

**AN INTERVIEW WITH
L. O. WRIGHT**

by

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**Explanatory Notes to Accompany the
Interview of L.O. Wright**

by
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In the American Southeast, a region of the country where the wood dealer system was pervasive, Union Camp was singular in that it procured much of its wood through company logging crews – workers employed, equipped, and supervised by the company. From their incipient Pilot Harvesting Operation where workers hand loaded pulpwood onto small bobtail trucks, they progressed to fully mechanized tree length and chipping harvesting systems employing 150 men, supported by 50 trucks and 100 trailers. L.O. Wright first built and then managed this company harvesting operation.

Wright informs us that this initiative came from the president of Union Camp, concerned as he was with security of the wood supply for its mills. At a time when there was growing competition from both other and newly established mills, wood procurement depended upon “little piddling pulpwood crews all around the South loading on rail sides”. Rooted in manual labour, production was subject to the vagaries of weather and to the caprice of what was essentially an agriculturally-rooted labour force.

Not only was the president of Union Camp concerned about the security and reliability of wood supply. The American Pulpwood Association, in the face of occasional wood shortages and of a deep concern over the poor productivity of the extant manual harvesting systems, employed the Battelle Memorial Institute in the early 1960s to subject this prevailing harvesting system to an industrial engineering analysis with a view to developing recommendations for improvement. In light of their ten research reports produced between 1961 and 1963, The APA attempted to encourage mechanization of the wood harvesting systems of their member companies using the Battelle studies as an impetus.

One initiative, organized through the Southeastern Section of the American Pulpwood Association, was regular meetings of those responsible for the provision of wood to the Southeast paper mills. At these meetings, the individuals concerned exchanged information on their harvesting practices, recounting their experiences with efforts to improve productivity. One must realize that mechanization was, at best, incipient at this time; what machine, what technique would even work, let alone improve productivity, was an unknown quantity. Wright speaks fondly of these meetings, characterizing them as a forum for information transfer among all the major harvesting people in the region.

Union Camp’s Pilot Harvesting Operation was an experimental logging division conceived in the context of the Southeastern Section meetings to inaugurate the mechanization of their harvesting operations. Noteworthy here is that Union Camp felt that this company funded organizational infrastructure was a prerequisite for successful mechanization. Contrast this with the far more common situation in the Southeast of small, poorly capitalized independent loggers.

Commencing with the rudimentary manual harvesting system of the time, Wright did just that – experiment – the most notable instance of which was the acquisition of two Busch Combines. These endeavours were eventually to culminate in fully mechanized company crews utilizing feller-bunchers, grapple skidders, and mechanical loaders. Indeed, they were so successful that they destroyed themselves – once these mechanized systems were perfected and standardized, Union Camp moved from company crews to independent loggers, the mechanization of whom was encouraged and, at times, financially supported by the company.

The Busch Combine was an intriguing machine. It was North America’s first shortwood harvester. That is to say it was a single machine which simultaneously felled and delimbed a tree, then cutting or slashing the tree into approximately five foot lengths stockpiled on the back of the machine to be later transferred to roadside for future delivery to the mill (hence the name “combine”). Being the first iteration of this genre of machine, it suffered a number of problems. By its very nature, it was a most complex machine, perhaps overreaching the state of the art in hydraulics at that time. Wright wryly observes that they were “a nightmare to keep running”, with hydraulic hoses popping and the like. Indeed, a popped hose resulted in a fire destroying one of Union Camp’s machines. A later and thus more successful iteration of this category of machine was the Canadian Koehring Shortwood Harvester.

A final point worthy of commentary is Wright’s discussion of balancing harvesting systems. Whenever a manufacturing activity is divided into some number of its constituent tasks, the sequencing of these tasks may well become problematic. If the variety of tasks require differing quantities of times to accomplish them, the result will be some workers waiting for others to finish their tasks – “doing nothing”, wasting time. Organizing production systems to minimize wasted time is one of the classical problems of industrial engineering, so much so that it has its own special name – “production line balancing”. In the case of tree harvesting, this problem is exacerbated because of its unique environment. When Henry Ford invented the moving assembly line, he did so within the context of the artificial environment of the factory. The natural environment of the forest presented different terrain, different types, sizes, and densities of trees, and different weather. With his years of experience managing harvesting systems, Wright highlights this problem of balancing. He notes that what works one day in one place will not necessarily do so in other situations subject to the vagaries mentioned above. Even with a harvesting system optimized for a given tract, as felling progressed skidding distances would increase, somewhat unbalancing the system. Indeed, an enduring problem in tree harvesting was “to be constantly tweaking” harvesting systems to make them work. Tree harvesting presents industrial engineers perhaps their greatest challenge.

L.O. Wright “lived” the history of mechanization in tree harvesting; moreover, he did so in the context of company crews and company support which provided a “leading edge” quality to his experiences. His account is all the more valuable as a result.

Peter MacDonald (PM): Okay, today is May 29th and we're interviewing Mr. L. O. Wright. We usually start by asking you L. O. if you would provide a brief biography, where you were born, when you were born, if it's not intrusive, how you got into the business, and how that developed.

L. O. Wright (LW): Just a kind of sketch of my...?

PM: That's right, exactly.

LW: Okay. Well, I was born on July 4, 1929 at 11:45. [laughter]

PM: I would never have known. [laughter]

Michael Clow (MC): Some astrologer some day will want to know.

LW: And I was raised in Canton, went to high school in Canton, served in the National Guard in high school at the tail end of World War II. And during my early days I was exposed to the woods and woodlands by my grandfather, whom I accompanied into the woods on summers as I grew up. Then later I worked as a cruiser compass man for a timber estimator around Mississippi and around Lake Ponchartraine in Louisiana. And I graduated from high school in 1947 and stayed out of school for a year. I worked for my father that year and I also went to communications school at Fort Benning, Georgia, through the National Guard and spent five months at Fort Benning. That Fall I enrolled at LSU and spent five years getting a forestry degree at LSU because I had some trouble with one course and I had to repeat the course the next year so it required five years of college to get a four year degree.

PM: One whole year for just one course?

LW: Yeah. [laughter] My dad was not happy. But that last year of a school I got married to a girl from my hometown that had come down to LSU. And then that Fall I was waiting. I had been in ROTC and gotten commissioned so I had to fulfill my obligation but the Vietnamese War, no the Korean War had just ended and they had so many second lieutenants they didn't know what to do with us. So I had to go out and hunt a job. I didn't want to work for my dad that next year. So I got a job with Masonite Corporation down in Laurel, Mississippi. I lived in Quitman and I did work with a crew of men marking saw timber sales. We'd mark with timber with paint and were taking the soft timber off of some of their company land. I did that for almost a year and then went to Fort Benning again to fulfill my obligation in the military two years. I went through basic officers course there as an infantry lieutenant and then got signed to Fort Riley, Kansas. And I spent the rest of my service at Fort Riley, Kansas training, operating what was called an Army General School, which was an intelligence school for the United States Army. And they had classes coming and going, had Marines and naval people in there and I was cadre people keeping the, I had three mess halls and three supply rooms and ran a rifle range and all that kind of stuff, gave calisthenics to the Marines, which was a joke. [laughter] And after that was all over with I got out, came back home to Canton, went to work for my dad. I wanted to change something in the store and I changed it and he said it'd been like that for twenty years and he wasn't going to change it. So I went to New Orleans and Baton Rouge and found out if there were any forestry jobs available [laughter] and found a job with Gulf State Paper Corporation in Tuscaloosa, Alabama, got hired and went to Tuscaloosa in September of '56. And I was assigned to Jasper, Alabama. They had land in Cullman County, in Walker County, which Jasper was in, and North Tuscaloosa County that I looked after. My job was just to go up there and circulate with the population, be sure people knew who I was, found out if anybody was stealing. They had thousands of acres of land up there and in that country, nothing but rugged hills, it was easy to steal timber.

PM: So this would be all company land?

LW: Yeah and I was trying to get to know people so that I would pick up information from them if anyone was stealing our timber. Of course, I had to go on these tracts of timber but in the three years I was there I hardly touched all the timber that I could have seen but I stayed in the woods from morning 'til night everyday, walking woods roads. Some of them hadn't been used in ten years and I'd drive down those things. One time I went down a mile down a ridge and I walked down to a land corner to see if there was a marker there and I came back to my truck and I heard something coming down this road. Well, I had pushed down bushes four feet high driving for two miles down that ridge and I went who in the world would be coming down there. Well, it was the ABC people, the Alcohol Beverage Control people thinking I was making liquor down there. So that's the kind of country it was and it was a peculiar job because I was almost isolated. I got threatened with a gun one time. Guy ran me off from the company land because he said he owned it and he didn't, and the company wouldn't take issue with it because they didn't want to stir up trouble. And one time I burned a field on the side of the road and behind it was a liquor still and the man I exposed his liquor still didn't like that a bit either. [laughter] So that was the kind of thing that I had to contend with for the three years I was up there. I got a...

