

**AN INTERVIEW WITH
D. K. KNIGHT**

by

Peter MacDonald & Michael Clow

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**Explanatory Notes to Accompany the
Interview of D.K. Knight**
by
Peter MacDonald

Hatton-Brown publishes a stable of magazines specializing in the commerce associated with forestry. *Southern Logging Times* and *Timber Harvesting* (formerly entitled *Pulpwood Production and Saw Mill Logging*) are particularly relevant for those interested in tree harvesting. And for those interested in the history of the mechanization of tree harvesting, the May, 1995 issue of *Timber Harvesting* contains an historical time line, commencing in 1953, which identifies the appearance of significant technological innovations (this is what Knight is referring to when he speaks of the time line). Finally, Hatton-Brown maintains an archive in which all back issues of their magazines can be found.

A small point of clarification: when Michael Clow referred to the founder, Hatton, being the chap downstairs smoking a pipe, he was referring to a large photograph of him mounted on the wall.

D.K. Knight has been associated with Hatton-Brown for almost forty years. Thus he has been well located to observe the significant changes in the mechanization of tree harvesting in the American Southeast. When asked to identify the most significant of these, he spoke of the drive-to-tree feller-buncher on which was mounted the “hot saw” or the disc saw head – he still “marvel[s] at how quick those things operate and how efficient they are”. More than any other machine, this drive-to-tree feller-buncher equipped with a saw head expresses the essence of contemporary Southeastern tree harvesting systems. As well as being commonplace, they are also peculiar to this region of the country.

Resembling a front-end loader with a felling head in place of the loading bucket, these machines drive to the tree to be felled. As well as providing the provenance for their name, this action distinguishes them from the other type of feller-buncher – the “swing-to-tree” variant (mounted on a turntable, excavator type chassis, this class of machine remains in one location and swings to each of the trees to be felled). When first introduced, they used hydraulic shears to sever the tree; this meant that they had to stop to accomplish this activity. The introduction of the disc saw head, a kind of circular saw that was constantly rotating, meant that these machines could sever the tree without stopping for the felling process which now took, to use Knight’s words, “quicker than a hiccup”. Indeed, I have come to refer to them as “drive-through-tree” feller-bunchers.

The felling heads also accumulate the trees which have been felled. While holding the severed tree, the machine proceeds to fell another tree which in turn is held. This process is repeated until the accumulation capacity has been reached, whereupon the group of felled trees is deposited on the ground in a bunch (giving rise to the second epithet in its name). These neat bunches permit a skidder equipped with a grapple to easily grasp the entire bunch for removal to

the roadside for further processing. (This was much faster than the old cable skidders where cables had to be attached to each individual tree.) These feller-bunchers are constantly on the move, felling and accumulating trees, then depositing them in convenient locations. The addition of the saw head has transformed these machines (and the entire harvesting system) into a prodigious productive force. Moreover, since these heads did not cause splintering around the cut (as did the shear heads), the logs produced could be used in the manufacture of lumber.

Given the historical significance of the disc saw head, Knight's reference to John Kurelek as the engineer who designed the first practical saw head is of interest. He did so while still employed by Koehring Waterous in Brantford, Ontario, Canada. Knight's reference to Koehring as the "cat's meow" during the period of the formative stages of mechanization is a position with which this writer certainly concurs. In addition to the saw head, they were responsible for such notable machines as the shortwood harvester and the feller-forwarder, in both of which Kurelek played a significant role. The demise of this company still angers some of its engineers. By the way, they were ultimately taken over by Timberjack, not Waratah as both Knight (and I) suggest in the transcript.

The above account is germane to Knight's account of Tigercat's "cinderella story". Tigercat was established (in 1992) by some ex-Koehring engineers who in turn hired other ex-Koehring people. The account by Knight of the development of their first drive-to-tree feller-buncher (in which Kurelek again played an important role), in response so Knight informs us to the needs identified by Southern loggers themselves, they would see as a replication of the old Koehring design philosophy. Innovation driven by end-user requirements has delivered to Tigercat the position of the dominant player in this particular market niche, displacing those manufacturers who previously claimed this title – including Hydro-Ax, one of the companies mentioned by Knight. A Canadian company conquering the American Southeastern market in the face of large American competitors is a phenomenon worthy of note.

Finally, a description of some of the machines Knight mentions. The Beloit Harvester was the first successful tree length harvester. When wheeled cable skidders made their appearance in the early 1960s, able to transfer a felled and delimbed tree (thereby giving rise to the term "tree length") from the stump where felled to roadside, these tree lengths were produced by workers with chainsaws. To fully mechanize this system, a machine able to simultaneously fell and delimb was required. The Beloit performed this function. Mounted on an excavator chassis and possessing a high tower, the machine would position itself at the tree to be processed, delimb and top the tree by running its shears up the tower, and then sever the tree. This is the only machine ever to delimb prior to felling. When skidders became powerful enough to transfer a felled tree with its top and limbs still attached (this is referred to as a "full tree"), this genre of machine gradually disappeared from the woods.

