.

E: Of course weeds like to grow wherever there is nutrition and water.

H: When I fertilize my trees, it always makes the grass grow a lot better. You can see a green circle around every tree where I have put out fertilizer. You fertilize your trees and your grass, but then when I mow, I leave the grass on the ground so that some of the nutrition gets back in the soil roots.

E: Are there professional companies that do grove maintenance?

H: Yes, a lot of commercial groves are maintained by commercial companies. In fact, they do grove maintenance, and I believe probably have picking crews so that the contractor will have them picked. A lot of absentee owners in citrus because people live up north, and even if they live in Florida, they may not want to do the work that is involved so they contract out and have grove maintenance people.

E: So they have made a commercial thing out of it.

H: They have all the equipment for picking, tractors, discs, and the equipment for fertilizing. In fact, years ago there was a pretty good size grove down in Arcadia. They had several thousand acres that were divided up into one acre plots; each little plot had a name plate on it. People all over the United States had bought one little acre. I remember seeing one from Iowa. The whole grove was under a maintenance contract, so the people that owned each little plot did not have to do anything, but they could come down to pick their fruit and have a lot of fun showing people their orange grove I guess.

E: Or just talk about the fact that they own an orange grove.

H: Yes, that is right.

E: What do they consider the member number of trees to call it a grove?

H: I only have three acres and I call mine a grove. In fact, Mr. Brennan came out to my grove not too long ago, and he called it an orchard. The man that was with him said that you do not want to call this an orchard, this is a grove. Gary said that technically it is an orchard which he defined as a cluster of trees, so theoretically it is an orchard. He said this is an orchard because a grove is kind of a random type growth, not in rows like an orchard. I do not think you will find many citrus people calling them orange orchards. Groves is the standard term.

E: Yes, I do not think they are interested in that word at all.

H: I do not think so either. We use orchard when we think about peaches and apples I guess.

E: So you have 500 acres?

H: The total property is 500 acres. Most of our land is in woods. I have about 125 acres of improved pasture, and the rest of it is a mixed variety of woods. Some of it has pretty wet soil, some have cypress, laurel oak, water oak, and live oak; but I have been planting some pine trees. I have about sixty acres of planted

pine that I am gradually adding ten to fifteen acres to a year.

E: As a commercial growth?

H: Yes. That is a long range thing, but with taxes you need to have something you can produce to maintain your taxes. About half of it is grazed; like I said I have a total of 500 acres. About 125 acres of it is improved pasture, and there is a forty acre sand bottom lake that is in the middle of the property that I use for cattle water to keep me from having to pump water to the cows.

E: So this pasture has cattle on it?

H: Yes, beef cattle. I have about fifty cow; they help pay my taxes.

E: What about the timber?

H: The pine that was on there was scattered pine, but we had it cut several years ago. Now I am planting in blocks of about ten acres at a time. After we get it cleared up, I hire someone to machine plant most of it. I am gradually getting someone to put in the pine trees.

E: Would you say that under the best conditions citrus is more profitable per acre than pine?

H: Yes, much more.

E: Much more?

H: Yes, much more. I was thinking not too long ago that the little grove I have got of only three acres was planted in 1983. I picked six bushels off my Chinese honey, which is the mandarin type fruit that I have, and I sold each bushel for sixteen dollars a bushel. That was \$100 worth of fruit on one tree. The next year I projected that the tree would yield eight to ten bushels of fruit, and I expected to make more money than before. The cold hit it though, and froze it out. So, if you think about that, it makes the pine trees look a little bit better, but in the long run there is almost no comparison between what you can make if you are in an area where you can grow citrus. There is a lot more expense, but there is a lot more value in the citrus than there is pine trees.

E: So the pine tree you are growing are for the lumber?

H: It would depend on how long you wanted to grow them. The trees that we had cut were just natural stands; some of them were large enough for pulp for plywood. There is a large plywood plant, Georgia Pacific, over at Hawthorne. The larger trees they cut, I have forgotten what the dimensions were, went to the

plywood plant. Some of those were large enough for lumber, but we did not have enough of it. The bulk of what we are planting now will be for pulp wood. You can start thinning in about fifteen years after you plant the trees depending on the soil type. They go in and take out every fourth or fifth row just to thin them, and let the remaining trees grow a few more years before they are large enough for pulp wood. Pulp wood is the shortest cycle in the timber industry. The next would be plywood, but then for _____ it takes probably forty or fifty years to get them that size. That is a long range plan.

- E: It is a shame to cut it down then, but we need it.
- H: On our property, you can still see some tremendous stumps out through the woods. Evidently the well drained soil produced yellow pine or long leaf pine at one time. Some of the stumps are three to four feet in diameter; it makes you wonder what that place looked like 100 years ago.
- E: What about planting trees that can be cut for Christmas trees?
- H: I have not done any of that, but there are lots of small farmers that have started to do that. In fact, right near our place someone has a little plantation of four or five acres of Christmas trees. They let people come out and cut their own trees. That is getting to be pretty popular.
- E: Popular, as compared to profitable?
- H: I think it would be profitable. You would need to get trees that are adapted to this area, some of the sand pines or a cypress variety. Most of the trees we buy down here for Christmas trees are not adapted to Florida conditions; most of the pines are the ones that have adapted down here. The other type trees that grow up in the Carolinas and further north would not grow down here. I went through North Carolina this past summer, and there was a tremendous number of people planting Christmas trees up there. It makes me think that the price of Christmas trees should be reduced, but I do not know if they ever will or not. An awful lot of small farmers used to grow _____ of planting Christmas trees in the Carolinas.
- E: They may develop a tree that looks like a good Christmas tree and that will grow here.
- H: The Choctawhatchee sand pine that they are growing here makes a pretty tree; it is a short-leaf pine which is one of the best ones for Christmas trees.
- E: Do you think in general the best economic decision for a citrus grower in north central Florida is to remain here, plant here, or plant further south?
- H: If I was thinking about somebody on a large scale I think I would recommend to

go further south.

E: And stay there?

H: Yes, in my case, just two or three acres is a lot of fun to work with and after a while it comes down to the challenge to see if you can make it in spite of the odds. I would not want to invest a tremendous amount in north central Florida citrus.

E: Do you think that if someone wanted to invest in citrus that it would be better to plant a new grove, or to buy an existing grove on an economic bases?