PM: Sorry to interrupt but the company didn't have any, in 1956 at that time they didn't have a systematic kind of harvesting plan for all of their land?

LW: They were harvesting but this land was more recently acquired and they weren't ready to harvest it. We didn't really do any timber harvesting but we did a lot of timber [fan and prune?] TSI work is what it was called. In the summers I ran crews with these little beaver girdling machines that I was telling you about. I had two or three guys with those machines on their back and two or three guys with backpack pumps with herbicide in it and we went through the woods killing the hardwood timber so that the pine seedlings that were in there could come out because this was a craft mill down in Tuscaloosa. They didn't want all that hardwood. They wanted pine. And so we killed thousands of acres of hardwood volunteer stands, you know, in order to release the pines. And the trouble with it was they didn't, after the first year, after the first year I got a five dollar a pay period, a month I guess, five dollar a month raise. Second year I got ten dollars a month raise and the third year they offered me a fifteen dollars a month raise and that's when I started looking for another job. [laughter] And I applied with, I read in the Birmingham paper that a company in Savannah, Georgia, didn't even give the name, was looking for a forester and I found it was Union Camp Corporation. So the first day of 1959 I went to work for Union Camp and was assigned to live in Walterboro, South Carolina as a conservation forester, which I was dealing with landowners. I had nothing to do with the company land at that point. And by March, this was in September I moved to Walterboro, by March they had me up in Louisville, Georgia doing conservation work. And that's where I told you I had that forest, SPCA forest, forty acres that I regenerated for this landowner as a project to influence others to do that kind of thing. So anyway...

MC: What did a conservation forester do at this point?

LW: Just what I was doing, going talking to landowner groups, going to local meetings like the Lions Club or something like that and talking about forestry, going to high schools and talking to kids about forestry, helping with these projects to put on these demonstration plots and also marking timber. I marked a lot of timber for landowners. This was a service that our wood dealers provided. In other words, Union Camp provided men who were skilled at marking timber, selectively marking timber, to the wood dealers as a service. The wood dealers used this service to buy timber. They would promote the fact that they had registered foresters out available to mark landowner's timber if the landowner would sell the timber to them. So I marked days and days and days, all day marking timber for big landowners, big land holdings up in counties north of Walker County. I mean Jefferson County in Alabama. I mean in Georgia. I'm getting confused now. In Jefferson County is where Louisville was. That's where I lived, in Louisville, Georgia. The counties around Louisville are the ones that I worked as a conservation forester. That lasted a few months and they needed what was called a field representative in wood procurement. And this was a guy in those days that would run wood yards. So in about I guess it was spring of '60 that I became a wood procurement guy and I inherited eleven wood yards that I had to supervise. They were roughly in a

circle around Louisville, Georgia. We would buy rail out of all of these wood yards. And, of course, we had personnel problems. You had to keep labor. You had to keep rail cars in there on a regular schedule. You had to keep your machines running in order to handle input. These were big volume yards. It was a lot of wood. We'd get wood in from South Carolina. Some of those yards would come over into Georgia because they available to them, you know. But that was a long haul situation. We had these big trucks coming in there. Of course, we handled the short wood with small bobtail trucks too. But we had some guys that hauled big loads of wood. But it was pretty intensive operation. It was always, I just stayed in motion following that circle day in and day out, in and out.

MC: From one through eleven?

LW: Yeah and well, you get a day like in the wintertime I remember it rained and it froze and the steering columns on the Hyster loaders were not leak proof and so the water would get down in the steering column and freeze and the next morning you had those things all frozen up and had to get a mechanic from our garage seventy miles away up there and spend the day in freezing weather trying to thaw those things out so we could handle the wood you know. Those were the kinds that you'd get into that you'd never even dreamed of. Every loader I had was frozen up on that morning when we tried to open those wood yards and we couldn't do anything 'til we got those steering columns where they would work. So that was kind of a summary so I did that for, let's see, I went there in '59, '60, about '65, I guess it was the end of '65 I got tapped to head up what was known as the Pilot Harvesting Operation Regeneration practices and timber selling practices and those sorts of things were coming together and there was an initiative all through the South through the American Pulpwood Association primarily to mechanize harvesting operations. And each company was urged to do something with regard to upgrading what they were doing in the woods by improvement of these techniques. And so we had a committee set up for, it would focus on all the input that they could get from the different member companies. So anyway, I was put...

PM: Do you remember the name of the committee? I'm sorry to interrupt. Given the fact that it's almost forty years ago.

LW: I get all of them mixed up. The SPCA, the Southern Pulpwood Conservation Association was the first effort. That was a pilot forest group you know. That was done under them. Then the American Pulpwood Association had the, I'll think of it in a minute.

PM: Okay.

LW: Let me see here. One group was FITC, Forest Industries Training Center. That was a spin off of the American Pulpwood Association. That was one of the sponsored operations but it wasn't a direct hands-on operation of APA, called the Forest Harvesting Training Center. I don't know. I've got a block here. I got to think of that.

PM: Well, it was about 1965. We could probably find it, especially knowing the date.

MC: What was the motivation for the APA to seek mechanization of the harvesting?

LW: Well, it was just obvious that it was being done as it always had been done. There wasn't any improvement. It was low production. Not high cost per se but because it was done rudimentary as it could be done but it was a cost because it was an erratic operation. You couldn't depend on it. A lot of times you wouldn't have wood when you needed it. You didn't have wood in the right place when you wanted it. So it had to get better and this initiative of APA since all the companies subscribed to it and it was a pulpwood association, it was the logical place to begin to try to improve the forest, the practices, you know.

PM: Was there any relationship between this and the Battelle Institute studies?

LW: Yeah, Battelle was a resource for a lot of what APA did. I mean they tapped the Battelle Institute studies you know and we had their reports and we had their guidance but we weren't really involved with Battelle on a hands-on basis.

MC: The APA hired Battelle I think, didn't they?

LW: Yeah.

MC: And produced the reports and the APA passed them on to the member companies.

LW: Right. I'm kind of hung up on the name of that committee but I'll think of it after a while. So anyway, Union Camp had an engineer that had been employed for some years. His name was Art Bunker. And he had done a lot of research and a lot of study on how to improve woodlands operations and timber harvesting. He was a very knowledgeable person, dedicated, hard working guy. But some of his ideas just were, he was not hands-on. He hadn't done labor. He hadn't worked so he didn't know how work was carried on on a daily basis. And this was his problem. A lot of the slides you saw yesterday, those early slides, Art made those pictures and he researched everything to the nth degree. But you know that slide I showed you of the [hard bore?] wood slasher with that single arm? That was his attempt to mechanize and cut up short wood on a wood yard. Well, it was a good idea but he couldn't design it to make it work. And that's not saying that it's anything wrong with Art because he certainly tried and I'm sure he did a lot that brought things forward because a lot of people learned from his mistakes. [laughter] But he wasn't a forester either. He was an engineer. So they wanted somebody that had some knowledge of how forest operations needed to work and I'd been in the woods for years. I'd been on wood yards for years. And I was probably loosey goosey because I was so young and they tapped me to run the Pilot Harvesting Operation.

PM: Still in 1965?

LW: Yeah, that was the beginning of it. And we started out with very rudimentary normal practices and just began to add this and do that and then the Bush combine initiative came on that this man, Bush, that was in Mobile with International Paper Company was in the APA group and people knew what he was doing and he was doing significant things. So this impressed the managers of the woodlands at Union Camp and they got on the bandwagon and got two of these machines that you saw in the pictures. And it wasn't long after we started with this basic harvesting, hands on harvesting pulpwood trucks and that sort of thing in Pilot Harvesting that we had these Bush combines out there running. And we ran them until, I don't know, probably three years.

PM: So '65 to '68?

LW: Something like that. And then they decided to set up company crews and we began to, my initiative there, and I ought say this, came from our president of the company, Mr. [Caulder?]. At that point he saw signs that there would be a contention in a lot of instances for wood dealers between companies and he was afraid with that big installation at Savannah that we didn't have full circle to operate from. We only had a half circle of land to draw timber from because we were on the coast.

PM: Oh, okay, all right.

