Forest History Foundation, Inc.
St. Paul, Minnesota

ORAL HISTORY INTERVIEW

with

Clinton H. Coulter
State Forester, Florida Forest Service

February 6, 1958
Tallahassee
Florida

By Elwood R. Maunder

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(Hux, I wonder if you would give us a start on this interview by telling us where you were born, what your background is, and what your educational background has been?)

Elwood, I was born in Windsor, Ontario, Canada. In 1924 I went to the University of Michigan where I entered the College of Engineering. As I got into analytical geometry with all the required drawing I realized I was not happy so I went to see the Dean of the Engineering College. He said, "Well – maybe you don't want to be an engineer." And I said, "Well, maybe I don't." He suggested that I go over and see the head of the Forestry Schools where I had one elective course and liked it. So I did, and at the end of the first year I transferred from engineering at Michigan to forestry, and subsequently graduated with a Bachelor of Science degree in forestry.

(Who was the head of the school at that time?)

They were undergoing a change. Filibert Roth, when I first got there, had been sick but he appeared occasionally and I had a chance to get some of the inspiration from him as to what forestry meant to him and to the country. Leigh Young, Bob Craig, Dow Baxter and Drs. Calvin H. Kauffman and E. R. Martell in pathology and others were the main professors that I remember and recall from the associations there.

(This was your first introduction in a sense to forestry? You had no background of personal experience that steered you in that direction?)

No. I was born in Windsor, a medium-size town just across from Detroit. I was in Boy Scout work to a limited degree and I used to like to go out in the summer to Lake Erie and camp for two months every year in sort of a rough building. We went swimming, hiking and camping out and I enjoyed that type of activity. That's probably why I transferred quickly from engineering to forestry because I didn't like the design and drawing nor the detailed work involved in the Engineering College.

(As you progressed in studying you were influenced, of course, by a number of men in the field of forestry. Who were these men and how do you account for their influence on you?)

One of those I recall with a lot of satisfaction was Dr. McArdle, whom we know as "Mac." Dr. McArdle was taking a master's degree and then a doctor's degree at Michigan while I was there in my undergraduate work, and in 1927 I had the privilege of going to the Pacific Northwest Experiment Station and working for three and a half to hour months as a field assistant to McArdle. I also had the opportunity of knowing, and I might say loving, Leo Isaacs on the West Coast. He has done a lot of work on Douglas fir and, I think, is a top-rate man. So McArdle and Leo Isaacs stand out. I was president of the forestry club in my junior year at Michigan and I had the privilege of introducing all our renowned visitors like Raphael Zon, and an older man who was an expert on forest fires in the West. He was with the U.S. Forest Service. I believe he was Major Cowan[1]. All through that time I had the opportunity of meeting these different men and getting a little of their spark. Then Dean Dana came in as head of the school about my junior year so I had the privilege of knowing, and working and studying under Dean Dana.

(Sam Dana had a very profound influence on you then?)

Very much so. I used to think he was pretty strict and stern and kind of cold but after I got to know him better I found that he was a genuine person of great ability and wasn't stiff as I had thought originally.

(You spent your summers I supposed doing field work? How did you get attracted to the South?)

That's an interesting story. At Michigan they had an automobile ban. In the fall of my senior year the President, Clarence Cook Little, who I think was a splendid university president and an outstanding educator, came up with the idea that there was too much driving by students on the campus and back and forth over the week-ends. What actually happened was that a lot of the students would pick up these old jalopies for $50 or $75 and on Friday they'd gather up a crowd and go breezing into Detroit of Grand Rapids or Lansing and they'd come back late Sunday night or Monday morning and wouldn't have their lessons prepared and didn't back college sports except major football games. So the school spirit was dropping and there were accidents and even deaths from operating these jalopies – associated with drinking on the part of students – so they put on the automobile ban. Through the fall and early winter they put several on probation for violating the ban. If someone needed to drive he could get a permit. If they needed a car to go to a job they could do that, or if they were crippled or otherwise needed it legitimately, but all this loose and unnecessary driving was cut out by the automobile ban except when it was violated. When spring came there were some additional violations and they decided to expel some of them. I had a date with a girl from home, which was Windsor. She came from Windsor and I met her at the Detroit Ferry and drove to Ann Arbor. She said, "Hux, won't

[1] In 1926 Major Charles S. Cowan became Manager of the Washington Forest Fire Association.

you drive?" when we got into Detroit because the traffic was heavy. I said, "I'll be glad to," so I drove right into Ann Arbor. If I'd turned the car over to her on the edge of town I'd have been all right, but I forgot all about the ban and so I was seen driving the car and was called to the Dean of Students' Office the first of the next week. I was expelled along with four others for driving without a permit. I might add those five being expelled put a stop to the promiscuous driving at the University of Michigan. It was then March. It was too early to work in the Canadian woods, where I might have normally gone, so I wrote the Southern Station and Elwood Demmon answered my letter and said he would check and see what he had. He was checking on me and the school said I was all right; I'd just been a bad boy and was being spanked. So in about three weeks' time I left Michigan and went down to Starke, Florida, April 1st, and accepted a six months' appointment as a field assistant with the USFS. Incidentally, the head of the Forestry School gave me a temporary job while I was still in Ann Arbor working on the woods crew out at the school forest, so I was gainfully employed after I was separated. I worked for six months for the U.S. Forest Service in Starke under Lenthall Wyman. Les Harper, now Chief of Research of the U.S. Forest Service, came in during that time and headed up the work at Starke. Then I met the then current State Forester of Florida, Harry Lee Baker, who had come on the job in April, 1928, and I was employed temporarily October, 1928, to start the first nursery. I collected slash pine cones, extracted the seed in a glue box over at a dry kiln and wood working place at Jacksonville, and helped plant the first slash pine nursery at Raiford that the Florida Forest Service undertook. That winter (as I indicated to you before, Elwood) we secured 5,000 slash pines from Mr. Billy (W. R.) Hine, who was then State Forester of Louisiana. It was Harry Lee Baker's idea to plant demonstration plantings throughout the state, and I started out with an old Ford and 5,000 slash pines, two buckets and some blacksmith-made dibbles to help plant the 17 plantings of the first trees that were ever set up in Florida, and some of these are doing well today. Incidentally, those dibbles were made in the blacksmith's shop and after we'd get about two-thirds of the way through a small planting the handle would break off where it was forged to the blade. The handle and the blade would separate and I'd have to take them back in and get them welded, then go back out on the job and finish the planting.