The cut-to-length (c-t-l) harvesting system was originally developed by the Scandinavians. The developmental objective was to maximize merchandising potential – delimiting and cutting (slashing) the felled tree into log lengths such that the maximum amount

of the high value product of lumber could be realized, with the residue intended for the lower value product of pulp. These machines are equipped with computerized measuring devices to automatically accomplish this goal. Though they are becomingly increasingly common in Canada, Knight discusses some of the reasons why he feels their adoption by Southern loggers has been timid, to say the least. In some of the instances of Southern use of which he is aware, he talks of these processor heads being mounted on an excavator chassis where they process felled trees (provided by the skidder) at roadside. This is interesting in that the machines originally were designed to operate at the stump.

In the post-war days of pulpwood harvesting, small straight trucks (bobtailed trucks) delivered their wood to concentration points (wood yards) from whence they were shipped by rail to the pulp mill. As the shift from pulpwood (shortwood) to tree length progressed, these same trucks would be delivering long wood. But since the transportation system and the pulp mill was still premised on shortwood, it was necessary to transform the long wood into shortwood at the wood yard. The Currie Cost Cutter was a giant chain saw mounted in a superstructure under which the truck drove. Once positioned, this chain saw was lowered to slash the loaded tree lengths into pulpwood lengths.

D.K. Knight, because of his participation in the industry as a reporter, editor, and publisher for the past four decades, is an observer worthy of attention.

Peter MacDonald (PM): Okay, so today is the 2nd of June, Wednesday 2004. We're with Mr. D. K. Knight out of Hatton-Brown, and Peter MacDonald and Michael Clow are the interviewers. Mr. Knight, for the purposes of the oral history we would like a brief biography if it's not too intrusive, when and where you were born and how you got involved in the business that you are now.

D. K. Knight (DK): Okay, I was born in 1944 in east central Alabama, raised on a small farm, truck farm. Attended high school, went to college for a while, dropped out, married, got into the newspaper business from floor sweeper, melting lead, whatever it took, running the press, small newspaper. Eventually got into proofreading and so forth and became a cover reporter and started looking at the police blotter, writing obituaries, literally starting from down here. And one thing led to another and eventually got a job with a daily paper and just sort of by experience and osmosis and hard work got different assignments and so forth. And after a few years of that, you know, I was looking for something better and different, found out about a magazine published in Montgomery, Alabama, in those days called *Pulpwood Production*. And one magazine, four employees, made an inquiry and one thing led to another and I wound up moving down here in 1968, in March '68. And I think I was the fifth employee. The magazine was an eastern U.S. based magazine at the time. It covered the area from Texas to Minnesota east and it's focus was in those days was on the production of pulpwood, which in those days was basically, at least in this area, segregated from a true logging operation. There were loggers and there were pulp wooders or paper wooders as they sometimes were called. So that's how I started and we had one magazine at the time.

PM: Was it Hatton-Brown when you first went to the magazine or was it just the magazine itself?

DK: I'm not sure.

PM: Was it Hatton-Brown when you first went, first joined?

DK: Yes, correct.

PM: Okay, but it was only one magazine at that time?

DK: That's correct.

PM: Well, perhaps you could give us a history of Hatton-Brown and the magazines that have appeared.

DK: Okay, Hatton-Brown goes back to the late '40s really. Mr. Hatton, our founder Hartwell Hatton, was a newspaperman. He worked in, of all places he's from South Carolina. He's a little short guy, very brilliant, grammarian, kind of an odd sort of a fellah really. He kept his head in a dictionary all the time. He liked to learn seven new words a day. He read Latin in his spare time. He liked to drink bourbon and tap water, warm water at that. So he had some real quirks but he was...

Michael Clow (MC): Is he the chap downstairs smoking a pipe?

DK: Smoking a pipe, that's correct.

MC: I noticed that was a type that's called a Canadian.