LW: And he was afraid that with Westvaco right up there at Charleston and Rayonier in Jefferson, Brunswick Pulp down at Brunswick, and all the other peripheral mills around that our wood supply force would be depleted if there ever got a real tight for wood. So he wanted security and he thought the way to get security was to have company crews. And that was the initiative for the company operations that

Union Camp put in place. And he mandated a certain percent of the volume to be produced from company operations, wholly owned company operations. I think part of the initiative, about that time I know the pulp mill at Bogalusa, Louisiana had company operations. Scott had them and IP had them so we weren't the first but we probably went at it to a greater degree than any other company because of this mandate to get so much volume, a certain percent of the volume from company crews. And the volume that they wanted to get from company crews, I remember talking to my boss about it. When he told me what the volume was, you know, he didn't have any idea how we were going to have to disperse our operations in order to get that volume from our land. And they thought well, they'll get it from right outside Savannah. I said look. You can't do that. I mean we've got to get these things out where they can have areas to work from because we had to fit in to the harvesting regimen already established for the company in removal from company land. You couldn't go out and just cut company land. You had to cut it in sequence according to the logging, I mean the regeneration plan, you know. So it finally worked out that we had our lands divided by parts. We had the Olopee Forest and the Sapelo Forest and several other forests and I think it had six forest areas and we ended up with a crew on each forest. Well, that put crews widely dispersed. We had one up at Louisville, one crew over at Soperton, one crew over at Waycross, one crew at Folkston. And that caused a lot of other little adjustments. You know you had to move the wood long distances. Of course, it was nice to have a focal point, a crew that could operate within the forest boundaries and do the job for that forest. But then you had to get the wood to the mill. That developed, I never could get my boss to provide enough trucks until I got a new boss and I finally got fifty trucks and it took fifty trucks to move the wood that we could produce with those crews. And before we got the fifty trucks, we couldn't maximize the volume of our crews on the ground because we couldn't move the wood. And then you got all this business about innovative machines and looking, trying to keep up with the competition and find out what really worked and what didn't. And it was all kinds of equipment available that costs big bucks and you made a mistake on what you bought you spent a bunch of money for nothing. We went through all kinds of exercises and this sort of thing. And that was the reason for all those documents you saw where we wrote all this stuff down trying to give each other information to make decisions on working smarter and not harder. And so anyway, this was a really intensive thing. I mean it was intensive for a lot of years. And a lot of good was done because we did achieve I think a mechanization of expertise and timber removal that probably are just as good today as they were when we finally got them where we thought we were doing the right thing. So anyway, that's the story of all that.

I ran that operation for twenty years and in 19, let's see, 19, I retired in 1996 and the last two years I was on special assignment. So about 1994 was when I gave up the operation. And we had come from the Pilot Harvester operating crews were actually hand loading wood in the pulpwood truck, little short bodied bobtail pulpwood truck. When we finished you saw what we were running, Morbark chippers in the woods and tree length operations and built this huge fleet of fifty trucks and a hundred trailers and a hundred and fifty men and four shops and all that and it was all done by people coming together and trying some things and being willing to spend some money to make mistakes and get the job done. The last two years I worked for the regional manager as a special assignment guy and I went and looked at operations and I got some pictures there. Went up to Franklin Mill and studied the movement of pulpwood on their barge system down through the Carolinas and Virginia to the Franklin Mill and made some special trips to look at the operations in different places and looked at a lot of chip quality concerns, like you saw I went to a chip mill, that new one there in [Rainey?]. I looked at chip quality, got involved in chip specs, and what a perfect chip looks like and how you made that perfect chip and all that sort of thing. So I was doing that when I retired in '96 and I hadn't done anything since. [laughter]

LW: Helped to develop that handbook that the Georgia Forestry Association sponsored that you saw in there on the table. And I was actually chairman of the FITC committee that was the education group of the American Pulpwood Association. It was located down on the gulf coast as I told you about where people went for training. And that was called Forest Industries Training Center. I was chairman of it for a time. But in this APA we had a pretty strong group of Walter Jarck and people like that that met regularly around the country.

MC: And you were on the committee?

LW: Yeah. And that's what I can't remember right now what the name of it was but anyway, it was a very important information transfer group within the industry of all the major people that were in harvesting development with every major company in the South had representatives on this committee.

MC: Now as Canadians we are always amazed at the complexity of and uncertainties and in our mind chaos of the wood procurement system, all the different ways that mills obtain and obtained at that point their wood. Where was the initiative for change in harvesting come from? You said that it was the president of Union Camp who felt the need to create security by changing harvesting systems. But in different companies and within the APA, where was the initiative coming from, from the executives, from the foresters or forest engineers? What was that play like?

LW: I think if you can, this is my idea. Upper management was so far removed from the woods that they didn't really know what they needed to do. So it was a second tier of managers that had to fight the daily battles that wanted to improve the system and this was almost true in every company. It was the general managers, the guys that dealt directly with the field personnel and had production quotas to meet and cost initiatives to deal with. It wasn't the president up here. It was this guy that was trying to manage the business. And these people were all coming together regularly under the auspices of APA, American Pulpwood Association. So they said we need to do something to improve what we're doing and at that point they formed this committee of people that reported to them to come together and get active in doing something about the thing. And that was the committee that I'm trying to remember the name of that met regularly around the South for the sole purpose of having transfer of information on harvesting improvement and production and cost reduction for the furnish. So that's where the action was in improving what went on in the woods.

PM: This wouldn't be the Harvesting Research Group?

LW: What? Seems like it had, it was, oh shoot. I went to so many of these meeting but I can't remember what we called ourselves. [laughter]

MC: It's what happened that's more important than remembering the initials.

PM: The name, that's right.

LW: Well, we had these section meetings, I think is what we called them was section meetings, and we'd meet maybe in Augusta, Georgia or up in North Carolina somewhere and down on the gulf coast. And we'd just have a forum and a lot of papers would get presented about this, that, and the other. It was a good group. It was an active group and it was an effective group. I learned a lot.

MC: So with this group trying to improve harvesting techniques and Union Camp, I mean besides do company operations?

LW: Yeah. You know that was at the higher level but this was, Mr. [Caulder?] just from his perspective and the fact that we had a half a circle to draw wood from felt he had to have security. So that was probably a peculiarity of our company and we went at it a whole lot harder than most companies did. IP did a lot because they had a lot of money and a lot of people so they were doing things because they could but we were doing it because we had to.

MC: And that was Tom Walbridge at that point at IP?

LW: No, Walbridge didn't work for IP, did he?

PM: No, I don't think so.

LW: Walbridge was a professor at, all the time that I knew him he was a professor at Virginia Tech. Now he may have had some work background before that but when I first knew Tom he was at Virginia Tech as a professor with Bill Stuart. Well, Bill came on about the time I came on so he was a later version.

MC: As much as you can remember, how did you try to improve the harvesting system and change that division of labor? Who did what?

PM: Yes, so it was organized more, more systematically?

LW: I think you know what I said is here's the top level people with an overview of everything urging their people to be more cost effective and be more productive or what ever. And here's that second level manager saying God, what am I going to do to get this done. And we'll do this and we'll do that but mainly we've got to have some people focused on this. So they said here's the third tier down here and that's where I was, in the third tier, and all the other guys that I worked with on this committee and we were out there beating the bushes and trying to come up with innovations, trying things. And that's the reason for all these papers where you write what you were doing down and present it and somebody else would present something and you'd get an idea and you go home and try it. And that's the way we put it all together. It was great. I mean going to these meetings was a pleasure. It was nothing but fun because we were all pretty much the same age, about, you know, early maturity and we were gung ho and we were out there given a mission to do and we had money to do it with and we were getting productive. We were getting things done that had never been done before and every time you had a meeting somebody else had a new idea. It was just great. It was a time to do things and we did them.

MC: And it was also an example of real cooperation amongst companies that were competitors.

LW: Well, that's another good thing about it. It wasn't any reservations about transfer of information in that field. Now if they were doing probably research of a higher degree in these companies they probably didn't swap the information like we did. But we were dealing in a common pool of labor and timber. The timber was available to whoever could get it and it was available to those who had the ability to get it. So it wasn't like it was any secrets there. It was just if you had another company's crews running down the road you could run up there and see what they were doing. You know, you couldn't keep any secrets. It was just a pool of information and who could do it best and everybody tried to mimic that.

PM: And this would be mostly pulpwood production?

LW: Yeah, mostly. Well it as a paper industry. We were not the loggers except that we cut logs to maximize value. But we were really trying to log the pulpwood. And when we needed pulp bad enough we'd put soft timber in the pulp. [laughter]

MC: Now this is all going on on your own company's land?