(Pretty primitive methods in those days.)

Pretty primitive. We didn't have any good dibbles or mechanical tree planters. It was all hard labor.

(That was the first experimental planting for the State of Florida?)

That's right. They were really demonstration plantings. They were put out with the idea of demonstrating the growing ability of the southern pine so that people could see them – right along the highways. Later on they were marked with signs by the state Forest Service.

(And the slash pine did well but he longleaf didn't do so well?)

The first longleaf didn't do so well because it was raised in low wet land and its root development was very poor. Longleaf has never been so successful as slash as to survival and rate of growth because it stays down in the ground until it gets one inch root collar size before it starts height growth while the slash takes right off and makes satisfactory growth from the first.

(Does this give the slash a real advantage in escaping fire damage?)

A little more so except that the longleaf is very tolerant of fire. A longleaf seedling in the grass during this stage of developing, and before it starts height growth, has what is commonly called an "asbestos bud" – a big white-coated bud that's quite resistant and a fire passing over it rapidly will not kill that bud. If the fire burns real close to the ground and the bud is up at the top of the pine, naturally it will be killed or seriously set back. But the slash, say in five years, may be up 12 to 15 feet tall while the longleaf is getting started due to this hesitancy period of three to five years before it starts its height growth.

(Once it takes off it grows very rapidly, doesn't it?)

Yes. It approaches the same rate of growth as slash pine after it starts.

(When you got through with that temporary work here you went back to Michigan to finish up.)

That's right. I went back to Michigan in February of 1929 and graduated in June. I was offered a job with the State of Florida again so I came back at the end of June, 1929, and I've been employed continuously here since as field assistant; district forester; assistant branch chief; naval stores technologist; branch chief; and state forester in 1945, which job I hold today.

(Hux, let's just see if we can get our sights on the origins of this forestry movement here in the South, especially the state group with which you're associated. When did it get started and who were the founding fathers?)

In 1923 the first active start was made by a number of people generally around Jacksonville. Mr. J. Ben Wand, Jr., who is now deceased, was editor of the SOUTHERN LUMBER JOURNAL; Mrs. W. S. Jennings, who has always been active in civic affairs and conservation; her son, Mr. S. Bryan Jennings, an attorney from Jacksonville who served on the Florida Board of Forestry for about ten of the first years of its existence; W. L. E. Barnett of Mount Dora; and B. F. Williamson from Gainesville were all early inter-

ested in doing something about the forestry situation in Florida. In addition, I might mention the late Mr. Walter Coachman, who was President of the Consolidated Naval Stores Company and Chairman of the Board of the Consolidated Land Company, formerly of Jacksonville; and the late Mr. Russell Bennett, who was Executive Secretary of the Containers and Mill Workers Association and did some excellent work in the early days to further the forestry program in Florida.

Over the years the original growth timber was being cut and forest fires were general and widespread. There were no organized efforts to do anything to reforest or conserve the timber of the state so the Florida Forestry Association was formed in 1923 in Jacksonville. In one of their early efforts they hired Wilbur Mattoon, who was with the U.S. Forest Service and a good information and education (I & E) man who had made a lot of studies of trees to prepare the material for a book, THE COMMON FOREST TREES OF FLORIDA[2]. It was just a simple little leaflet with a sketch of the leaf, fruit and twig, and the supporting factual information as to its size and growth characteristics and use. That was published in 1925 by the Florida Forestry Association, who raised the funds and distributed the book to the schools and showed their early interests.

That same group in 1925 came to Tallahassee to the Legislature and made an effort to get a law introduced to create a Florida Board of Forestry. That first effort was not successful but they were not daunted and in 1927 came back and by several of them camping over here and pressing the legislators by personal contact, they got the bill introduced. It was passed and enacted into law in 1927, created the Florida Board of Forestry, and appropriated $12,500 a year to start a forestry program. Incidentally, no we're getting about two and a half million dollars a year from the state plus almost two and a half million dollars of other funds. These include federal, landowner, cooperator, sale of seedlings, and receipts from forest products harvested from state forests. So our original $12,500 budget is now up to about five million dollars a year. That is quite a change in less than 30 years. That early group, the Florida Forestry Association, beat the drums and did the spade work and lobbied up here to get over the bill and get it passed to create the Florida Board of Forestry. Harry Lee Baker was employed in April, 1928, after one or two interviews, and the work actually started when he came on the job in 1928.

(Was he a government forester?)

Yes. He had worked with the U.S. Forest Service in a number of capacities. About a year before his employment here, he was asked to come to Florida to make a study of forestry conditions. He wrote a book or bulletin, FOREST FIRES IN FLORIDA[3], showing how important the lumber industry,

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[2] Wilbur Mattoon, THE COMMON FOREST TREES OF FLORIDA: HOW TO KNOW THEM. Jacksonville, Florida, 1925.

[3] Harry Lee Baker, FOREST FIRES IN FLORIDA. Florida Forestry Association, 1926.

naval stores and other forest industries were to the state and how the timber stand was being generally neglected. Florida forest fires were numerous and nothing was being done to keep timber growing nor to sustain the revenue coming in from the valuable woods and other parallel benefits.