DK: He had many pipes and always smoked a certain type of tobacco. Scepter was the name, had something scepter. I can't remember. Golden scepter maybe was his favorite tobacco. But he always said he would die behind his desk. He was age sixty-nine when I came along. But anyway he worked at the

local newspaper having worked in Columbus, Georgia and in New York City for a while. Came back here, eventually I think tired of that work and at age fifty-six founded or got started doing some work with the local farm bureau organization. Founded a magazine called *Alabama Lumberman* in the late '40s, published it for a while and had his hands on a couple of other things. And Hatton-Brown, the first timber title called *Pulpwood Production* was founded in August 1953 and that was it for a good number of years. He had a gentleman by the name of Charles Klein who was his editor and that magazine covered the South only in those days. Pulpwood was a big thing. It was a growing industry. But no magazine really covered that aspect. I mean you had a few lumber journals and so forth that got into logging but this one was pretty vertical and so forth as I understand it. That magazine went national when it expanded to the lake states and the Northeastern parts of the country in 1962. I came along in 1968. The following day, Ramsey, a Canadian by the way, was born in Winnipeg I believe and had worked for the old Southland publications group, which published *Canadian Forest Industries*. He was looking for a change so he had met Charles Klein at a meeting, at an equipment vendor Mobark up in Michigan and Klein told him they were looking for a sales person and one thing led to another and Dave wound up coming down from Canada in his as fast a Rambler would go in early '68. He got here about thirty days before I did. And talk about a culture shock. Civil rights movement was going on big time. I mean it just had to be something else. But he saw opportunity and it turned out to be a good move for him. Brought three children and his wife and dog down and he made a big difference. He could really sell and the magazine grew.

Anyway, kind of speed this up a little bit. Mr. Hatton always thought he would die behind his desk. He was a widower. He eventually met a lady though and wound up getting married and so he decided to sell his stock. Klein was the heir apparent but he couldn't pass the insurance company physical for insurance. Mr. Hatton was going to hold the mortgage and he wanted an insurance policy to cover the note. But fortunately for Ramsey and I he couldn't pass that physical and so Mr. Hatton cut Ramsey and myself in as minority shareholders. Klein ascended to the presidency. This was 1981, no, 1971. You know we were young and full of it and ready to go and so we formed another magazine called *Logging Times* later called *Southern Logging Times* in 1972 and it was going to be a cheap southern only tabloid and we wanted a mill book and so we tried to buy one and anyway, wound up forming *Timber Processing* in 1976 and launched it. It was a national sawmill magazine. And then a few years later we exercised an option we had on Klein's stock and we bought him out in '81 and soon thereafter found a magazine called *Panel World* up in Indiana and bought it. Let's see, we tried another magazine or two. Anyway, we wound up now we have seven magazines. Five of those seven are forestry related, forest products related. But we consider ourselves a leader in forest industry publishing in the U.S. despite the downturn over the last few years and the consolidation and so forth. So that gives you a quick and dirty history of Hatton-Brown.

PM: You named two of the magazines in the forest products industry. What are the other three?

DK: Okay, we have one called *Timber Processing*, goes back to 1976. That's our sawmill magazine. We have another called *Panel World*, which is an international magazine geared to plywood and veneer production, OSB, etc. Then we bought one in '99, the oldest magazine in our family is called *Southern Lumberman*, which goes back to 1881. And so we do *Timber Harvesting*, *Pulpwood Production* became *Timber Harvesting* over time. And we expanded its circulation to the west in 1977. *Southern Logging Times*, still the South, *Timber Processing*, *Panel World*, and *Southern Lumberman*. The other two magazines are called *Power Equipment Trade* and *IronWorks*, which is a motorcycle magazine.

PM: Why the motorcycle magazine?

DK: Well, we're kind of glad we did it. It took us a long time to grow this title but I wish we had diversified more out of forest products, you know, the way things have turned out. But that's the only one that's growing right now. [Laughter]

PM: The reason I asked is because I'm a motorcyclist so I was just curious.

DK: Are you? I'll give you one of those too.

PM: All right, fair enough. [Laughter] So it was a matter of diversification, just good business practice?

DK: Right, that's correct.

PM: How would you characterize the objective or the goal of the magazines? I mean I think we can assume that you want to disseminate news and what's going on and that sort of thing but perhaps more than that?

DK: Yes, we always prided ourselves in getting out where the action is, getting in the field with a one on one interview, getting in the mill, reporting on the latest technology that a given mill has installed in a modernization or a new Greenfield project has installed or what Joe Jones logging contractor has done to improve productivity or mechanize and lessen his dependency on labor and so forth. But just as any trade magazine would do, it's basically just disseminating information that would be beneficial to small businessperson.

PM: Which I suppose almost inevitably would promote modernization and the latest techniques and those sorts of things?

DK: That's correct. Exactly, and we try to plug ourselves into issues as well. We editorialize and so forth. It's not just strictly mechanical and innovation but we try to keep our fingers in those issues and trends as well. And personalities, we kind of add, like to add a little entertainment in our magazines too.

PM: There's no shortage of personalities in the logging business I don't think. [Laughter]

DK: Correct. And a lot of the problems in Canada are the same here. You know it's kind of universal you know.

PM: I noticed when I was leafing through one of your magazine a few moments ago you had an editorial on double shifting. So that's the sort of thing you had in mind?

DK: That's correct.