LW: Oh yeah. Union Camp had a million acres of land and we cut over a good portion of it. Land needs thinning. Now I didn't have anything to do with the mill at Franklin, Virginia and they had their own initiative going up there and I'd go up there and see what they were doing sometimes. But they operated a little differently than we did and had a different timber type and a different, they had those large yards and they were logging short wood to the barge yards and taking the barges to the mill down the river system in the coastal rivers you know. So it wasn't exactly the same ballgame as we were playing out there hauling woods for a hundred miles from company land up around Louisville, Georgia down to Savannah. To other local mills up there we delivered soft timber.

PM: In 1965 then when you took over the Pellet Harvester Operation.

LW: The what?

PM: The Pellet Harvester Operation, the THO.

LW: Pilot.

PM: Pilot, yes.

LW: P-I-L-O-T, Pilot.

PM: Oh, Pilot.

LW: Okay, that the southern drawl you know.

PM: [laughter] A difference in accent, I thought it was...

LW: Pilot, like you know, pilot in an airplane.

PM: Experimental.

MC: I am very pleased to say that I understood.

PM: Well, you could have told me.

MC: Well, what the heck, you were talking about it.

LW: Pilot Harvesting Operation.

PM: What were the harvesting systems then in use like in 1965?

MC: And as much as you can, try to remember the actual division of labor, who did what, how'd they do it?

LW: Well, a standard crew, you talking about company crews, my company crews were a little bit more mechanized than the average crew. But if you're talking about a regular pulpwood crew, the guy out here, the Joe Blow that's got a little group to cut the timber, loading on a rail side somewhere, if he gravitated from the bobtail truck and chainsaw and a little tractor skidder to a forward tractor, which was going from a wheeled tractor, a forward tractor would give him more ability to traverse more soil that would be boggy, you know. That would be an upgrade. I'm going to start at the bottom of how it was. I was going to tell you the other day one of the strange things that I had to deal with when I came. I'd been working in the woods in Alabama and I remember a week before I left Alabama I was setting on the side of a field way up and there was a little pine tree there about that big around and I cut it down and counted the rings on it. It was eighteen years old. And I went to Walterboro, South Carolina and I was marking timber and they were cutting trees and I looked at a tree that had been fell that was about this big around and it was eighteen years old.

MC: What, versus three inches?

LW: Yeah and I remember that 'til this day, you know. Well, you got to change your thinking button. I mean you know about what, this is a different world. Well, it's the same thing in developing crews. It's just a growing situation. The first logging that I saw, pulpwood logging I saw was hand loading, cutting

with these monkey saws that I showed you, bucking the wood up with the monkey saw and hand loading it on the pulpwood truck. Well, the next innovation was chain saws and, of course, before the monkey saw was just an old [crooscut?] Well, the chainsaw came along and that was a standard for a lot of years until shears got developed. But anyway, the chainsaw was a basic tool. So it depended on how much quota you could get for wood as to how many chainsaw operators you needed and to get the wood on the ground. If you could deliver a carload of wood a week you needed enough labor to cut a carload a week. If you could get two then you'd probably need twice as much. Then you had to match. It was the same thing as that evolution of logging based on defining what had to be done. Next thing would be well, how are you going to get that wood loaded. If you hand load it on a pulpwood truck and you can drive a pulpwood truck right up to the woods you don't need a skidder. But if you want to go out in a wetland you need a crawler tractor. So you began to build your systems that way and every part of it has got to pay its way. You can't afford a crawler tractor sitting on the side if you can't make it productive. So if you're set up to cut timber that's basically on a wetland and you need a crawler tractor you'd better stay there because you can't afford to have that tractor not being productive. But it's a very awkward thing to try to develop because you've got to know where you're going before you start spending money to get there. But as the crews evolved if you, mechanization made everything a lot easier and you didn't need as much labor to produce a good amount of wood so you had some tradeoffs there. But if you got two or three good operators and had efficient number of machines to do various things the operators could switch from one to another. So you'd probably end up with a loader operator, a skidder operator, and somebody felling trees. That was the basic thing. You had to cut the tree down. You had to get it on a conveyance. You had to get it to a place where you could get it on a conveyance and then you had to get it loaded. And the technique there was to keep enough people, enough wood on the ground that these other machines could be productive. But if you couldn't get the wood down then the other machines are just sitting there. So the felling was an important thing and whether you had three men felling or a machine that would fell as much as three men, probably was not much of a tradeoff as far as cost was concerned because you're going to pay labor or you're going to pay for the machine, one of the two. So I don't know how to answer your question exactly except that you have to build a system to fit so that the cost will, you can make money doing it. And what works in one place is not going to be the same thing that works some place else because the timber conditions, the size of the timber, the kind of ground conditions, and the length of haul all interfaced to cause each situation to be different. And what these people have trouble doing is keeping that balance because if they move over here to this tract and they've got one situation and move twenty miles over here and it's an entirely different situation, they've got to have a system that they can balance in those two different conditions that are significantly different and still make money or they can't survive. So there's no good answer to your question as to what is the best mix or most convenient mix. It's whatever does the job at a given place and time. But I'd say a skidder, a mechanical loader of some kind, certainly a haul vehicle, and enough felling capacity whether it's a bobcat with a shear on it or three men with chainsaws would be a standard operation, either one of them.

PM: When did the move from doing a lot of the activities at this time to skidding tree lengths to roadside? Why did that happen?

LW: Because it's a whole lot easier to assemble a deck of logs at roadside with a skidder and drive a long tree length truck up there and load it with a knuckle boom loader than it is to accumulate piles of wood down away from the road and try to trundle those unwieldy loads up to the roadside. No matter what kind of a forwarder you have you've got the tremendous weight of all of that wood and at some point you're going to have boggy ground and talking about year round operations you've going to have to perverse boggy ground. And once you get in boggy ground with that kind of a load you're fighting Mother Nature and you're not going to win. So if you've got a system that frees you from that, it's going to be a better year round system than the forwarder type operation, in my opinion. You know I saw some of those Swedes with their machines on slopes that were wet, the water oozing out and they had an awful hard time with those loads that they were trying to trundle around coming down those wet hillsides. And if they could have gotten the wood down rather than bucking it up, got it to roadside, they wouldn't have

had that trouble. That's just something that stuck in my mind when I was over there. That was in 1988.
[laughter]

MC: So quick question, why do you think the Swedes like the cut to length?

LW: I think just a common practice mainly that they just never have saw a need to change. They've been doing it that way for a long time and it works and they probably never saw a need and there's probably some benefit that they know of that I don't that has to do with mill furnish and the kind of wood that they want, you know. I really don't, I can't answer the question. I just have to surmise that there's something like that that I don't understand. But I certainly wouldn't want to have one of those expensive machines out there cutting all that wood up in the woods and then trying to get it out to the roadside. But then another thing, I hadn't thought of this. They don't do a lot of clearcutting. They do a lot of thinning and pre harvesting. And that's probably the key because you can't go out there and do tree length logging in a forest stand. You got to do pretty much clearcutting or seed treeing or something, really opening the stand up, you know. So that probably is the reason they go the short wood route.

PM: The systems using the monkey saw, how do they delimb?

LW: Ax.

PM: With an ax, okay, because the monkey saw could be used for bucking too, couldn't it?

LW: Yeah, the monkey saw you'd use the thing. It's like a plow, you know. You hold two handles and you run the saw up to the tree and if you can hold the saw while it's cutting the tree and don't get slung off, [laughter] you get the tree on the ground. Once you get it on the ground then you take an ax and limb all the limbs off of it because this was before the chainsaw. Then you get up and you turn your saw, monkey saw from horizontal to vertical and go and buck the thing up.

PM: While it was lying right on the ground?

LW: Yeah.

PM: So as the saw finished going through it, that would cut it?

LW: Yeah.

PM: It would hit the ground.

LW: Yeah, you had to be careful. You could hit a rock or something and ruin the saw blade. Plus if you didn't get your hand off the belt when you'd crank the thing you'd lose your fingers. Honestly, there were a lot of black men in South Georgia that didn't have any fingers on their right hand because they'd lost them in on those monkey saws.

PM: Okay now, when you were doing the Pilot Harvesting Operation, you started first with the Bush Combines?

LW: No, we had the conventional crew run it for a while. And we tried to, well, for a long time we had a conventional crew. Then we put in the Bush combine crew as an auxiliary operation.

PM: What did the conventional crew do?

LW: Pretty much the way everybody was doing it. We were just out there. We formed up this crew, hired the people. Had an old pulpwooder running it and we tried techniques and tried to improve skills and

tried to with training of these men upgrade their ability and that sort of thing. It was just a kind of hands on thing to take a conventional crew of men and have them improve themselves by both training and upgrading their skills and understanding and giving them better equipment to use and swapping equipment around trying to find a better fit, a better balance between the equipment capabilities so that everything balanced out, you know. We did this for a long time, a lot of years with this conventional crew. The Bush combine was operating separately.