(What other people besides Baker were strong men in this whole beginning? Were they all forestry people or were there some laymen? You've mentioned Wand. Were any legislators or governors instrumental in starting this program?)

I would say to only a slight degree. Most of the inspiration and the backing came first from the Florida Forestry Association. Then they had the Forestry Board appointed. This Board has been operating ever since and the members are on staggered terms. There isn't a turnover every time a new governor comes in and that keeps stability of purpose and policy. It's been handled largely by interested people, plus the landowners in the state who started with tree planting and with fire protection. Later on the CCC naturally gave quite an impetus to the program because of the work it was doing in protection and helping build travelable roads and firebreaks to help control the fires and even help suppress them at times.

(Is your opinion then that the New Deal agencies gave forestry here quite a considerable boost?)

Right. The first people who started in fire protection and in tree planting had an awful uphill fight because in Florida widespread burning of the woods was an accepted thing. It was felt that the woods ought to be burned in order to kill the boll weevil, get rid of snakes, take care of cattle ticks and almost anything else. The woods were burned in order to clear the land and to keep pasture growth from getting too high. It was an easy thing to do, and there was no regard for the other fellow's property. In those days there was a lot of free range and cattle roamed over land owned by others. This was an accepted custom. The cattle benefited by a late winter burn which got rid of the dead wire-grass and brought up tender shoots on which the cows could graze.

(This sounds very much like right out of the history of the so-called "light burning" controversy out in California and southern Oregon which raged in the period from about 1905 up to the 1930s. The same kind of argument was used out there in burning the woods. Did that controversy in the West have any influence upon the story of fire prevention here in the South?)

I don't think it had too much. I might say frankly that the early efforts were for total exclusion of fire here. The folks that came into the picture like Baker and others were educated in Michigan and Pennsylvania. Henry Malsberger, for instance, was employed in September 1928, full-time with

the state. He's now director of the Southern Pulpwood Conservation Association, and he was a Pennsylvania-educated forester. Baker was from Michigan State, and Homer Arthur Smith and others had had their forestry training up there, and in their training they had not had any information or facts on the idea of control burning which we in Florida think has a place if used properly.

(In other words, their training was not along the lines whereby they would see fire as a silvicultural tool?)

Not in those days. It was total exclusion of fire and that persisted until about 1939 or a little before that when the Lake City Research Center of the U.S. Forest Service carried on some control burning experiments. They did those rather successfully. Several of the landowners – especially some of the turpentine men – used to do what they call "rake around" their boxes. They'd hoe back three feet in radius from the tree that was being worked for turpentine and then burn the woods with what they called a "light burn" if they could. It wasn't always light, but that was their effort – to get rid of the turpentine faces which were very inflammable. As you know, the gum comes down over the fresh cut and part of it dries up to form "scrape." If a fire ever hits that it will burn pretty briskly, just like a torch. So the turpentine operators did "light burning" often so the faces wouldn't get burned when they were working, and they'd do that during the winter months when the trees were dormant. They'd rake around the trees and try to burn off the litter on the ground to secure them for the next year.

So you see that the total exclusion of fire was not the early program of the landowners in the state here. Foresters modified their policy, as I say, about 1939. I remember distinctly I was putting out a policy in 1940 or '41 providing that our cooperators could engage in control burning if no more than the lower half of the trees of a certain size were scorched. If excessive damage was done we might have to withdraw our cooperator efforts in fire control. It was right about 1939 that the change-over occurred recognizing the desirability of using fire for hazard reduction and for silvicultural uses – seed bed preparation ahead of the seed fall, burning the brown-spot infected needles of the longleaf in the grass when the seedlings are about two or three years of age and before they start height growth. The fire would get rid of the needles and the brown spot. Then a year or two later the trees would start height growth and the asbestos bud that I mentioned previously protected it from a fire above the ground level.

(Hux, in the West there's been a long history of cooperative efforts to fight forest fires with the establishment of associations like the Western Forestry and Conservation Association, and then a lot of smaller county associations or smaller regional associations. Has there been a like movement here in this country?)

I'd say somewhat similar, but it's taken a little different trend. We first started with what we call individual demonstration cooperation and then when we found that we could get four or five or so of those people contiguous, reasonably close together with their holdings, we formed what we called "group units." In individual demonstration protection it was the landowner's responsibility to fight his own fires, but we provided towers and telephone service and a ranger to correlate their efforts with others, to plow firebreaks if we had equipment and so on. In the group unit we attempted to take over the whole job by assessing the landowners certain charges, and putting in matching state and federal funds, and jointly providing trucks, water and hand tools in the early days for fire fighting. Then as time went on we used a Tom Huston side plow on a Fordson tractor to try to plow a firebreak. We used a back fire on the head of an oncoming fire; we also plowed pre-suppression firebreaks to keep fires from spreading from the edge of the road into the woods, and similar uses. Then we went into the county protection in which the county paid so much an acre for the land under protection and the state undertook to do the whole job. All through this and in subsequent years we have had excellent cooperation from the medium-size and large landowners who are interested in the woods. Some of these people have as good or better equipment than the state has in their fire fighting organizations. We have about, I'd say, 400 cooperator radios installed in landowner suppression equipment that are in constant communication locally with our radio setups. They're on the same frequency and they get a call just as soon as we do as to a fire in a certain location, and sometimes they beat our crews there because they're closer to it. We've had excellent cooperation from the medium-size and large landowners.

(And will they very often turn out to fight fire on lands other than their own?)