H: I really do not have too good a bases for answering that. It would depend on what the price is, and if you could get a reasonable price on an existing grove. You need someone to advise you as to the health of the grove because there are so many fungus diseases and other things that can affect the health of the grove. You need to be sure that you are getting a good healthy grove. Years ago, my brother bought a little grove down near Weirsdale, and that was a real good buy for him. All the advice he got though, worked out differently from the way he thought it would. He had citrus growers, who were friends of his, to come in and check it over. The grove had survived some of the earlier freezes and they thought that it was an ideal site, but the freeze of 1962 came along and wiped him out at about the time he started paying for the grove. His income from the grove was to help pay for the grove. The man that he bought it from would not extend the time, so he lost what he had in it and the opportunity to make anything at all. That was an existing grove and had a lot of variety of fruit. So, if you are going to buy an existing grove, it would depend what the condition of the grove would be and the price you would be paying for it. If it were my own, I would go and buy a good piece of citrus soil and start from scratch by putting in my own trees.

E: How long would it take before it would give enough fruit to make an economic return?

H: I am not sure exactly, but I do know that they used to consider statistics which I could get from the Soil Conservation Service in which they would classify groves as nonbearing and bearing. The trees would be put in the bearing category when they were about four or five years old from the time they would sit in the grove. That is about the time you start getting enough fruit to bring in some profit. I have budded trees and the next year they would have some fruit on them, but not enough to be commercially valuable. In fact, when the trees are real small, you are really better off to pick the fruit off of them for the benefit of the tree and not have any fruit on the tree for a couple of years. After four or five years you should start getting a pretty good return on it.

E: How do you sell your fruit?

H: I sell a lot of my chinese honey, the tangerine type, by word of mouth. People call me a month or so before they are even ripe asking when they are going to be ready. So, I sell a lot of mine to friends of mine because I do not have that big of a production yet. In 1987 and 1988, I sold grapefruit and chinese honey to the citrus shop down at Citra. They contract with a grove down in the Indian River section and they usually buy all their fruit from them. They do not really buy many fruits locally.

E: It is a little bit of a fake, the citrus store, because the customer thinks it is local citrus and it is not.

H: No, it is not. They have a little grove out there that is about to start producing I guess. I carry mine up to the Farmer's Market here in Gainesville, which is open just on Saturday mornings. In 1988 and 1989, we took citrus out there, and at that time they were only open from about 8:30 a.m. until 12:00 p.m. We sold about \$600 worth of citrus in about three and one-half hours. When you have good fruit and people find out it is locally grown they want to buy it. Most of the time they ask what part of south Florida the fruit comes from, and when I tell them it comes from near Hawthorne, they are kind of flabbergasted. If I get through the next two or three years of freezes, I will have a lot more citrus than I have now. The chinese honey is so popular that I have not been able to supply it to the people that want it.

E: Are there any other citrus growers that market in the farmer's market?

H: This year and last year, there was one family that lived here in Gainesville that have about 200 trees over near Crescent City. They bring their fruit over here even though they have just a small quantity, even less than I have. There is another man that has a grove out near Melrose who is an organic citrus grower. He did not have any at the market this year so I do not know where he sells his fruit at. He is getting into the organic trade.

E: As a matter of fact, that is Robin Loreo, is it not?

H: Yes, that is right.

E: He was the one who gave me your name.

H: I never have seen his groves, but he has been over to my place. I believe I will be able to sell all the chinese honey that I produce locally now. Each year I go down to the credit union and give them my price list so they know what I have got. They'll give me a list of orders, and I bag fruit and carry it all down there at one time. I thought about contacting businesses and taking a sample of fruit and

my price list to them. I would have them make a list of orders and just deliver the fruit to them. I could sell a good bit of fruit that way. I did that for Pontiac this year; he wanted to give fruit to his employees. He bought quite a few boxes of fruit which I carried down on the flatbed trailer. I brought bags so all the employees came out and took what they wanted. The owner paid for all of them and then gave them to his employees. If I were further down in the state and out of the native cold, this Chinese honey would be a tremendous seller. It does not ship real well, but it is such a good quality fruit that I do not have any trouble selling that.

E: What do you consider as the major threats to the citrus industry here in Florida? Sometimes the newspaper mentions canker.

H: I think they have gotten canker subdued, but there is another little insect, a mite or an aphid, that has them concerned. One of the things that they are concerned about and have been for years is competition with Brazil. When I was in school at the University of Florida, there were a lot of Latin American students. I kidded that we have taught them how to grow citrus and now they are going home and really competing with us. Such things as *photophera*, which is a foot rock that once you get it into your grove, you have got to fight it. I do not think that you can eradicate it, but you have to keep treating for it which is expensive. That is what I had in my little grove. I never had any problem with my first grove, but I bought trees from a commercial nursery in 1990 when I had to replant my grove after the 1989 freeze; I believe that is when I introduced it to my grove. I suppose I brought it in on the roots; now I have footrot, and I have lost thirty or forty trees.

E: It spreads?

H: Yes, it spreads. When you get a lot of rainfall, it spreads through the soil, splash up on the tree, and the ants will carry it up on the trunk. It completely destroys the root system; you have to pull the tree out, treat the soil, and start all over again. I had never heard much about it, but since I have had it in my grove, I am more aware of it and read about the problem all over the state. Ever so often we have a fruit fly epidemic. My brother used to be an inspector for the state and he would tell about how people on international flights into Miami would try to bring something in by hiding it in their suitcases. With people traveling all over the world and coming into Florida, we are really fighting against ourselves when they do things like that. Not only with agricultural interest, but also with citrus when we have all these things to contend with. You never know from one year to the next what is going to be the next problem.

E: This cancer is pretty well licked?

H: Yes. One of them was called the A-strain; that was the one that effected the Asian strain, and it effected the fruit. It was only found in just a few groves down on the west coast of Florida in Manatee and Sarasota counties. They quarantined that area, but have now removed it. The other one is the nursery strain which they found in nurseries; they burned a lot of the nursery trees. As of last July, I have to keep records of every tree I sold, who I sold it to, and keep an inventory of trees in my little grove. They did relax that last July for nursery strains.

E: They did that to stop the spread of the cancer? What is cancer?

H: I do not know. If it effects the fruit on a bearing tree, it will defoliate I believe and lose its fruit. I do not know if it is an organism. I really do not know what it is. I guess it is a fungus type cross. There are two strains; the nursery strain which effects the young trees, and the A-strain or Asian strain which effects the mature trees and the fruit.

E: How does it spread?

H: It will spread through the air I guess, because they would quarantine groves and not allow any movement. People walking in the groves would have to disinfect their clothing and their vehicles driving in and out of the groves. It was carried more through the soil, I guess.

E: You had to register every tree that you sold to somebody?

H: Yes, you would have to get a cancer permit to sell the trees. We had the regular inspectors that would come and do regular plain industry inspection. They also had a special cancer program in those days, but later they let the regular inspector handle both of them. Whenever I would sell a tree, I would put down the name of the person who purchased it, their address and phone number, and what kind of trees they bought. When the inspector came, he would take that and inventory my trees to see if I lost any trees through diet, and I would have to account for those. When they first started this, you had to fill out a complete form. If I sold some to a feed store, they would have to have a supply of those forms, and supply one to each person buying a tree.