MC: So what kind of system did the conventional crew use? Was it chainsaws?

LW: Yeah, we formed that crew up after, you know, it was late enough to where we had chainsaws. We went through a lot of experience with trying to find the right chainsaw. We used all kinds of chainsaws. And we tried to find the best chainsaw, the best pulpwood loader, the best kind of knuckle to load wood on a truck. We hauled a lot of wood in pallets on five pallet trailers to the mill when we were still producing short wood, before we ever got into the long wood business. So we started at the beginning with Pilot Harvesting and we went to the last thing that you saw where we were chipping in the woods and all that.

PM: So you would be felling, delimiting, and bucking up the stuff?

LW: Right.

PM: And using pallet systems?

LW: Right.

PM: So the person doing felling, delimiting, bucking would also load the pallet?

LW: Yeah.

PM: And then pallets to roadside?

LW: Yeah.

PM: How did that happen?

LW: That was pretty much the way it was going when I got there and it went that way for a while and then we began to, well we, I can't remember when we started going tree length but it was a year or two after I got there. We were still producing; well it was probably three years after I got there. By that time through education and learning and interaction with other companies and innovations of these manufacturers equipment were getting more available and new techniques were being tried and as things evolved we evolved too and we began to be able to produce long wood. I remember I bought three old truck tractors, the over the road tractors. The first tree length wood we hauled I bought secondhand trucks and bought some trailers, had some trailers built and bought some trailers and started hauling tree length. We had, you know, it was kind of fits and starts. You learn something and you think about it a while and you wonder if it works and you go look and see what this guy's doing and then you finally, well, go do this. And sometimes it would work and sometimes it wouldn't. But basically we were successful. I think we did enough planning to where we didn't make too many bad mistakes.

PM: With the pallets did the truck go up to the stump and load the pallets there?

LW: No, I think we, the pallets were always pulled to roadside and loaded at roadside.

MC: By a pre hauler?

LW: Un-huh, pre hauler or forwarder or whatever you want to call it. Pallets would be moved to roadside. I remember we had one pre hauler that had forks on it. You slide it under the pallet, had a clamp on it some way and put on top of it and you just hydraulically put the thing up like this and go with it on the backend of the thing. Let it back down and then it would slide up on the truck when the cable from the truck, the winch, winch it up on the truck bed. For the first few years we had a wood dealer that supplied the hauler. We didn't own our own hauling trucks. It was after we got into this initiative that Mr. Caulder had us produce all his wood from company land with company crews that we had to have our own haul truck because we were dispersed so far. We were hauling from all over South Georgia into Savannah and just about every other lumber, timber market. We swapped wood. We produced poles. We hauled saw logs, veneer logs, hardwood veneer logs to GP in Savannah and poles to down near Brunswick, Escambia Treating Company. We hauled wood into the paper mill down at Fernandina Beach, Florida on a wood swap. We did everything.

LW: American Pulpwood Association.

PM: Okay, you did remember.

MC: So the company operations literally allowed the companies to become a wood dealer in and of itself, swapping wood and everything?

LW: Oh yeah, we had all kinds of things. We hauled wood everywhere. A lot of it was on swap. We might haul some wood into some place maybe like Rayonier. Rayonier wouldn't be a good example but say like IP and then it would be replaced in Franklin, Virginia, and things like that. That was rare but I mean we did it. It was always wood shortages somewhere from time to time and you needed to help somebody or somebody needed to help you and that's the way it was usually done.

PM: So the first, I guess we could say, the real genuine innovation was in production of the Bush Combine.

LW: Say it again.

PM: The introduction of the Bush Combine

LW: That was the first big change. That was something that was dramatic, very dramatic. And there's a lot of spin-off to that. The Bush combine wasn't the answer but it was a step in the right direction to the answer. I don't think so, the Bush combine was a very productive because it had so many chances to break down. It was a nightmare to keep running but it was the biggest start. It was the first time hydraulics was really all put together and made to work into a system and that's what it took. The machines now benefited from the start that was made there. I mean, you know, you take that Koehring machine out in the woods and cut trees that big and that quick, you can't beat that. Most things were solid. They'd run forever and you didn't have any trouble with them. Once in a while it'd break down and you get a part and put it on there and go again. You couldn't do that with Bush Combine . Bush Combine was a nightmare to keep running. You had hoses popping and like I said, I burned one up so I can attest to the problems.

MC: Now which Koehring machine are you referring to?

LW: Koehring Waterous feller buncher.

MC: The modern?

LW: Made that soft turf about that thick. That's a fantastic machine. It is fantastic. When I saw it I said

oh, my God. [laughter] The Eastern Technical Committee of the Society of American Forest but there was also the Southeastern section of the American Pulpwood Association. That was where I was getting screwed up. Southeastern section of the American Pulpwood Association is the group that sponsored our Harvesting through APA. So I got that finally out of my head. I don't know where it was lurking. It just wouldn't come out. [laughter]

PM: Well, it found its way. Did the Bush Combine as you used it forward to roadside as well?

LW: When you were close by it made sense to just set the wood in the pallets on the roadside instead of trying to funnel them out. But if you spent most of your time with the machine forwarding you lost the production. So you needed the forwarder to move the wood when your distance to the roadside was so great that you'd lose production. You had to balance everything you know. That's really what goes on at any logging operation. You got to balance everything you're doing.

PM: Right, and do you remember which forwarders you used with the Bush Combine?

LW: Well, it was that little Ford tractor that Art Bunker designed. He found a Ford tractor, a four-wheel drive Ford tractor. I don't think it had, it wasn't articulated. It was just a farm tractor but it was a big tractor and you put [pipe?] rotation tires which are by today's standard they're big tires. But it could stand up in reasonably wet ground and traverse it with a pallet on its back and that's the way we moved. We usually had, tried to operate so that we had close access to the road for those big combines. But you just couldn't go a quarter of a mile with a pallet of wood hanging on the back of a Bush Combine. You had to have road access that you could move your wood fast away from it. Cause they could cut a pallet of wood in no time. You can cut a tree down and whack it up in bolts in a minute and a half with that process. Shoot, every time you pull that [level?] out you got a stick of pulpwood falling into the cables back there. And when you filled the thing up if you had to travel for ten minutes to unload it before you start cutting it you really cut your production.

PM: The Allen Jarck?

MC: I was going to ask about productivity. Do you remember productivity, rough productivity?

LW: You know you mentioned that and I remember going over where they were building the thing and looking at it and Andy Allen was building it and his daddy was promoting it and Walter was designing it. But I can't remember anything beyond that. I really can't. I know we tried them but it was a short span of time in my memory and I just don't remember anything about operating one.

MC: Used to be Allen Jarck.

LW: Yeah, I just can't remember it. I saw them being built in the shop. I was around Walter when he was down there. Andy Allen was a friend of mine and Sam was his father was a dealer that I worked with for years.

MC: A wood dealer?

LW: Yeah, he was hired from IP in Alabama and brought to Savannah for a wood dealer for Union Camp early, early on. And he was one of the first wood dealers. He was a truck wood dealer, put all the wood, truck wood into the mill. He got commission for it. And then he became an equipment dealer and he became an equipment manufacturer, a small manufacturer. And his son had studied engineering and so Andy came home and began to work with Walter and Andy was about the same age. They were collaborating on that harvester. As I remember it, it was a unique machine. It was, you know, a well-designed little machine. But I don't remember anything about them other than that. I think I got out of it in some way, got removed from it about the time that they were coming along and wasn't involved in it

any more. Because Ed Stephenson was working real close and he and Andy were big buddies. And Ed, of course, I told you I hired him and he was a tremendous engineer. He was a very innovative guy and he was working on the project. So I didn't get involved because Ed was doing it, you know. So I kind of, I don't know what happened after that. I guess that's when the company left the scene long about that time.

PM: Was the Koehring Shortwood Harvester ever used down here in the South?

LW: I know it was demonstrated down here. I think one or two companies had them. I can't remember that. I don't remember ever seeing one in the woods down here but I remember seeing them in the woods somewhere. It probably was in Virginia. [Background noise on tape.] And I was impressed with it. I may have seen one. The Witherspoon operation may have had one on it. I'm not sure. That was one that was up in the PeeDee River Swamp. I think he had one. I can look at these pictures and see. Anyway, I've seen them but I can't remember where and they weren't any, I think it was. I don't know. I'll have to look at the pictures. I remember a picture where everybody was lining up along side of a big red machine. I think it was demonstrated in Savannah. The picture's on the table somewhere but I can't remember whether it was the harvester or the forwarder or whatever you...

MC: Feller forwarder.