Very definitely. To give an example, over in St. John's County in 1956 in the last part of this real dry spell we had, we had a set of fires there – seven incendiary fires with a 30-mile wind blowing. At that time we put out a radio call as soon as we got the first shot at the smoke and in 45 minutes there were eight crawler tractors with fire suppression plows, only two of which belonged to us, the Forest Service, so there were cooperators fighting fire on others' land. We've even had some of the companies in a bad blowup situation offer their equipment entirely out of the county to go and fight fires on others' land. It's a true spirit of cooperation. They believe that by working with their neighbors it will help them as well as fighting fires on their lands.

(Who were some of the companies who pioneered this and have had the biggest influence on it?)

I would say that some of the pulp and paper companies have been outstanding in their cooperation – for example, right here in Florida the

International Paper Company; Rayonier, Inc.; St. Regis; St. Joe Paper Company; Gair Woodlands; Buckeye Cellulose; Alger Sullivan over in west Florida, who actually have most of their holdings in Alabama; the Neal Lumber and Manufacturing Company in Blountstown; the Cummer Lumber Company and others like that as well as individual landowners who aren't in the pulp or lumber business but do have forest property on which they are growing timber and selling for saw logs, pulpwood and other purposes. So I would say that this landowner cooperation which we've had has certainly been a tremendous help, particularly when conditions are critical in the woods. Under average conditions we can take care of the protected lands in the state nicely but when we get bad winds, dry times and these long periods of drought which we sometimes run into, this other help is invaluable to us to do a better job in the state.

(Have these people played any substantial part in shoring up and building up your own organization, your own work, through trying to educate the state and the public and the legislature to a recognition of the need of forestry?)

Yes. Some of these people individually have helped us with the legislative appropriations which are necessary to do a decent job, and some of them belong and are active in the Florida Forestry Association as are other private individuals. The Association has repeatedly appeared at the budget hearings in the State Legislature when the Florida Board of Forestry presents its biennial budget, and it has generally backed very effectively the needs of the service – not anything fancy, but just the fundamental needs to do a satisfactory job in fire control, tree planting and the cooperative forest management work – that's the assistance to small landowners in good management and marketing on the millions of acres of small woodlands in the state.

(Hux, I'm relatively new to this whole field and the subject of forestry and forest history. There's been a long period in American history when there was rather a lack of regard for the forests, and industry operated in quite a different way than it does now, obviously. You've seen it for a much longer period of time. How do you interpret the change? What made the difference in industry's thinking and in its actual practice of utilization?)

Elwood, I think the actual facts in the case, from what I've seen here and heard about, are the economics of the situation. Back in the '20s down in Florida they sold high grade, original growth, finished lumber for around $12 to $15 a thousand, ready for wholesale delivery. Those landowners that cut timber from the tracts of original growth trees could not with that price carry on and maintain a progressive program of forestry. It wasn't feasible and it would often happen that some of the counties, particularly in Florida in the boom days of 1925, would build roads and do a lot of improvement and the valuations went up high and taxes increased and they just had to cut and

get out because of the excessive taxes that were levied back in those days. So along about the time the pulp mills came in – the International Paper Company was first in 1930 – in 1931 they began the use of wood over in west Florida in Panama City and that immediately created a market for the small size and, you might say, trees that had been worked for turpentine and no market existed for them up to that time. Since that time the pulp mills and the sawmills and the crate mills have needed lumber and the economic returns have been greater and it has been a financially feasible and profitable thing to practice forestry, and that condition has brought about this real progressive trend in fire protection, tree planting and better management.

(It's altogether a different incentive now, isn't it? And a different economic climate?)

Right. In other words, a lot of people call the old lumber people "devastators," but as I see it they had no alternative but to cut their timber and, if they had no more available, to get out. Because of the tax situation and no concerted effort or no leadership on the fire situation they just couldn't do it under the economics of those days.

(Obviously there had to be a lot of legislation written to create more favorable conditions, and I presume that this has been a part of the history of your own organization and people interested in forestry. Can you give us any sort of rough coverage of that story as it developed?)

Following the legislative act of '27 which created the Board, almost every year in the legislature there's been some new legislation introduced. At one time in 1935, which was just eight years after that first legislative work, there was a Governor's Committee, recommended by President Franklin Delano Roosevelt, to review the forestry legislation and see if it was adequate. They found out that several things were needed. So in that session of the legislature and previous to it, legislation was drafted, was worked over, revised and introduced in the '35 legislature. As I recall, there were about eight or nine bills passed and enacted into law which furthered the forestry program in the state. State foresters were among them; authorization to acquire land for certain purposes; strengthening the fire law; and various other legislation dealing with forestry conservation has come into being all along since that early legislation first started the show on the road.

(Is there any codification of that forestry legislation?)

We have, of course, the statuses and the forestry legislation is compiled in one chapter under the Florida Statutes dealing with the major direct forestry work. For instance, the county commissioners are authorized if necessary to levy a tax or use county monies to cooperate with the Florida

Board of Forestry, and that is under the county commissioner's authorization in the Florida Statutes, which are compiled each two years and made a permanent record, so there is a running record. Just last session, 1957, committees of five or more per county to work in advisory capacity to the Board to further forest fire prevention, forest law enforcement and other forestry matters recommended by the Board, and those committees are just getting started now. We made a recommendation at the Board meeting yesterday, and they approved some 25 committees which will be offered appointments as forest fire prevention and law enforcement and allied activity committees to work on the county level to further those efforts there. So we feel that if we get good, active, alert citizens that'll do us a lot of good on the county level to pin down this promiscuous woods burning and better law enforcement and, you might say, jack-up the whole program by an active citizen effort in the county.

(The forest resource of Florida has had quite a history of ups and downs as an important source of income to the state. There was a period when it was relatively small in its influence in the early history of Florida – the Spanish period – but then as time went on and the westward movement came, the naval stores and lumber industries became important aspects of the state's economy. Now in more recent years other uses of the forest have come into being. What is the story of that and how do forestry and forest products stack up today in terms of its importance in relation to other industries?)