E: Do you feel that this was too much government interference or do you feel that it was really necessary?

H: Most people think it was just a hoax, but I can see both sides of it. This happened when Doyle Conner was Commissioner of Agriculture (1961-1990). He was relying on his technical people who said they thought it was cancer, and if it were cancer, it was such a serious thing that they could not afford to take a chance on it. They had to maybe go overboard on it to be sure to control it if that

is what it was. It turned out that there were questions as to if it really were cancer of the nursery strain. I know that a lot of people were really unhappy about having their trees burned, but the state reimbursed them for some of the costs. I had to pay one dollar and one-half excise tax for every tree we sold back to the state to help reimburse for the money that was spent on the trees that were burned. It was an expensive operation. I for one am kindly glad that they were diligent enough to try and control it if that is what it was. It created a lot of bad feelings, I am sure.

E: Do they have the same problem in the other states with cancer?

H: I do not know if they have had any cancer problems in Texas, Arizona, and California. Every so often they will have something like fruit flies. We had that here in Florida and there was also ailed of criticism about that program too. Mr. Gunn, the former head of the Soil Conservation Service, used to work for the extension service and said that there is a lot of skepticism about the fruit fly. He was out in a grove one time and identified the fruit fly and a grower responded by asking how do you know that is fruit fly. Gunn turned to the tree and asked the grower what kind of fruit is that on the tree? The grower said it was a tangerine. Gunn said how do you know it is a tangerine? He said that is what they told me; it is a tangerine. Gunn replied that is the reason I know it is a fruit fly; somebody told me it was. There was a lot of criticism about that. Who knows if we are overboard or not. My brother started working in the state division up in _____ on the fruit fly epidemic. They would trap fruit flies in the yards and had traps scattered all over the state. A lot of homeowners were upset about the planes; they claimed every time the planes would come over and spray for the fruit fly, the flowers would start wilting. My brother would have to go out and check on every one of these complaints. One lady said her plants were so dry and they needed water. Every program is well intentioned, but there was ailed of criticism from people who do not understand what is at stake. Maybe they do go overboard at times, but they almost have to be sure that they get things under control.

E: Historically, did they have a cancer problem here in Florida, say 100 years ago? Is this something new?

H: It seems like I read somewhere that they had an outbreak of it way back in the early 1900s. There was not much citrus growing then, so that controlled it I guess. This is the first time in my life that I know about.

E: What about Mexico and Brazil, do they have these problems too?

H: I really do not know, but I do not imagine they do.

E: Would you like to wish something on them?

H: Yes. They do have a lot of soil problems and insect problems because there in the tropics. They have a lot of insect and disease problems down there that are coming to light. A lot of the time, like here in Florida when you did not have that many groves but just a few scattered around, you could have an orange trees in your back yard and never have to spray it or anything. When you put a bunch of them together, once one tree gets it, pretty soon you have it in the whole row. So, if you have an isolated tree, you may never have a problem like scale, mites, and stuff like that. I think whenever they start producing large quantities of citrus, they are going to have a problem.

E: What about fire ants?

H: That is a tremendous problem. I have a lot of them in my grove. I have used ambro which is a bait, but if you have very many acres of it, it is just too expensive to try to control it. If you do not control either one of them, it will spread back. I have treated several times on some of my pastures with it, and I have not done a good enough job I guess. I have used dursban to spray on the hills, and it kill the hills. I have done that in my own yard; I did it last year on every hill in the yard, and now this year I have a bunch coming. Agriculture Research Service on the University of Florida campus is working for a solution against insects that effect man; the fire ant is one of the studies that they have going. There is some promise with parasites that they brought in from Brazil to counteract it, but so far I do not think they have found anything effective. It is a real problem.

E: How do the fire ants effect the tree, do they?

H: I have not had a real problem with fire ants any worse than the other common ants. If they build a mound near a young tree, they will climb the trunk and scratch the bark a little bit. I have never had any real damage to the trees, it is just aggravation to the people working in the groves. The fire ant is more active than the other ants; you can not disturb the hill or they will come out immediately and start stinging you. I have had ailed of fire ant stings. They sting a lot worse than the others.

E: So, that is not as dangerous to the tree as it is to people.

H: That is right. I have not had any damage done. The chemical people told me that the foot rock, the ___, is in the soil and the ants will carry it up the trees. I have had some trees with lesions just below the limbs that looks like foot rock. The common ants will do that too, so I do not know if fire ants are any more of a hazard than the other ants.

E: The other pests are mites?

H: In the spring, we have spider mites. They scratch they leaves and do damage to the leaves and to the young fruit. We have had all kinds of scales; purple scale, red scale, and chaff scales. A scale does not look like an insect, it is just a little spot on the leaf of the fruit.

E: Is it really an insect?

H: It is an insect. In the fall, I have a lot of problems with rust mites. A mite is not an insect; it is an eight-legged animal, but most people think of it as an insect. It is in the same category as a tick or a flea with eight legs. Spiders, scorpions, mites, and ticks have eight legs. The rust mite effects the fruit mostly; it gives it a brown rusty appearance. It effects the quality of the fruit in that it scratches the surface of the fruit and the moisture evaporates out of the fruit. It actually makes the fruit a little sweeter, but the fruit will dry up and not keep for long. We have grasshoppers in the late summer that eat a lot of the leaves on the fruit. If you want to control them, you have to spray for them. In my little grove, I mostly have spider mites in the spring, scale in the summer, and rust mite in the fall.

E: Do they damage the foliage more than the fruit?

H: Yes. Of course, when you damage the foliage severely enough you are effecting the fruit itself. When the scales get on the fruit it looks terrible, but it really does not effect the taste of the fruit.

E: If they are going to make concentrate out of it, I suppose it does not matter.

H: When you are selling fresh fruit, there is a lot more of attention given to controlling all these infections and diseases than it is if it is concentrate.

E: You were saying you sell it in the farmers market. Did you ever try selling it to Ward's grocery store? I think they advertise sometimes that they have local fruit.

H: I have gotten real bold with my chinese honey otherwise, but if I get to the point where I ____ fruit, I have thought about doing that. In fact, I have sold kumquats to the Publix Stores and to Kash-n-Karry. Both of these chain stores order all their fruit through their warehouse, but once they saw my kumquats, which were a nicer size than the ones they had been getting through the warehouse, they purchased a lot from me. I thought about Ward's but I have not contacted them. Until I get more than I can sell to individuals, I will not try to do that. That will be in the future. Much of the time these stores can get fruit in bulk bins cheaper then I can afford to sell it to them. This last year grapefruit was pretty plentiful. A friend of mine contacted a fruit stand over at East Palatka that sells a lot of fresh fruit. They were getting Indian River grapefruit for sixty dollars per bulk bin; that is twenty bushels for sixty dollars which equals three dollars per bushel. I could not afford to even haul it over there for that price. The advantage for the

small grower is when he can have a specialty fruit like the chinese honey. Not very many people have that fruit, so you can sell all those that you can grow just about. If you get into the common type citrus, you have ailed of competition.