LW: Feller forwarder. After a while I'll look. You've tested my memory pretty good here today. [laughter]

MC: Do you remember how productive the Bush Combine was roughly speaking? And you know and compare that with the systems that you were running.

LW: Well, it was very productive when it was running. That's all I can tell you. It would produce wood as long as you kept the machine cutting, it could cut wood. It could cut wood like crazy. I mean you could cut a bundle of wood in just a few minutes, a sling full of wood. But you know if the Bush Combine had been a viable system and progressed through 'til today it would be you know, the hydraulics would all have been resolved and they'd be working like crazy. But they never got beyond being a Bush Combine. And so they didn't evolve and so it's hard to say. But they had the potential of high productivity. They just needed more engineering expertise to overcome the obstacles inherent in the machine. And you know the sheer unknown of what you have committed the company to do, whether it be buy a new machine or try new systems, anyway.

MC: Can you say how intense the work was?

LW: Well, it wasn't, I got a great thrill out of doing it. I really did. I enjoyed every minute of it. But a lot of the minutes were very, very intense.

MC: Stressful?

LW: Stressful. You wake up in the middle of the night wondering if you'd done the right thing you know. Is this going to work? Am I going to keep my job? I mean you commit the company to spend several hundred thousand dollars on a system or whatever and you get it out there in the field and it's falling apart and you wonder how am I going to overcome this and it makes you sweat. [laughter] I've sweated a lot. But the thing is you had to just stay with it until you worked the details out and made the thing work. And if you had to admit that you couldn't make it work then you had to be man enough to go to the boss and say look, I have failed in this effort and we've got to do something different. Thankfully I had people that supported me all the way. I really did.

MC: But some things did fail?

LW: Oh yeah, lots of things failed.

PM: What kinds of things failed? That's what we need to know.

LW: Well, the Bush combine burned up was one big failure. That was several thousand dollars that the company didn't have to spend that I caused them to spend. I should have shut the machine down but in my wisdom I thought there wasn't any way that the Bush combine could burn. I just didn't know the, I guess the ignition of hydraulic fluid, you know, the flash point of hydraulic fluid on a hot muffler. Would be equivalent to an electric spark on an engine you know. And there were other things like that. You'd promote a piece of equipment that in the application after you got it on the job it wouldn't do what you wanted it to do. You might not admit defeat because it would do almost what you wanted it to do but it wouldn't be productive enough to justify doing any more than you had to or you needed to get rid of it as soon as you could to get something better. You were in evolution all the time and you were having constantly to make decisions whether you had the right trucking capability to move the wood or the right felling capability to keep the men occupied or the right number of labor out there to man the equipment. And these were all kinds of things. That's the reason for all those studies. I mean we did all kind of time studies, industrial engineers out there with stopwatches trying to fit all this together and make it work in whole. And it wasn't just one system, it was different systems and different places, different methods of moving the wood, short wood and long wood, wood to different markets, different haul distances. It was just a moving target all the time. Everything was in motion and you just had to constantly be tweaking it here and there to make it work.

MC: One of our people that we interviewed had said that it was very difficult to get partially mechanized systems to work in competition with the cheapness of the labor that was in woods originally.

LW: That's true. You got a pool of labor out here that are paid virtually nothing in those days and they work from can't to can't for this pittance and produce wood. Well, you go out there and try to mechanize a system and you're going to buy instead of a cross cut saw and an ax, you're going to buy a ten thousand dollar tractor and some pallets that are several hundred dollars apiece. And you've got to work a lot of months before you pay for all that stuff and those several men out there with the ax and the saw are producing wood all the time and you've got to pay off that indebtedness before you ever turn a profit with that equipment. So if you're not really astute in what you bought and have something that will work and eventually will overcome the deficit between you and the hand labor, you're going to lose it. And a lot of pulpwood producers went that route. I mean they went out to mechanize. They got mechanized and spent all this money. They borrowed money to mechanize. They had interest on top of the money that they spent for the equipment and they couldn't, over time with repairs and in the early days equipment wasn't as infallible as it is today, by the time the thing began to break down and a lot of the equipment that initially was put in the woods was not really wood sturdy. It was lightweight. It was fabricated for on road use and that sort of thing, was about that equivalent quality and when you put it in the woods and start beating it up with timber, you know, trees falling on it and loading heavy loads on it, it just fell to pieces. And that's what you're talking about that in the early days you couldn't, a lot of times you couldn't be productive enough to overcome the productive efficiency of a hand labor crew. But I wouldn't think that would be true today in the modern scope of machines that have been designed, developed, and made especially to produce forest products and they've been tested in the woods. You know hand labor today too is not as productive as hand labor was twenty years ago or thirty years ago because people don't have to work as hard and they don't know how to work as hard and they're not as tough as they used to be. You take the black guys of thirty years ago, man, they were something else. But these guys today that, and I'm not knocking those people but they just don't have to struggle like their forebearers did. You know, they you know live in town and go out at night and they're not used to hard labor. You put them in the woods they can't do what those guys did twenty or thirty years ago. The environment is just not there.

MC: And labor wouldn't be as cheap relative to cost of living as it was then.

LW: That's right. But I doubt that there's one in fifty of the laborers today that could do what fifty could do equally thirty years ago, forty years ago. They just were raised in a different time. They were used to it.

PM: With wood coming in so cheap and the high labor and such as this, was it just the insecurity of supply and if so, why was the supply insecure. Why didn't they stay with this very rural, very low cost harvesting system?

LW: They couldn't depend on it. During times the weather when you needed wood and the hand laborers couldn't get in the wood and get the wood out or wouldn't. I mean they wouldn't. And the world changed. I mean we started out talking about little piddling pulpwood crews all around the South loading on rail sides. Well, there was a vast expanse of land, timber, and people to serve those little sidings and there were thousands of them around in Georgia. All over the state every few miles along side of the railroad there was a place to load pulpwood. Well, those sidings are gone mostly today you know and they eventually, a lot of the railroads that used to operate, small railroads are gone. And I just think that the system was never very reliable. I used to deal with these people and the wood dealers. The labor crew was there but the labor crew was very tenant. It would go here and go there where they'd get a little bit of money and go to the farm and farm a while and wherever they could make a buck, they'd make a buck. Well, this guy had to have a timber supply for his people and if he didn't have timber they fade and they go somewhere else. And there were other mills out there buying wood too. So the crew, building a wood dealer with an effective number of producers in a given area was the first step in stability. I mean that was the first instead of trying and in order to do that they had to build these wood yards. Instead of relying on a multitude of little rail sidings to get the wood into the mill they needed a stable place and a reliable market in a given place that they could tap a timber supply and labor crew to match it. So they went out and selected the sites. There was a lot of times during the years that I was running wood yards we'd shut a wood yard down that wasn't productive and abandon it and go build another one somewhere else where we could get the wood we needed. It was just a matter of trying to build security in a system that had none when you were dealing with this labor pool that was very variable and spastic and had no foundation. That's the whole reason that even though it could have been produced cheaper, over the long haul it couldn't have been. It was going to die.

MC: How did you know that it was going to die?

LW: Well, more and more mills got built. More and more demand. The mills got larger. There were better improvements in the mills. They used more wood. There was just a proliferation of more and more demand for the product out of a given area and things had to get better in the woods in order to meet the demands. That's all it was to it.

MC: Was there a sense that there was going to be an urbanization, a disappearance of that labor pool, of shrinking?

LW: Well, I think it was just experience. It disappeared. I mean you know there was more and more demand for labor. There were other things going on that required labor. Other industries were coming into the South. There were other places for people to make money. They didn't have to get out there and struggle to produce wood by hand with a cross cut saw and an ax. And they just gravitated to where they could make more money and make it easier. It just, time changed. It was just an evolutionary thing. It wasn't planned by any means. It just happened because the need changed, as I see it. I mean it's probably economists that could see it a little more clearly than I do but I know what happened on the ground out in the woods.

PM: And that's what we're interested in. When you said about making the new wood yards and closing down other ones so there would be fewer of them and each one would be more efficient?

LW: I didn't say there would be fewer. I just said that there would be perhaps you had a wood dealer and you went out there and built a wood yard at Podunk and the wood dealer at Podunk wasn't very good and he couldn't log that wood yard. And you couldn't find another man in the area that wanted to log that wood yard. So you shut that wood yard down and you go somewhere where you probably had control of some stumpage of your own as a base and then you had labor crews around there that you could tap and if you couldn't buy enough wood there you'd have an alternative to put them on company land and cut some company wood until you could buy enough to put them out on a timber sale.

MC: So the trucking distances wouldn't necessarily be longer then?