In the last few years there's been a growing income annually from forest products in Florida, and, as I indicated before, a lot of that is attributed to the pulp mills and their big expansion here. We have about nine major companies that operate mills in the state and three other pulp mills that own land but are located out-of-state. For instance, one or two are in Georgia but have some woodlands here in Florida. The latest complete figures we have are for 1956. In that year we had about a 450 million dollar income from primary value at the plant. In other words, that is the kraft paper and board, the lumber before it's retailed at the primary sawmill, and all of the forest products, including gum naval stores, wood naval stores, veneer, crossties, fence posts and miscellaneous fuel wood, etc., etc. So that has been steadily increasing in the last 15 years. It took a little dip in 1931, '32 and '33 in the bottom of the depression and has come up steadily since that time, and is now hitting as all-time high even though our forests are not virgin timber and are all second growth and some, of course, third growth if you classify it by ages.

(How does it compare with other industries in the state?)

That's a good question. Our tourist business in Florida is the largest. It's about a billion dollar industry. Then we come along with forestry

and citrus which are neck and neck. Some years citrus goes a little ahead and others forestry goes ahead to around 400 million dollars to the state. It's ahead of agriculture if you classify it by the different segments. For instance, the cattle business is considerably less than forestry in the state – only about a half or a little less than half. It's ahead of agriculture, as I indicated; it's ahead of mining, fishing and so forth, so it's up there about the second or third most important income to the state.

(What would you have to say about the character of the industry? Is it changing to the extent that it is becoming more represented by big companies owning large tracts of land as against hundreds and maybe thousands of little peckerwood sawmills that used to exist?)

It's a little different than that. The big sawmills were the major source of income up until about 1933 or '34 or 35; then there was this gradual changeover into the pulpwood production business. When the big sawmills cut out, then the former production that they produced went to the small mills, or the peckerwood mills as you referred to them. They may have four or five little mills with one concentration yard where there's a dry kiln and a planer to finish the rough sawed lumber. The sawmills are greatly reduced in size. Since the large mills have gone out of existence in the state and it's become the smaller mill production, we've had along with the small sawmills a tremendous expansion of the pulpwood use and business here in Florida. All those things, of course, are competitive because the sawmill men say the pulpwood folks cut their trees, and the pulpwood people say they're making their larger trees available to the sawmills but they want more of them. So there's a competitive field in there for trees around 8 to 12 to 14 inches, which both the industries are interested in to an extent, but if they have any sizeable stands of timber that will make good saw logs, practically all of the pulp mills sell them for saw timber or exchange them for pulpwood stumpage. Some of the sawmill people carry on an active program of thinning where it's necessary of their smaller size timber and it goes into pulpwood. So they're working out their differences largely.

(Who were the people who have had the most profound influence on the building of a new industry down here? I've heard a lot about Austin Cary and Dr. Herty and others. I wonder if you could tell us anything at all about these men as you knew them?)

Yes. I had the fortunate experience of knowing both Dr. Austin Cary and Dr. Charles Herty. I remember back in my early days that Dr. Cary would come down on his annual swing into the South in the late fall and work throughout the South until the early part of the spring and then go back up the country again. During that time Dr. Cary would go ahead and put in a series of plots, some thinning, some maybe stand improvement, and make a record and leave a copy of his record with a cooperating lumber company or land-

owner, and then come back two to five years later and go out with a man and check it and show him the results. He had quite an influence in a very simple, practical way with a lot of the lumber people, sawmill folks, and so forth in getting them started on doing something in forest management on their tracts. Back in those days when he first came down here there was no market for pulpwood and therefore some of the thinnings he made were done on the basis of working those trees for naval stores. In that case it required a big, healthy crown which needed plenty of room to grow and so some of his early thinnings were actually heavier than would be made today when there is an intermediate crop of pulpwood. But he was on the right track of getting them to do something in their woods, which they hadn't done before. Dr. Herty was a very energetic and dynamic sort of person. Instead of being gruff and individualistic like Dr. Cary, he was very fond of people and he could converse with them and influence them well.

(They were quite different individuals.)

Entirely. Dr. Cary was almost abrupt. He'd come in and say "hello" in a rather brief manner, take up his business, and often turn around and leave you without even saying "goodbye," but he didn't mean anything by it; it was just his manner. However, he did some fine work here. I remember over in Starke in 1928 Mr. Wyman got together about 16 or 17 naval stores operators and went out toward the edge of Starke near Kingsley Lake and had Dr. Cary put on a little demonstration. Dr. Cary took off his coat, grabbed ahold of an axe and started cutting down the trees where they were too thick. That went on for about 10 or 15 minutes and he said nothing. Mr. Wyman said to him, "Dr. Cary, I'd like to have you explain to these men why you cut that tree and why you left that tree so they'll get an idea of how this thinning is done." He said, "Gentlemen, it's just a matter of good judgment," and turned around and went back to cutting more trees. So that's the way Dr. Cary operated. Dr. Herty, on the other hand, would take children and little trees and get over the point that they needed each other – if they grew up together they'd take care of each other. He was interested in and had tried some experimental work and followed up with other work that had been done at the Forest Products Laboratory on the making of pulp from southern pines. His first effort was to take fast growing pines that had no heartwood and weren't scarred by fire or damaged and convert those into pulp – in other words, good clean white wood that hadn't aged and had no heartwood. Heartwood is the center hard core, you know. That was his first effort, and then he found out that that worked well after they'd had a little trouble getting rid of the excess pitch and gum which forms in the southern pine.