E: Robin told me that he advertises his fruit as organically grown and that he got a good price for it and it was gone just like that. People were so interested in the organic that he could charge much more for it.

H: I do not understand why. I am on the advisors council for Research and Extension of Natural Resources. We had a meeting concerning the University doing research with organics by growing with mulch and different types of mulches. As far as fertilizing goes, the nutrients have got to be converted to an inorganic form, so I do not see the advantage of putting organic matter on it. I do not understand what the advantage of organic over inorganic if it is going to get transformed anyway. When I was a child, all we used was cow pen fertilizer which we got from the cow stalls and put in our garden. That is okay but it is a lot easier to use commercial fertilizer. There is quite a market for organic.

E: Is there a problem with fungus on the citrus or on the trees if they have too much rain?

H: Rainy weather encourages that. There is something called scab that does not effect sweet orange, but it will effect sour orange, temporal oranges, and tangelos. The leaves will have a scabby looking growth and depressions. There will be rough looking bumps on the fruit. You can control the fungus scab with copper, but it does not hurt the fruit. I have got some tangelos with big bumps on them, and you also see it on temporal oranges.

E: You control it with copper?

H: Yes, it is a chemical in dust form which is used as a spray to conquer fungicide. The other fungus is foot rot or *phytophthora*; it is foot rot or root rot. It destroys the root system, to me it is the most serious.

E: What do you think of the government's role in the citrus industry? Do you think there too much regulation, aside from when they have a cancer scare or something? Normally, do you feel that they interfere too much with regulations?

H: I should not answer because I am not up on that really. Being such a small grower, I do not really have that much contact with others. I do not really know that it is a problem or not. They do regulate weight limits for trucks because they do damage to highways if they are overloaded. I did not realize that they are lenient on agricultural haulers. They have to have some regulations because people hauling will load as much as they can to make a little more money. It is kind of a hazard with all these big trucks on highways, but of course they have to

get all this stuff to market. The federal highway system has to have some kind of restrictions. I really do not know if the USDA restrictions have hampered the industry; it probably works to the industries benefit, for instance, some might put out a bad product if they did not come out and do some inspections.

E: Do they come out and see what you are doing here?

H: The nursery inspector for the state comes by every three months and check on us. Now that the cancer situation is under control, they still come by as a regular inspection. If I have some unusual insect or problem, they will look it over for my own benefit and tell me about it. Usually I know about it, but they verify that I check on it which is a benefit for me.

E: I have spoken to other citrus growers, and one in particular further south was adamant that there is absolutely too much regulation.

H: I guess I am not affected like the larger growers. The only contact I have with the government would be the state inspection of my nursery. As far as my grove goes, they may not know that I have it. I am really not affected by it. I am sure the big commercial growers would have allowed more government regulation to contend with than I do.

E: I assume that you feel they should pass protective tariffs, especially with NAFTA.

H: I see two sides to that question. As long as we have so many restrictions about labor rates and other things, we can not compare to other countries. I heard Doyle Conner say that when the United States becomes a second rate agricultural nation, we will be a second rate nation. I feel like we have got to protect our culture because I hate to think of us depending on other countries for all of our food and supplies.

E: After a freeze and extensive damage, people are in a financial situation such that they need loans to redo their groves. Can they get special loan rates?

H: Yes, in fact I applied through the Agricultural Stabilization Service. If you are damaged over a certain percentage, I believe over 40 or 50 percent, you can get cost sharing. They helped me out on getting my new trees started which I was appreciative of. I am in Putnam county, so I dealt with people over in Palatka. One older gentleman had his grove frozen out, and he was checking to see how much assistance he could get through ASCS. They asked him when he was going to replant, and he replied that he was not planning on replanting. He just wanted to get paid for the damage that was done. Of course, you have to verify that you keep up with all your expenses in replanting. I did receive some cost share on that. It was a big help. I probably would have struggled along and got it on my own, I could not have afforded to buy that many trees at that time.

E: What about grove insurance?

H: I do not have any insurance on mine. I have not looked into that. It would probably be pretty expensive this far north. I can see how it would help. If a tornado came through, you could lose a considerable amount of fruit. I can see the benefit of having some kind of insurance, whether it be hail, tornado, or even cold insurance. I do not know for sure if you can get cold insurance. I just try not to plant more trees than I can afford to lose.

E: Since you are on the north end of the north central Florida group, I wonder how long there will be an industry in this area.

H: At one time, Lake county was right near the top in citrus acreage in the state. I believe there will be some citrus from now on, but it will never be like it was before. If they come up with some real cold resistant varieties it might, but by that time the land will already be used for something else like houses or some other agricultural crop.

E: This is a big problem in Orange county, I think. Wherever the trees were destroyed, in comes the builder.

H: That is right. I just believe there will always be some groves around in this part of the state, but it will never be like it was at one time.

E: Tell me about Mr. Barrington.

H: The location of my grove is on the piece of property that we bought from Mr. Burlese Barrington. My father bought Mr. Barrington's home place. Mr. Barrington would probably be approaching 100 years old if he were still living today. He was well known over in the Melrose area. I suppose back in the 1930s he was in the citrus business. He did all of custom work. He would spray trees for people with small groves; he had his own little groves between Hawthorne and Melrose. In the 1950s, he built a packing house south of Melrose west of Highway 21. He had a real good business going. He had ten acres of groves where my little grove is now located, and he had probably ten or fifteen more acres at his later home near the packing house. When people were down in Florida visiting, they knew he had fruit which was in the northern end of the citrus area, so they would stop by his packing house and pick three or four bushels of whatever they wanted. They would run them through the washer and waxer; people were fascinated with his packing plant because they had never seen that before. He sold ailed of fruit that way. He also sold fruit to people who delivered fruit house to house. When I was a child, a man used to come by our house with fruit and vegetables; some of this fruit he got from Mr. Barrington. Mr. Barrington's grandfather, John Barrington, was written up in literature as having introduced chinese honey into the United States. He got two chinese

honey fruit from a chinese missionary and planted the seeds. The chinese honey is a mandarin type fruit which has lose skin similar to that of a tangerine; it is a mild, good eating fruit. He planted the seed back in the middle 1800s, I guess. He grew the trees and a botanist identified the trees as being the true chinese honey. It is also known as the ponkaan. Mr. Barrington's daughter told me that her father always said that ponkaan and chinese honey were different, but he finally admitted that it was the same fruit. His grandfather is written up in the literature as having introduced it into the United States. That same fruit has been grown over in the Melrose, Hawthorne, and ____ area for years. I have sold a few trees to people, so I know a few people who have dooryard plantings of one or two trees. Some of them are still growing them from seeds. Mrs. Berry, whose husband used to work with Mr. Barrington in his grove, has some seedling chinese honey that are producing now. There are not very many left, except dooryard plantings. I suppose there are some in the south, but they do not ship real well. They grow upright and the branches are limber, so they have to propped when you get a good crop of fruit or they will split the branches. There is a little more maintenance in keeping the trees in good condition. The fruit is so desirable that you can sell all that type fruit that you can grow because it is real popular.