LW: Uh-uh. But we have, I remember shipping truck wood into Savannah, short wood, ninety miles when I had eleven wood yards operating right in the same area that, in other words, had a circle around Louisville in the center and I was shipping wood out of Waynesboro at a wood yard at Waynesboro. These guys were hauling all the way into Savannah was ninety miles.

MC: And this was in the early days of long haul trucking?

LW: Yeah and this was short wood. This is not long wood. But he was a truck wood contractor and you got a wood supplier with Union Camp and he was operating right up there in the area of my wood yards and trucking the wood directly on a truck wood rate into Savannah. The truck rate was cheaper than the rail rate. So it was a good deal for us. If there's ever been a way to do anything we tried to do it.
[laughter]

MC: Well, that's the sense we're getting. We're sitting back as sociologists and trying to imagine a nice, neat pattern, evolution of one system to another.

LW: Never happened. It wasn't neat anything about it. It was just by guess and by golly and the way you could make it work you know. And what worked one day might not work the next day because the labor pool might change and your machines might change or the law might change and the weather might change. You just constantly was playing catch up with the world around you in every sense of the word. And one month you might be struggling to do one thing and the weather changed on you and you're trying to do something else. Or wood fires would put you into salvage situations where you'd have to go in and salvage timber. And that wasn't any fun either because charred bark and all would just mess up everything. It would get into your hydraulics. It would get you're your men's lungs and it was not any fun. You had to salvage your timber. But you know you're dealing with nature and in nature it varies.

MC: It was almost as if you were highly aware that you had to have a well balanced system and yet with conditions and experimentations was constantly requiring you to innovate new ways to put a system together that day almost.

LW: Yeah, well that's kind of the way it was pretty much.

PM: Sounds like a lot of work.

LW: It was a lot of work, lot of hard work, lot of mental strain and anguish too. But you know you orient yourself to this. I mean you grow up in it. You learn the system. You learn what you've got to do and you just go do it. It's your job. But it's a job you've learned the hard way and you know what to expect. You know where the pitfalls are and you know how to step around them mostly. Once in a while you fall in and hope you get pulled out.

LW: I make it sound like it was a lot of trauma. It wasn't so much trauma, it was just strain of trying to do the best you could in the midst of all the variables and uncertainties. I mean you knew you weren't

going to be perfect. You just needed to do enough to keep yourself doing more good than bad. And as long as you were moving in the right direction you could sustain yourself you know. Fortunately we were able to do that. We were smart enough to learn by our mistakes and keep that initiative going and try to figure out what we had ahead. And a lot of this interaction between the companies through this committee and the forestry committee that we served on, change of ideas gave us a forum to learn what others were doing and was very helpful in trying to promote the whole system. I think everybody that operated in that group was forthright and helped each other. It was just a tremendous organization to work with. I enjoyed it through the years and spent a lot of years doing it you know. Walbridge would be in those meetings and Jarck and even Andy Allen and we had J. S. Stephenson would be there.

MC: Tom Kelly?

LW: Tom Kelly occasionally. He didn't participate as much but he had his own system and everything was, he had ultimate control down there and he's a very smart man. But he was a good guy. I served on a panel at several meetings with him you know. He's a very lucid individual, tells a great joke, affable guy, real nice guy.

PM: After the experiments with the Bush Combine did you then begin to move into tree length?

LW: Yeah.

PM: Is that how it kind of worked out in terms of, you know, what came next and next and next?

LW: Yeah. I got out of Pilot Harvesting Operations. I guess I left this out. I forgot about it. In, let's see, in '67 I was in Pilot Harvesting, I left out a segment of this thing. In '67, the first workday of '67, I went to Waycross as a district representative and I ran wood yards in Waycross just like I had run wood yards in Louisville. And I had wood yards from Pearson, Florida all the way up to Tipton, Georgia and over to Allenhurst, which is right outside of Savannah about thirty miles. So I had I think fifteen wood yards. That's when I had Dupont, Pearson, Woodbine, Waycross, Hazlehurst, Tipton, Fitzgerald, Allenhurst, and anyway, I was down there four years running those wood yards. And the Pilot Harvesting Operation had pretty much continued but I can't remember who took it. Sam Thurman I think ran it for a while. But it never became or continued to be as innovative. It was kind of well, this is the way we do it now and we will just run it that way. But they kept it going. This is the part I left out. When I came, then they brought me back to Savannah in '71, summer of '71. Then I became the harvesting department with me as manager. They made a department out of what had been Pilot Harvesting and I was given the job as manager of the department. That's when we began to really get intensive in the company harvesting and the initiative that brought me back to Savannah was Mr., I lost his name. As you can tell my...

MC: Caulder?

LW: Yeah, Mr. Caulder, yeah, Mr. Caulder. Mr. Caulder's initiative brought me back to Savannah because they set up this harvesting department, me as manager and that's when we dispersed crews on each forest and began company harvesting in earnest. This was a natural evolution from the Pilot Harvesting Operation to actual company operations.

PM: Right, because the other was somewhat experimental.

LW: Right and the original harvesting crew was one of these, or parts of, one or two of these forest crews. I mean those same men worked in harvesting depending on where they lived, whether it was on this forest or that forest, but the same crew of about seventeen guys. I think that was about how many they grew to, were dispersed on at least the forest right around Savannah, Sapelo and Ogeechee and the one up at South Carolina. So that was the way the thing expanded dramatically into operations instead of experimental operations. I left that out.

PM: I'm glad we came back to it.

LW: Yeah, I knew there as something I was leaving out but I couldn't figure it out.

PM: And this was tree length?

LW: Oh yes. We did produce some short wood in special situations. But it was basically all tree length.

PM: So in 1971...

LW: Well, let me say that a different way.

PM: Sure, yes.

LW: My boss he hated to see short wood go out of style, the man that I worked for at that time, and he actually made me go buy two short wood trucks and set up two short wood crews to operate right around Savannah. It was a disaster and I told him that I didn't think we could do it. He wanted the crew to be very productive and here we were with two short wood trucks and two little old crews, three men I think were on a crew. Well, down on one forest the chainsaw operator was one of the best that you could get and we almost killed him trying to make him cut enough wood to supply that crew and keep the production up. And he finally got tired of it and decided to get even so he claimed he was sick, and he probably was suffering from his strain to keep the production up, but there's no telling how much money he cost Union Camp from insurance, medical bills, and just rattling on the job and all that, you know, over a couple of years. It was just an anachronism to do what my boss wanted me to do and I finally just told him, we can't do this. We can't operate and make a productive operation out of a bobtail truck and a crew of three men.

PM: And that's how the crew was organized at this time, with a bobtail truck?

LW: Yes, chainsaw, bobtail truck, and three men.

PM: And a loader of some sort?

LW: Yes. Well, it had a...

PM: Or a big stick loader?

LW: Yeah, a big stick loader on it. But that was the last time I had to fool with short wood.

PM: Well, that's sort of the point I guess.

LW: Yes. So from then on we had all these, you know, gradually we built, he hated to buy a long wood truck. I couldn't for years haul the wood I could produce and I could never convince him that we had to have more trucks. By the time I got fifty trucks I could move every stick of wood I needed to move every week and I had enough drivers to not have to pull men off the crew to drive the truck. And I had enough equipment that everybody had something to run and do. And like I say, we produced a thousand loads of pulpwood every week tree length into the mill or somewhere.

MC: And you also had to build a repair and maintenance infrastructure for it.

LW: Well, yes I did but I did it as an auxiliary to what was already. We had the garages out there and I had my field mechanics. What we had to do was integrate field mechanics with the garages and I finally

became responsible for the whole maintenance of the land department and everything in the forest. So I was running a shop, a system, in four places, Waycross Louisville, down on the coast in Sapelo and up in South Carolina, outside of Savannah. I had fifteen mechanics in those four shops and in the field. So we could pretty well handle everything we had in the woods both the crawlers on the land department, the plant machines and that sort of thing, and the logging equipment. Of course, these fifteen people were just mechanics. I had staff people, managers, shop managers, storeroom managers to keep the stores up and that kind of thing. So I had a few more people. I had enough people to do the job. But once we got past those two pulpwood crews, short wood pulpwood crews, that's when things began to sing.

PM: So in the early 1970s was the tree length system, how was that organized?

LW: It was just a couple of skidders and a loader, a knuckle boom loader, and pull out trailers and haul trucks. In other words, we had one feller buncher per crew, two skidders, and one loader at the deck, brow, whatever you call it, roadside, enough trailers. Like I said we had a hundred and fifteen trailers and that served the needs of these six areas. The feller buncher would just go out and fell the trees. The skidders would pick it up and haul it along both sides of the loader and the loader would have trailers spotted on both sides and we'd load the trailers. First truck in would pick up the loaded trailer and go with it, whatever it was. It might be logs. It might be, sometimes we cut logs, veneer logs.