Then they got into using the normal run of wood, which would be some heartwood and some with a little damage such as a cat face or even as old turpentine face of a fire scar on the tree. These would have more rosin or pitch impregnated into the wood. He talked to people; he talked at forestry

fairs; he talked to anybody he could get an audience with on the growing power of southern pine and how valuable it could be for the South. He went to New York and talked to the industry up there with samples of material made from pulp from southern pine and showed them that it could be done. I would say that he was a high class, almost inspirational promoter and did a lot of good to get industry down to here in the South. I don't think he should be credited with all the work of converting southern pine to pulp because that was done by the Forest Products Laboratory at Madison and others, but he worked on it himself also, on a pilot plant scale. I remember seeing an early edition of THE SAVANNAH TIMES which was printed on paper made on an experimental run from Dr. Herty's little pulp laboratory up at Savannah, Georgia. He appeared in many places in Florida and Georgia, and I knew him and thought a lot of him for his pioneer promotional work and his inspiration in getting the show on the road.

(Both of these men came along contemporarily with, I suppose, what you might call the Pinchovian school of foresters, and yet they seemed to represent a considerably different point of view toward forestry. How do you account for that?)

I think that as those men worked in the South – Dr. Cary gradually and Dr. Herty born and raised down here – they felt that there was so much pioneering to be done that they should start with a very simple and, you might say, unscientific approach. They realized that if they could get people to take the first step or the second step, that was better than throwing the whole book at them because the idea of conservation in general was so foreign to the local people. Because they had the original growth forests they cut and used them with small regard, and they used fire widely and carelessly. So they felt that by doing this pioneer work on the simple things and getting people to take these early steps they could make more progress, and I believe they did, because you can't take people along too fast when they're not ready for it.

(I suppose these two men are looked upon as sort of the fathers of southern forestry in a way, aren't they, or are there others that rate right alongside of them in this regard?)

I think you'd find that they were high up on the ladder. Now, Cap Eldredge[4], whom you know, Elwood, has had a long record of work, not only with the U.S. Forest Service but earlier he ran the Superior Pine Products Forest there at Fargo, Georgia – 210,000 acres. He was put in there as manager of that tract in the south Georgia flat woods where people had been used to burning, and he got along with those people and did a fine job. Then Bill Oettmier came down as assistant to him and later took over when Cap went with the U.S. Forest Service to head up the Southwide Survey by the U.S. Forest Service, which began in the early '30s. So I would say Cap

[4] Inman F. Eldredge

had a wholesome influence on the early days, demonstrating right there in Fargo, Georgia, that you could raise trees and plant them, that you could protect them from fire, that you could make the whole thing work and carry on as a continuing business rather than just a cut and get out proposition, which is all that was possible in the earlier economy of some 15 or 20 years before that time.

(There seems to be a very healthy and happy relationship between government foresters and private industry all the way through the South, and there seems to have been quite a long history of this happy relationship and cooperative spirit. There seems to be a different kind of history here than in other parts of the country. What do you see as the reason for this?)

Take the case right here in Florida. Dr. Cary came down from the U.S. Forest Service and worked quietly but effectively with landowners and sawmill men and lumbermen throughout the South and in Florida. Harry Lee Baker, the first State Forester, was a former U.S. Forest Service man who came down here. Also there was the Clarke-McNary Law (particularly Section Two on the protection angle) which encouraged and furthered forestry not only with funds but with some leadership, and then the CCC program came into the picture – federal financing aiding the states. There was a generally beneficial and wholesome relationship there with some leadership on the part of the federal Service in getting things started, providing funds, consulting on program, reviewing progress and generally seeking to determine how the best job could be done. All this made for respect and better understanding between landowners and foresters, both public and private, here in the South.

(Of course, I suppose, too, there was the fact that you don't have the vast government forest land situation here in the South that you have in the West. There's no that kind of competition between industry and government for the actual stumpage itself.)

That's right. You take Florida. We have just a little over a million acres of national forests. There are other federal holdings like Eglin Air Proving Ground, which is the old Choctawhatchee National Forest, and a few other holdings, but they wouldn't total more than five to eight per cent so there's no serious governmental competition there on the state or private level. You might say it's virtually the same in the other states in the South, too. I think there are more national forests up around Asheville, North Carolina, but that is in mountainous country and isn't the same terrain that occurs through most of the South.

(Hux, what would you have to say about the condition of forestry today and what its future seems to be?)

From my observations during the 28 or 29 years I've been here and recognizing forestry is making such progress here and in other parts of the

South, I take the view that things look good for the future. We're not over the hill yet. For instance, in Florida we still lack about three and a half million acres of putting all of the land under protection, but we approach protection here on a county to county basis with the local people being interested and then they have a referendum. They vote on the question and if it's favorable the county commissioners and the Florida Board of Forestry, our governing body, sign an agreement. Then as soon as funds are available from the next session of the legislature we go in there and begin organized protection. It costs quite a bit to get started: for towers, houses for manpower, facilities, equipment, trucks, tractors, fire fighting equipment, two-way radio, and some airplanes. We use airplanes for supplemental patrol and they're very effective to help sort out our fires. For instance, you can have a number of smokes come up and from a tower they all look pretty much the same, but from an airplane they may be identified – as clearing fires with good firebreaks around them, or perhaps only someone burning trash. It's a big help during the height of the fire season to have supplemental airplanes. We use about 23 planes – six of them state owned and the rest of them contract planes, hired during the height of the fire season.

(Can you tell us about some of the methods of fire fighting that were pioneered here?)

One of the early developments of fire fighting in the state came about when we were faced with the problem of rapid burn with a lot of vegetation on the ground and high winds which are frequent here on the Peninsula of Florida. In that condition the use of tanker trucks is good if you can get them there at the very start and have a relatively small fire. Then you can fight them effectively. But when the water runs out you have to leave the fire, go back to another source of water, fill up the trucks and come back, and by that time the fire has grown tremendously. So the use of swatters and pine tops and hand tools won't handle the heavy roughs that we have here, but water will if you have enough of it and if the fire is small enough.