- E: When you talk about the fruit, you talk about oranges or hybrid mandarin with slipper skin where the skin comes off easily. Was that an original division in the fruit or did that come through hybrids?
- H: I think that it is an original division because I am not sure that all these are hybrids. Many of these fruit are hybrids like the temporal orange. You have a tree with a limb that has fruit that looks different; we call it a mutation or a spore. I understand that when they grow fruit from seed, you can get some variations because any seed you produce could from the adult tree resulting from cross pollination. I really do not know if chinese honey is considered a mutation. I assumed it was an individual fruit. All of the hybrids are natural mutations I think.
- E: Easily identifiable are the naval oranges; are they a natural mutation?
- H: I think so. Mr. Barrington told me that in his area near Melrose there were some Washington naval. It was called Washington naval because the USDA brought it in to the United States.
- E: Where did they bring it from?
- H: I assume it is from the Mediterranean area. Much of the fruit came from the Mediterranean area. With something like satsuma, you can tell by the name that it is oriental. There are three kinds of kumquats. I have two of them; the meiwi which a round sweet one, and the nagami which is a long tart kumquat. There is

another small sweet one called a narubi. All of these are of oriental origin.

E: I think the citrus fruit originated in China.

H: I think so.

E: It is a popular thing to go cut your own Christmas tree or pick your own fruit. Do they do that in the citrus industry, or do they prefer not to have anyone in their groves?

H: I do not see that very much. Down at Citra at the orange shop, they have a grove around the shop and invite their customers to go out and pick an orange. Years ago, that was pretty much discouraged on the commercial groves. Some of the main highways going through the groves suffered from people stopping and picking their own fruit illegally. There was a grove at one time called Governor's Grove on US 27 Highway. I believe they would allow people to pick a small amount of fruit. I do not know of anybody that does like the blueberry growers that allow you to pick your own. I am not sure that I would want to do that.

E: I think because it is a long term thing, if you have people coming in and you do not know where they have been before, they may bring something. Whereas with blueberries, if you bring in diseases, those plants are gone anyway.

H: That is right. With blueberries and strawberries, the fruit is short-lived so you have to get them picked. With my own citrus, I can pick it today or wait till next week or two weeks. It is not urgent that I can get it off the tree.

E: If the tree grows too large, you can not reach it.

H: That is right. With human nature being like it is, you would be surprised how the public will do. Once when I let a few people come in who wanted to buy fruit that I did not have already picked, I let them start picking it. I had a certain measured box and they felt like to get their full measure, they would have to pile it up another half-bucket full on top.

E: Human nature has a larcenous streak in it, something for nothing. I think we have covered everything that we can think of. I thank you very much on behalf of the Oral History Department.

H: I was very glad to participate.

[End side A2]

A: The trend in Florida is to restore and protect natural systems, natural flows,

natural ecosystems, keep them intact, stay away from manmade structures, stay away from dams and diversions and canals and pumping stations. That is part of the Florida of the pre-1990s, pre-environmental decade, so to speak, and the people around Orange Lake represent that time period. They came to Florida at a time when everything was done for growth and development, and it is not done that way anymore. So these issues are very contentious, and the people around Orange Lake would like to see the sinkhole plugged, they would like to see the water stopped from flowing on Paynes Prairie and be redirected down to them, and that is what our advisory council is looking at. And, of course, you can imagine it is very contentious because the advisory council has one, two, three, four people on it that are definitely effected by what we do because they live around Orange Lake and own fish camps around Orange Lake.

E: How many people are on the council?

A: I think it there is twelve or fourteen, I cannot remember. There are two on the council that are fish camp owners around Orange Lake, and there is one on the council that is property owner around Orange Lake and is not a fish camp owner. So I guess there are three people that make their livelihood based on the water levels in Orange Lake. What else would you like to know?

E: Tell me about Marjorie Carr's organization.

A: Florida Defender's of the Environment. I am a newcomer to Florida Defender's of the Environment. I am active with them because I represent them on the Orange Creek Basin Advisory Council, but I also went to them several months ago and asked them to start getting more involved in issues to protect Payne's Prairie. I went before their executive board and let them know my concerns, and they decided to put Payne's Prairie on their agenda as another thing for them to watch over. And I represent them on Payne's Prairie issues. Florida Defender's of the Environment, I do not know that I am a person to talk about them, although I know a lot about them, that is Marjorie Carr's organization that was set up to stop the Cross Florida Barge Canal, which is another sort of remnant of the 1950s and 1960s in Florida when powers that be were trying to do whatever was necessary to promote growth and development in Florida and environment be damned. Today, doing something like the Cross-Florida Barge Canal would be laughed out of the drawing room, but back then it was promoted and pushed by a lot of high government officials, and it was an attempt to, essentially, cut a ditch across the state of Florida through some of the most spectacular terrain in the state. Nobody seemed to care very much about what was going on, at least not on an organizational level, except people like Marjorie Carr and she formed Florida Defender's of the Environment to stop that project, and they were very successful. The project was stopped. Although while a lot of people may credit it to Florida Defender's of the Environment, my guess is even if FDE was not

around, it would have been stopped because it was such a ridiculous project. How it ever got going is just amazing.