MC: How did you do that?

LW: Well, you buck the logs into log lengths.

MC: With a chainsaw?

LW: Chainsaw. Doesn't take long you know for the chainsaw to buck up a log. You want sixteen-foot logs, cut up three pieces usually. We didn't do much cut to length. Sometimes if we were cutting pine, hardwood pine or something like that. Mainly tree length poles, some poles going to the pole plant, a good bit of soft timber where you had the size to produce saw logs. But we'd produce a tree length and then pulpwood, you know. When I'm saying a thousand loads a week I'm talking in equivalent terms of pulpwood going to either our mill or somebody else's mill. That was pretty standard you know all the remainder of the time I was with them. Once I got into Savannah and got a system set up, got the crews out on the forest, which took a couple of years, then it begin to Cadillac along you know and I did from '71 to '96 that's what I did and I ran the shops. They gave me the shops to run. They had [bellows?] and had the whole system going. And I had some real good young foresters working with me and people that I kind of grew up in the organization. That was the heyday you know. It really sang there for a long time.

PM: I never heard the expression Cadillac along before. That's good.

LW: [laughter]

PM: How was delimiting handled?

LW: We had delimiting gates on every crew, one or two. Sometimes if we had to we'd have three skidders out on some tracts. Then we'd put two limbing gates out there. That was basically what we did. Practically everything was sent to the delimiting gates.

MC: When did the delimiting gate come?

LW: I don't know. Some guy started doing, pushing trees through other trees to break the limbs off and that's where it started.

MC: Do you know what period, late '60s, early '70s?

LW: It probably started about I'd say somewhere between '75 and '80. It could possibly have started somewhere earlier than that and I didn't know about it. And I think it really did start with people where they were in thick timber backing the trees through the thick timber to break some of the limbs off before they pulled them up, light load on the skidder and produced less debris up at the deck you know. And then somebody said well, don't have always have some place where the trees are thick enough. We'll just make a limbing gate, make a device to do that and it looked like a gate so it became a limbing gate.

PM: The feller bunchers in the early '70s would be wheeled feller bunchers by and large?

LW: Un-huh.

PM: Would they have accumulating arms to hold?

LW: No.

PM: Not at that time?

LW: Just tip them over and cut them off. We did have some clamps on some of the feller bunchers later on. In fact, I guess all of them had it but you only used it when you were in small timber, you know, trees were pulpwood, small pulpwood size.

PM: How would the feller buncher construct a bunch for the grapple skidder?

LW: Just...

PM: Back and forth?

LW: Back and forth. You'd cut a tree and back up and lay it down, back up and lay it down. You'd get a pile big enough for a grapple load and the skidder would come along and pick it up.

PM: So I guess the only evolution would be to saw heads and accumulator arms.

LW: Yeah, the saw heads made a big difference. I was really impressed with those. We had a lot of wetland to operate in you know and those track machines would just work that, just walk into that big timber and lay it on the ground. You know, it just made a difference of daylight and dark. It was something else. That was one of the best things that I ever saw, the way those machines operated.

PM: In the next system and the final one if I'm right, would be the roadside chipping?

LW: Yes. Well, it was just, I'd run chippers at the wood yard when were chipping up those back sink chips I was telling you about in the beginning of my narrative and so I was no stranger to chippers. I'd run chippers on the ground for a lot of years so I didn't, it wasn't until somebody came along and made one that was fit for the woods that really turned me on. But once I saw what the modern technology had produced it was a given you know, that here's something you need to really look at. And so we tried it and you know those Morbark chippers were very expensive but I believe we only had one but it was something you know you could move like put in a stand of small timber and just produce chips out of there and it really made you productive. We must have had more than one because we produced all those, we couldn't have produced all those trailer loads of chips with one chipper. I'm trying to remember though. I've got some pictures of several of us at one of those chippers. I'm trying to remember if we had more than one. I really can't remember now.

PM: Did you use it for all kinds of wood or just small wood?

LW: Well, we tried to use it where it would do the most good you know, primarily in plantations and places like that where you could maneuver it around to do stuff the volume of wood from small timber, volume of chips. I can't remember but one but we produced a lot of chips with that thing. I don't how. I remember the number of vans of chips that we produced. I don't see how we did it with just one. You saw that picture where I had about six trucks sitting there waiting to be unloaded.

PM: Yes, that's right.

LW: It might have been that they set them on the brow you know and hadn't been able to pick them up and they sent a bunch of trucks in there to pick them up. You fellas want a Coke?

PM: I'm fine, thanks.

LW: I think I'm going to get a Coke. [Brief interruption.]

MC: Having invested so much time, effort, money, innovation into creating these big company operations, why did the companies decide to get out of harvesting its own land?

LW: Well, you have to go back to the beginning. The Pilot Harvesting Operation was conceived to initiate mechanized logging in the South and bring it to a high level of performance. That was the whole idea of the initiative and I think it became first from the American Pulpwood Association's upper level management of all the companies in the South or all over the country that wanted to see better productivity in the woods. And so this initiative came down to the various company organizations through the managers that attended these meetings that APA held. And that's what prompted the Pilot Harvesting Operation in Union Camp, was following through on this initiative. So once we got started and continued meetings between the lower level managers in the committees that APA sponsored gave us a forum in which to trade ideas and most everybody was forthright and told what they knew about what they were doing and everybody prospered there from. And so as this thing moved on through the years, like I said, I was two years into Pilot Harvesting when I got moved into another procurement job. The Pilot Harvesting Operation was taken over by somebody else and run for another period of time. I don't know exactly when it transitioned into the company crews but it was along about '71 when I said that we decided to expand into the various forest areas and put these crews in the woods on each forest. And that's when it really came of age and became a regular operational job and it transitioned from being an experimental job. And I think the reason then that it later was phased out was simply because by having done all of this over these years and providing examples to private enterprise that the private producers and loggers had benefited from all this expertise that we had developed and they copied what we were doing. And it's pretty obvious that that's what took place and that's what we were doing in the first place. But as we became more and more productive and more and more perfected these operations to high levels of productions, the surrounding loggers latched on to our ideas and began to buy the equipment and modernize what they were doing and they went to training programs and got the benefit of the training that was available. So once all of this had begun to exponentially get larger from one producer to another helping them in the field to put this technology into work, there was not the need for the company operations any more. We had developed a productive workforce of private people that could do what we were doing and do it cheaper because we had to pay on company crews that would work an eight hour day and make overtime beyond that if they stayed and also receive company benefits on the level of other corporate employees. Our labor force was much more expensive than the labor available to the private producer in the woods. So naturally they could operate cheaper. Well, once they got to be productive enough to carry the needs of the companies and get productive enough to keep all the companies supplied with wood, then there wasn't any need for the companies to spend the extra money and the initiatives and the time it took to continue to operate their own crews. I think that's the whole thing.

PM: And the systems developed by the company are essentially the ones that are still in use today?

LW: Yeah, you know, with modification as technology improved and new innovations came to pass. Most of these producers now, they're sharp people. I mean they have to be to be competitive and they've been there a long time producing. They know how to do the business, produce the wood, and make the money.

PM: It must have been difficult for producers to make a transition because that would be a really big investment.

LW: Yeah, well they had help. I mean if a company wanted to see a producer prosper to benefit the company, there was money available to help him. He had to work for it but you know the companies, maybe they didn't go out just saying here's ten thousand dollars, go buy you a piece of equipment. But contractually through the wood dealers or subsidizing the wood dealers that had hands on contact with the logger, they could benefit that logger and he could be more productive and get better equipment you know.

PM: And I guess they could almost, you could almost say they sponsored the best producers.

LW: Well, naturally they would. You got a guy that comes in every day with X number of loads of wood and week in and week out, wet weather or dry, you're going to try to keep him alive and we did. But that's the reason the company crews, and plus the fact that the idea that Mr. Caulder had about the need for a productive preventive force was no longer needed. I mean that idea may have been realistic when he conceived it but by the time that we got out of the business there wasn't that initiative anymore. It had evaporated. There was enough productivity in the universe of loggers to carry the whole industry, at least in our area.

PM: And the company would deal with the producers through the wood dealer as an intermediary?

LW: Right, but then of course, there were anomalies. You might have like I mentioned we had the short wood guy that was given a dealership so to speak to pull wood out of our area directly into the mill. So you could, you had, well I think we called them supplier producers, just a one shot guy producing it but he was a supplier producer so he got a little bit of shekels on the side you know because he had a dealership.

PM: Right, so one person in two positions so to speak?

LW: Yeah.

MC: Two acts.

PM: Right.

LW: I mean there are all kinds of things done but basically you're going to keep those guys you could depend on.