We've found that the use of the fire fighting plow, with a crawler tractor to pull it, is very effective. It keeps on working hour after hour if necessary and does a very effective job. To knock down the head of a fire, we get out in front – depending upon the rough, the wind and the general terrain – and plow one or two lines, and then we immediately backfire against the oncoming fire. Then if the oncoming fire is very high and running fast with a high wind and a lot of rough, we lap maybe two or three backfires to that first one to widen the line burned out to quiet the head of the oncoming fire. Then it's an easy matter, if you once get the head of the fire stopped, to take the same heavy disk plow, which is a rugged, well-built plow, and circle the sides and the flanks of the fire and turn fresh dirt almost over on the edges of the slow-burning part of the fire. So we find that those plows pulled by the crawler tractors are invaluable in this job. They'll take the place of several tankers. One plow will take the place of 50 men and actually do what they can't.

That plan was developed largely at Lake City by a former equipment supervisor of ours, Warren Settlemeyer, who is now with the St. Joe Paper Company. He and the local machine shop man, Mr. Mathis, developed this plow and have improved it over a period of several years. For the last 12 to 15 years it's been a standard plow throughout the Southeast where there are heavy roughs, and it does a very effective job. It'll cut fat lighter roots up to five and six inches and won't bat an eye; it'll turn heavy turfs over and leave a clean line; it will go through scrub palmetto that's up chest high – scrub palmetto that grows on the ground – and open up a satisfactory break. In this way we've found that equipment particularly valuable in heavy roughs, high winds, and large areas of fire which we generally have to fight down in the southern flat woods.

That gives you a quick run-down on one of our very effective fire fighting means, and we use that same plow to plow pre-suppression firebreaks alongside roads or to plow parallel breaks 100 to 300 feet apart and burn the strip in between to prevent fires from getting into certain hazardous areas like, say, a two or three-year old plantation where a beautiful stand of naturally-seeded second growth is coming up fine but is only a few feet high and would be completely wiped out with a wild fire.

(Was this device – this machinery – originally developed in this area?)

Yes, right down here. Bill Oettmeier and Hadley, a former USFS supervisor, did some preliminary work on a plow somewhat like this, but they had trouble with the turf that they cut rolling back in and filling up the blade so it wasn't effective, and this plow does a good job of that. It turns it over completely and leaves a clean line that's wide and flat, and then with the turnover on each side you get much more width to the cut. There are two types of plow: a two-disk and a four-disk plow, the four-disk being pulled by a larger-size tractor and the two-disk by a medium-size tractor, both crawler types because they're essential to do the job. We've tried rubber-tired equipment, even heavy stuff, and it'll bog down on the more moist land but those same lands will burn over with a wild fire.

(How much of a trained fire fighting force do you have in this state?)

Over 500 fire fighters not including tower men. I believe we have a good force of trained men. While we've had quite a little turnover in personnel because we haven't been able to pay as high wages as we'd like (although we've increased pay some lately), still we have a good corps of dependable workers. We constantly put on training schools in all phases of work before the fire season starts. Even the tower men, assistant rangers, rangers, and county rangers have a series of training schools in which they get the latest methods. The new men are instructed in what they don't know and the old

ones have refresher courses to keep them on their toes. Some of this experience in these blowup fires of the drought which we had for about three years has helped us formulate a major state fire plan. Under this plan we take care of any size fire, providing the men, tools, equipment, supplies, food and all the other things necessary according to the need. If the fire grows in size we build up our organization with trained men to head up the various segments of the area involved.

(These people are hired as the need occurs?)

No. We employ them full time, but when we get into the blowup situations we get the landowner crews assisting, and we also bring in volunteer crews to a degree. We often use the Navy, Air Force, or Army personnel when we need greater manpower. But because of the efficiency of these tractors and plows, we try to move up in additional equipment with operators already trained to do this blowup job.

(And the U.S. Forest Service – I suppose they have their own personnel for this purpose?)

Right. We work with them cooperatively on the edges of the national forests. If we call them away from the national forests some distance, we're expected to pay for their services. Likewise, if they call us inside of the national forests, they pay us at the same rate that we pay for their services. So it's a mutual agreement. Also we have now, as you probably know, the Southern States Forest Fire Compact Commission. That's a group of 10 or 11 southern states banded together so that we can exchange on request emergency equipment, manpower, supplies – anything needed. That has been used somewhat already even though the Compact has been in effect only about three years. Under that same Compact we have what we call a "mutual aid" agreement for contiguous states. Florida adjoins with Alabama and Georgia, and therefore we could go across the line into Alabama and fight a fire that's near our boundary without even being called in. They can do likewise. And in the case of a bad fire near Lake City during the drought that burned about 100,000 acres, Georgia was right on the job there working with us on the edge of that fire on the north end which was close to the Georgia line. So the Compact works and is effective in marshalling the help of others. If you call them into the state, you're expected to pay for their services, but it works out on a mutual arrangement whereby we would get paid if we went into their state.

(Hux, you've told me about your beginning here as a young forester planting trees. There's been quite a considerable development, too, in that field in the last 30 years. How has that grown?)

It's grown tremendously! As I told you, we planted 5,000 trees in the winter of '28 and the early part of '29, and this year state nurseries will provide over 132 million seedlings to be sold for planting throughout the state;

most of those are planted now as we're close to the end of our planting period which is during the dormant season. In addition, there are about seven or eight industry nurseries here. For instance, some of these same pulp companies and other companies that have sizeable acreage will put in a nursery to be sure of having all the trees they need. We try to furnish trees on a basis of 50,000 for anybody, and then if the orders exceed our supply we reduce the big orders proportionately to be sure all the little planters will get all they need. As I've said, in addition to the 132 million which were planted in Florida from our own nurseries, there will be probably 60 to 70 million industry-grown trees that will largely be planted in Florida. Some of these may go across into Georgia.