- E: Florida has some interesting things in its history.
- A: Sure, the destruction of the Everglades. People have been fighting the destruction of the Everglades for thirty years, and it is just now becoming a big issue and now it is going to be corrected. But, all over Florida there are restoration projects going on, trying to reverse the travesties that were done to the environment for the last fifty years and the Cross Florida Barge Canal via the Florida Defender's of the Environment's efforts is one of those examples. In fact, the Orange Creek Basin Advisory Council is dealing with another big issue, the reason any water from Newnans Lake flows down to Orange Lake is because an artificial canal was built in the 1920s.
- E: That is Camps.
- A: That is Camps Canal, yes. That is part of the whole problem now. In fact, Payne's Prairie suffers as a consequence of that because that water used to flow onto Payne's Prairie and now most of it does not.
- E: So if they wanted to go back, as it said in the newspaper, to the time when Bartram came . . .
- A: They would close off Camps Canal, take all of the water, [and] send it back on to the prairie. That is how it was when Bartram came through. But in the 1920s, there was an effort to drain Payne's Prairie and use it for cattle raising, so the Camps Canal was dug. If you canoe Prairie Creek, it is pretty amazing. You go down Prairie Creek for a mile and a half and it is just a gorgeous, pristine, hardwood swamp, and then all of a sudden, you hit Camps Canal and it is just a straight line down to Orange Lake. It is pretty amazing. But that is what the Cross Florida Barge Canal is too. You enter the Cross Florida Barge Canal at the Gulf of Mexico, and you go halfway to the center of the state down this channelized, straight as an arrow canal, and then, all of a sudden, you hit the Oklawaha River and it is an absolutely spectacular canoe trip for the next six or seven or eight miles down the gorgeous Oklawaha River, and that would have been straightened as well if people did not get involved. And I am a canoeist, so I see these stark things. For the general population it does not mean much to say, "Well, here is Camps Canal and here is Prairie Creek, and one starts and turns into the other." But if you are a canoeist and you see the difference, and you see the difference in wildlife and habitat and water quality, you are very much aware of how much destruction these manmade projects do.
- E: They did that to the Kissimmee River, too, did they not?

A: Oh, yes. Now there is a multi-multi-million dollar . . .

E: They are talking about making it curvy again.

A: . . . [project] putting the curves back into the Kissimmee River. Actually, it is presented as putting the curves back into the Kissimmee River, but what they are really going to do is tear up the ditch and restore the natural flow. You do not just take the ditch and put some curves in it, you totally remove the ditch. Believe it or not, the channels are still there, so it is not like you have to come and dig the ditches back in to make the curves, you just get rid of the canal and let the water do what it used to do.

E: _____ itself.

A: Yes. It finds the channel again. The channels are still there. It is the same thing with Camps Canal. If you take Camps Canal away and the water flows back onto Payne's Prairie, it will go back into the original channels. And if you fly over Payne's Prairie in an airplane, you can see the original channels, just like if you fly over the Rodman Reservoir, you can see the original channels of the Oklawaha River through the reservoir that is being dammed up and formed Rodman Lake, although a lot of people prefer to call it Rodman pool, because from an environmental standpoint it is not a lake at all, it is just a pool behind a dam.

E: According to environmentalists, what makes a lake. What is the difference between that and a pool?

A: Well, I do not know. It is hard to say.

E: It is artificially . . .

A: Yes. Rodman Lake is artificial. It is not really a lake; it is a big pool behind a dam. In Florida, Florida has so many natural lakes that people would like to keep the distinction between what is behind a dam and what is natural. But in many parts of the country, it does not matter. Most places in the country do not have natural lakes. Most lakes are manmade in the nation. Only in Florida do we have such a wealth of natural lakes.

E: My friends that live out in Melrose bought a lovely house on a lake, and the water is gone.

A: Which lake?

E: I am not sure, in Melrose.

A: Keystone Heights?

E: All I know is that they live in Melrose. Now, is that just because of the dry environment, or because man has been tinkering with it.

A: It could be both. It could be just drought. It is hard to say. It depends on what is going on in that area. Those are the issues that the St. Johns River Water Management District deals with. A lot of lakes in Florida are rain fed, a lot of lakes in Florida are fed by the aquifer. If the lake is fed by the rain water and there is no rain, then there is obviously no water in the lake. If the lake is fed by the aquifer, and there is no rain which lowers the water table, and people are taking water out of the aquifer at tremendous amounts, then there is no water from the aquifer to replenish the lake. It is very complicated. For example, Orange Lake, if the aquifer drops, the sink hole gets more active and the sink hole drains the lake quicker. It is a natural system. We had one presentation from the water management district that lasted for several hours and it was their ecologist and biologist telling us in no uncertain terms that all manipulations in Florida to lakes that are manmade are bad. None of them have ever been successful and they only result in more problems. These are the scientists telling us this, but, of course, the Orange Lake people do not want to hear that. They want more dams and more culverts and more pumps, and now this new scheme which is to plug up the sink hole. That is yet to be seen, but, in fact, on the twenty-fifth of next month we will be having a presentation from the engineers that have been hired to decide if it technologically feasible to plug the sink hole. My guess is that they will say that yes, it is technologically feasible, but extremely expensive.

E: Well, after you put enough money into almost anything, it can be done. But whether it is really a viable option is another matter.

A: Well, the Orange Lake people would just as soon fill up a bunch of buses with sand and drive them off the cliff into the sea, although I do not think anybody is going to let them do that.

E: The other thing that you read in the papers a lot, which is also an environmental problem, I guess, but it cannot be solved, is what to do with the garbage.

A: Oh, you mean the land fill.

E: The land fill.

A: Well, it will be solved. You have to do something.

E: I mean, it will go somewhere.

A: Oh, there is no question. There are communities all over the country that have much less landfill space than we do and have much less land to put new landfills than we do, and they do it. They site them. It will get sited here, just some people will be upset. There is just no way around it. That is why recycling is so big here. It is another option.

E: Among the politicians, the commissioners and so on, the fellow that just won the election . . .

A: Bruce Delaney?

E: Bruce Delaney, did he not advertise himself as being an environmentalist?

A: Yes. I believe that Bruce Delaney probably is an "environmentalist," but being an environmentalist is kind of an interesting thing. Calling yourself an environmentalist is an interesting thing. Very few people would say that they are racist, but they do a lot of things that a lot of people would consider racist. The same kind of criteria can apply to an environmentalist. There are many people that consider themselves environmentalist, but they do many things in their day to day activities and their lifestyle that do not fit with my idea of being an environmentalist. I do not want to be too judgmental, but I have a hard time with people that claim that they are environmentalist, and do all these things to protect the environment, and then live in a house that has 5,000 square feet of space and have five kids. Again, you cannot be too judgmental in our culture. Those same people that live in that 5,000 square foot house and have five kids, or four kids, would say they are an environmentalist and belong to the Sierra Club, and belong to the Audubon Society, etc. So it is hard to say who is an environmentalist.

E: It is really an expression without boundaries.

A: Yes. It is very hard to say who is an environmentalist. Bruce Delaney seems to care very much about the planet and seems to care very much about animals and habitat, and in my opinion, if you have all those cares and concerns, and your lifestyle reflects those concerns, then I would consider you, yes, quite logically, an environmentalist. But there are a lot of people who consider themselves environmentalists that I object to as categorizing themselves as such. I will not say that, because you do not want to be judgmental and you do not want to criticize people too harshly. Let us face it, the United States is full of environmentalist, and the country's environment is being destroyed.

E: What about this railroad that GRU is talking about?