(How many million will be planted by industry?)

Between 60 and 70 million, in addition to the trees raised by the state. So that's a whopping big program. That's 190 million trees at least that will go into the ground, and that's quite a step forward from 5,000 trees planted in 1938. It's a big program but we haven't exceeded our demand; we haven't overproduced yet in our nurseries.

(I can see that the statement made by Jonathan Daniels that "the forest is the future" is something that has real meaning here in Florida.)[5]

Right. Actually now we're in what we might call good shape from the standpoint of growth and drain. Back in 1934 to '36 when the first survey was made, the drain (commercial cut plus the looses to fire and other causes) exceeded the growth by over a million cords. By 1948 when the second survey was made, it swapped around just the opposite, and even with expanded pulpwood use and all, the growth exceeded the commercial use and the drain from any loss – mortality, insects, or fire – by about a million cords. We've been improving steadily since and we need that because there's a lot of acreage here that isn't satisfactorily stocked and the bigger sizes of good quality trees aren't in as good numbers as they should be. For instance, the saw log supply, the veneer block supply and the volume of poles and pilings are not as plentiful as they should be. We're growing plenty of pulpwood size trees but we've got to carry a number of those through to saw log and pole and veneer size.

(So you have a real diversified industry?)

That's right, and we want to maintain it and not just have little trees all over the state. We want to get more into good quality production for uses which are special and which bring, of course, premium prices. The picture looks good but we still have a long way to go. We have some areas yet to protect. On the three and a half million acres not yet protected we lose less than 40 per cent burn annually. On the protected acreage we lose less than two per cent by fire.

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[5] Jonathan Daniels, THE FOREST IS THE FUTURE. New York: International Paper Company, 1957.

(Is that unprotected acreage primarily in the hands of the small woodlot owner?)

No, it's scattered around. I would say it's largely in the central and southern part of the state more than in the north. We have an interesting picture here. The small landowners who have less than 5,000 acres own half of the forest acreage; there's about 93,000 of them. It actually averages about 113 acres each. The middle-size owners are grouped between 5,000 and 50,000 acres. They own only about 20 per cent of the acreage and a lot of them are doing a pretty good job of management and protection, and they are, you might say, in the minority as to acreage. Then the big owners – only 31 in number – own about 30 per cent of the acreage of private forest land in the state.

(How has that percentage picture been changing over the years in Florida's history?)

That's been interesting because in 1945 a check was made on that same thing, and we had only 52,000 small woodland owners; now it's gone up to 93,000. We had more middle-size owners and we had the same number of big owners that own in excess of 50,000 acres, so it's shifted from the middle-size class. Some of that has gone to the big and some to the small.

(In other words, the acreage owned by big operators has been increased but at the same time the acreage owned by the small owners has increased?)

That's right. The middle-size ownership has been dwindling, and it's gone both ways – some into big ownership and some into smaller tracts.

(Is this area of over three million acres which is still unprotected in the south and central parts of the state every going to be an area of real importance as a source of forest products? Or because of its nature, its soil, its climate and the species that grow there, is it not so likely to be as important as the north?)

I think it will be almost as important. All of that acreage is not in central and south Florida. For instance, we have Suwannee County and Lafayette County in the northern part of the state that are not yet under organized protection. They should be, and Suwannee County will vote this coming September for county fire control, and if it's carried we already have the enabling act and appropriation where we can go in there with some money from the county and some from the state and get started with regular organized fire protection. Then, you might say, the central and southern part doesn't loom so large, but it will grow a good crop up to a certain size. A lot of people think that south Florida is a sort of second or third-rate timber growing area. A part of it is, but it's been largely due to recurring fires and insufficient stocking to reforest some of those lands. However, there's more and more interest in planting, and right now we're putting in a fourth nursery

in the state to raise trees down near Fort Meyers on the Gulf Coast. There we raise a south Florida slash pine seedling, which is a different variety from north Florida slash. We hope to have at least five million ready for planting this next winter.

There's a continuing and a rather stimulated interest in forestry in south Florida, evidenced primarily by some of the people in the cattle business who have had a number of lean years. Here economics is working again. These landowners are selling their timber down there in the middle of the state and in part of the southern section, and they are getting a pretty good price now for saw logs and pulpwood – not quite so much as right near the markets in the northern part of the state but it's improved substantially – so they are becoming more and more interested in planting trees and in protecting the area. These people want organized protection and it's moving down there rapidly in the southern part of the state.

(You've certainly seen the story develop here in Florida. You've been a part of it from the very beginning and you've certainly made a tremendous contribution to it yourself, Hux. I can see, having had this interview with you, just why your professional colleagues in the Society of American Foresters elected you this year as a Fellow of the Society. You've really made quite a dent!)

Elwood, I think this: I've been out there for a long while and I've planted little trees about nine inches tall and I've seen them grow to about 65 feet and other people make a lot of money. My only regret is that I didn't have a little time to get into forestry myself. The widespread interest of the landowners and the fine work of the other people that are doing this job are responsible for the progress – not just me. I've had a part in it, and I'm happy that I have, but there have been a lot of others putting good work into it. If you numbered the alumni that have formerly worked with the Florida Forest Service you'd find some good ones among them, too – like Henry Malsberger, former forester H. A. Smith who went up to South Carolina to head up the forestry work there for a number of years, and any number of other good men who have contributed their part to the job down here. That's how it's been accomplished and we've still got a lot more to do yet. We're not through, Elwood.

(Well, thanks a lot, Hux. This has been a very fine interview and I appreciate very much your giving your time.)

I enjoyed it very much and if there's anything else I can supply you, let me know. Let me close by saying,

"As goes the pine tree tall and straight
So shapes the future of our state."