A: Again, it is a complicated issue. I do not know. Most environmental organizations are staying out of that issue. GRU wants to build this railway for

the public, and they say that there is not going to have much environmental impact. Well, what is environmental impact? GRU says it is not going to have much environmental impact because it is not going to go over any wetlands, it is not going to destroy much valuable habitat, it is going to go over mostly abandoned rail lines, well, that is true. But they are still going to lay several hundred thousand feet of steel. Steel has to be built, has to be manufactured. There are smokestack emissions in the construction of steel. There is going to be millions and millions of board feet of railroad ties that are made out of treated lumber. Treated lumber is made out of toxic materials. Trees are cut down to make the railroad ties. There is going to be incredible amounts of gasoline used to haul all this stuff to the site, to run the bulldozers, to run the trucks, [and] all those have environmental impacts. But, again, in our culture we can say there is not much environmental impact because they are not going to destroy any wildlife habitat, they are not going to cross any wetlands, well, that is a bunch of hogwash. Any time you build something or do anything that uses raw materials that does not need to be done, you are having an adverse environmental impact that should be avoided. GRU does not talk about that and the community does not talk about that. So in my eyes, if the facility, the rail line, does not need to be built and can be avoided, it should be, from an environmental standpoint. Because just the use of all the raw materials to duplicate another rail line is, in my eyes, an environmental travesty. If we were really paying the price for all the products and all the services, then the price of that rail line would be so high that it could not be built. But we do not. We do not pay the full cost of cutting down all the trees, we do not pay the full cost of using all the chemicals in the treated lumber, we do not pay the full cost of all the emissions from the smoke stacks to produce the steel. That is my tirade on that. I guess I will just let it go and say, "Yes, there is not too much environmental impact."

E: In the newspaper article about the Paynes Prairie thing, you were also saying there is run-off from GRU, their Sweetwater branch.

A: Now, that is a very good issue, and we are working on that very hard. Sweetwater branch, which is actually the creek that drains our neighborhood, goes onto Payne's Prairie. So if you empty a can of gasoline in your driveway and it rains, that gasoline goes into the street, goes into the sewer system, and goes straight onto Payne's Prairie and then goes straight into Alachua sink, and goes right into the Florida aquifer. [It has] no treatment whatsoever. During the rainy periods, those are tremendous amounts of water. The agency responsible for regulating that is the Department of Environmental Protection, and the company that is mandated to control that is the city. I should say the city is the one that is in charge of storm water run-off, and all of these entities do not deal with that. They ignore it. GRU comes into play because GRU dumps its waste water at their main street water plant into Sweetwater branch, and then all of it goes onto Payne's Prairie and into Alachua sink. Now, GRU treats its water

quite adequately for lots of purposes, but they do not treat it enough to keep their waste water from harmfully impacting the Prairie. So we would like to see two things, we meaning the people that are trying to protect Payne's Prairie. We would like to see GRU either clean up its water to the degree that it has no impact on Payne's Prairie, or stop dumping it into Sweetwater branch and allowing it to go onto the Prairie.

E: Can it be cleaned up?

A: Yes. But that is an expensive option. The other option is do what they do with the rest of their water, inject it into a deep water well injection into the lower Florida aquifer. That is what happens to all the other waste water. It just gets put into a big hole in the ground and goes into the aquifer and we let the aquifer clean it up. That does not happen now. What happens is it goes into Sweetwater branch which is a surface stream and it goes onto Payne's Prairie. The first thing would be for GRU to either clean up the water so that it no longer harms the Prairie, or dump it somewhere else, and the second thing would be for the city to do something to clean up the street storm water run-off before it goes onto the Prairie. We are trying to get both of those things addressed, and it is very difficult. [There is] a lot of finger pointing. I guess the other side of this coin is that in dealing with it, all of these people want to get involved with management of the Prairie, which is another issue. Nobody should manage the Prairie except the Department of Environmental Protection. So, if GRU dumps its water onto the Prairie, that means they think they should have a say in how Payne's Prairie is managed. And they should not, but they claim they should. So they are saying now that Payne's Prairie should manage water levels on the Prairie differently to lessen the impact of their waste water on the Prairie. In other words, since we are allowed to put our water on the Prairie, then you should do what you need to do in your management of Payne's Prairie so that our waste water has less of an impact.

E: So they would be for having more water come to the Prairie and not to go to Orange Lake?

A: Well, those are two separate issues. There are a lot of people that confuse that. What GRU does with Payne's Prairie has nothing to do with what happens to Orange Lake. Orange Lake people claim, again they are ignoring science . . . Prairie Creek comes in on one side of the Prairie, GRU's waste water comes in on another side of the Prairie, and the two do not mix. Now, they mix eventually in the Florida aquifer.

E: If you, say, cut off all the water to Orange Lake and gave it all to Payne's Prairie making it more water there, then the impact from GRU would be less on the water?

A: No. The two are totally unrelated. GRU's water goes into Sweetwater branch, which goes into a canal, which goes straight into the Florida Aquifer, the Alachua sink. That happens to be on the Prairie, but that is totally disconnected from the water that comes from Prairie Creek and is used as sheet flow to nourish a large wetland. Sweetwater branch has nothing to do with nourishment of wetlands on Paynes Prairie; it flows down a ditch and goes into Alachua sink. Prairie Creek is diverted to Orange Lake and some of it is allowed to naturally flow onto Paynes Prairie as it always has, but it flows onto Paynes Prairie just like water flows through the Everglades, in a large, several thousand acres of wetland-prairie marsh system and it nourishes that very large area. That is entirely different than what happens with Sweetwater branch.

E: So GRU should have no say in what is going on on the Prairie.

A: Absolutely not, and that is why their waste water should not be allowed to be dumped onto Payne's Prairie. That is exactly why. As long as their waste water is allowed to be dumped onto Payne's Prairie, they think it means they should have a say in how Payne's Prairie is managed. Payne's Prairie says, "Your waste water is harming Payne's Prairie." So GRU says, "Well, let us manage Payne's Prairie in a different way so our water does not harm Payne's Prairie." That is apples and oranges. Payne's Prairie should be managed for wildlife and habitat and ecosystems. It should not be managed as a catch basin for treatment of waste water, and that is how GRU would like to see it managed. The two should be separated. We would like to see GRU dig another well and inject all the waste water into the aquifer, which is not a good option, but it is better than having it flow across Payne's Prairie and then go down the aquifer. If you are going to destroy the aquifer, do it legitimately. Say, "Okay, we are pumping it straight into the aquifer." See, now, GRU says, "We do not pump it into the aquifer, we send it onto Payne's Prairie," so they can avoid the trap of saying we dump it into the aquifer, even though, when they dump it onto Payne's Prairie, it still goes down into the aquifer, but they are not responsible for it then.

E: What about the smoke emissions, and so on, from GRU?

A: I do not know anything about that. My guess is that their smokestack emissions are highly regulated, and is state of the art. That is my guess. Environmentalists have fought for fifty years to control smokestack emissions.

It is important to keep in mind that the Orange Lake people claim that GRU and the water from Sweetwater branch can be used on Payne's Prairie and therefore, they should be able to get all the water from Prairie Creek. Again, their school of thought is antiquated. That school of thought is one of manipulation. The whole idea behind Payne's Prairie is restoration of natural systems, not manipulation of natural systems to satisfy human needs. By supplementing Prairie Creek's water

with GRU and then cutting off the flow of Prairie Creek so that it all can be going down to Orange Lake, is again going against the tide of present, modern, scientific evidence. That is manipulation of the system. You are just convoluting the whole system to satisfy different factions, different private interests, and that is not what we want to see happen. GRU should get its water off of Payne's Prairie and Orange Lake people should stop demanding that Payne's Prairie's water be diverted to them. It is as simple as that.

GRU's dumping of its waste water from the main street treatment facility into Sweetwater branch allows them to take advantage of a really large loophole in Florida's water law. It is illegal to dump water into the aquifer without all kinds of permitting and treatment. But, by dumping into Sweetwater branch which flows into the aquifer, they avoid the regulations that control discharge straight into the aquifer because they say they do not dump it into the aquifer, they dump it into a surface stream. It just so happens that surface stream goes right into the aquifer, but that is a loophole in the law. The law does not deal with that. If you took away Sweetwater branch, if Sweetwater branch was not there and it was a totally artificial canal instead, GRU would not be able to dump water into it. They are only allowed to dump water into it because it is a naturally flowing surface stream. That is just a big loophole in the law, and there is a lot of pressure to stop dumping directly into the aquifer, but that pressure allows for this loophole. In other words, it has not caught up with this loophole yet. If GRU tried to dump their water straight into the aquifer, they could not do it, but they can it to the Sweetwater branch, which is unfortunate.

E: Does GRU have an environmental department person?

A: Oh, yes. Very much so.

E: Do you know who that is?

A: Very much so, yes. David Richardson is the person in charge of this aspect of it.

E: Is he really an environmentalist?

A: Again, that is a very difficult question to answer. He is very, very knowledgeable, and a very nice individual, personally. When I asked him, "Would you like to stop dumping your water into Payne's Prairie?" He said, "Yes," he would. And I said, "Well, why do you not just dig a new hole and send it into the aquifer at your waste water treatment plant?" And he said, "Well, that is a good idea if we could get the Department of Environmental Protection to permit us to do it." And I said, "Well, you are doing it now anyway, via Sweetwater branch." And he said, "Well, yes, we are allowed to do that because Sweetwater branch is a loophole in the law." So that is why it is going down Sweetwater branch as opposed to going straight into a deep well injection facility.

E: Other plants like that in other counties, they go directly in?

A: All over the state, deep water injection is used. The difference, from what I understand and I could be wrong, is that most of these places that use deep water injection use very deep, deep water injection, so the aquifer has thousands of years to clean up the water before it reaches the drinking water aquifer, whereas, GRU is one of the few exceptions where their deep water well injection goes to the aquifer that is used for drinking water. It actually does not go very deep. That is my understanding, and I do not know the wheres and whyfors of that, and I am trying to find out. There are a lot of politics involved in all this, a very lot of politics.

E: How about the attitude in Tallahassee? Do they not do anything until they are really faced with a civil war on their hands?

A: I do not know. Again, there is a lot of politics involved. The Department of Environmental Protection in Tallahassee would like to see GRU upgrade all these facilities, but they just granted the new permit for their deep water well injection. No, I think the new permit is coming up this month. I do not know. Those are all difficult questions. I need to be paid full time to answer these questions.

[End side B1]

A: There is a bottom line to all these issues, at least in my mind. There are other people that would disagree, I am sure. But for me, the bottom line would be sustainability, the issue of sustainability. How many people can live in the state of Florida before we say enough is enough? All over the world, population is putting stresses on the natural environment, and in many places we say, like in Africa or in Central America where they are cutting the rainforests or killing all the wildlife, we say, "You have got too many people. You are reproducing too much." Well, in a sense, that is what we are doing in Florida. The growth rate in Florida far exceeds the growth rates in most of these developing countries. It is not as a result of population, it is not a result of high birth rates, it is a result of migration to the state of Florida. So the cause is different, but the consequences are the same, although in Florida, we rely on technology to solve the problems. That technology results in things like the Cross Florida Barge Canal, deep well injection, the destruction of Payne's Prairie, etc. At some point, the people of the state of Florida are going to have to say, "We have either got to stop allowing tourism and growth and development to dictate where the state is going, or we have to admit to the fact that we are just going to trash the entire environment," which is pretty much what has already occurred. What is being saved is just a small remnant. But at some point, the state is going to have to admit to that, that there is just not going to be any room for any wildlife and any greenspace except

in these few isolated areas, or we are just going to say, "No more growth and development." The growth rate in Alachua county is so high right now that I believe the doubling time for the population of Alachua county is seventeen years. That means that every seventeen years at the present rate of development the population of Alachua county is going to double. That is higher than Somalia, yet we accept it here because we accept technology as the solution.

E: You should see what happened down in Broward county.

A: Same thing.

E: They have moved so far west that it revolting to see.

A: That is the same thing. At some point, we are going to have to sustainability says we can keep growing at this rate, but developmental interests and everybody that wants a higher standard of living still pushes for more growth and more development. Until we can put a cap on it, all these pressures are going to still be here.

E: I think it is greed, too.

A: Sure, it is greed.

E: Because the money for new development comes back in taxes and so on, and they have a bigger budget to play with.

A: Sure. So I just want to say, in my mind, there are no evil people in all this, there are those interests that do not take the natural environment to heart and believe that the issue of sustainability is an issue that is not valid, that the state of Florida can handle 60,000,000 people. And, indeed, it probably can, but I do not want to be here when it does and there are a lot of other people that do not want to be here when it does, so we will keep fighting to protect whatever little bit we can fight to protect until that point is reached where we cannot stand to be here anymore. The issue of sustainability is real clear in the panther recovery program in Florida. The state of Florida is spending a fortune to reintroduce the Florida panther to the state of Florida, and they refuse to look at the issues of, even if you can save the Florida panther, where are they going to live. There is no land in Florida for them to survive and live in. I do not know. To me, it is very difficult question, a very difficult problem to solve. At some point, this state is going to be uninhabitable for people like myself, and, indeed, most of the state already is. Hopefully, this part of the state can stay the way it is, but I doubt it. I doubt it.

E: Well, Gary, I want to thank you so very much for being so gracious with your time

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to come and talk to me for this interview for a class project. Thank you very much.