MC: Because of our own focus, we're very much interested in the history of the development and use of systems and explaining why. Having been in it for a while yourself do you see the magazine as trying to help people have that historical perspective or is it very much now and future centered?

DK: I think originally it probably was more of a now and future sort of thing. But I think, I know from my own perspective I've taken a much greater interest in the historical slant of things and have a greater appreciation for that. Of course, at an early age I didn't really know what the industry was all about so it took some time to learn it and the same way for some of our other guys. And those of us who have been here a while you know, I guess it's only natural that you tend to become a little bit introspective or whatever and reflective on things. So I think that has bubbled over into the magazine, especially *Timber Harvesting* and to some extent our Southern regional tabloid, not so much the mill books but we have touched on that from time to time as well. So in the early days it was, you know, it was a little bit different than it is now from the aspect that you just brought up.

MC: Well, sitting in the position that you are, being a trade magazine for the industry, gives you an

interesting kind of point of view on the whole thing. In the time you've been involved, what has been the overview, your overview of how tree harvesting has changed over the time that you've been associated with writing about it?

DK: Well, obviously it's changed tremendously. I think probably one of the biggest impacts of the mechanization obviously has been it's much safer now days and doesn't take as great amount of muscle and exertion that it once did or the manpower. It's still dangerous work. It probably always will be. But it's certainly a far cry from what it was when so many acts were done on the ground you know, the toil of cutting a tree with a crosscut or an ax and managing horses or oxen or whatever. But it's interesting how a lot of people who aren't familiar with the industry still are very confused about forestry and how it works and they have no idea how high tech it is. You know they still think about Paul Bunyan and this type character in his plaid shirts and Blue Babe and all that sort of things. One of my pet peeves and I guess I sort of got this from Mr. Hatton, who was always a real stickler for the proper use of the English language and using the right word and so forth. But even some of our, the AVPA, the American Voice and Paper Association's newsletter, which I think they've quit producing the email newsletter, they still called it lumber, in the woods, you know, cutting the lumber in the woods. Well, you don't cut lumber in the woods, you cut trees and you make lumber out of trees or logs. So there's still a, even such distinguished journals as the Wall Street Journal you still get some confusion out there about what really is fiction and what is fact. And maybe that's true with all industries, I don't know. Maybe I just happen to be very familiar with this one and I sense it more than you hear it on a broadcast media and everything else. But you know I guess maybe we haven't done a very good job of educating the masses out there about what we're trying to do. And I really wonder sometimes if that's not true with all industries, that when people are busy trying to make products and do their job and that's their foremost concern. But anyway, I didn't mean to jump the track. Back to your question, I don't know. You go back and you reflect and you say okay, what one machine has had the most impact. It's hard to really pick one out but if you really go back, way on back, the railroads would have to be given some, a lot of credit for changing the way logging was done a hundred and twenty-five, thirty years ago. Shea come up with his locomotive, was it 1980 out of Michigan.

PM: 1880.

DK: Yeah, I think it was 1880 and you know that extended the reach of the mules and the oxen and whatever and really opened the forest up to another level. But then you had the chainsaw that came along that really revolutionized the cutting of the timber per se, not the transportation of it. Then you had your skidding machines and loaders and so forth, feller bunchers, all made a very significant contribution. But I would think that of all of the above the hot saw, as we know it now days, the hydraulic driven, drive to tree machine, especially in the South, really, really made a significant difference in productivity. Only going back what, twenty years now, has it been around. So I have to wonder though sometimes. I think maybe we've hit a level, a productivity plateau. How much further can you take it and perhaps somebody will come up with yet another marvel that will take productivity to yet another level. It's hard to say. But I don't find a lot of people really expecting that but it could be.

MC: Well now one of the things that interests anyone looking at the process of the mechanization is who and why was there a move towards industrialization. As late as the, you know, 1950s the techniques that people were using would have been familiar to someone a hundred or two hundred years before. And so in literally the lifetime of many of the people we are interviewing, everything underwent literally an industrial revolution. Of the various players, the people working in the woods, the producer, the wood dealer, the mills, who and what was the motivation for moving quite suddenly to a much more industrialized harvesting?

DK: Well, I think one big driver in it had to be the sheer demand for the material. You have to realize just

how fast things expanded from that period say of 1965 to 1980. I came along in '68 and I well remember a new sawmill, a new plywood plant, a new paper mill. I mean those things were popping up like new fire ant mounds pop up around here after a spring rain and that's overnight almost. It was such a, and if a new mill wasn't coming out of the ground, one was expanding. And companies were buying timberland. So the industry was very much on a growth. You had, you know, you had southern pine plywood that evolved in 1964, '63, somewhere back there for the first time ever. That was a significant contribution. A lot of your paper mills found themselves in the sawmill business, not by design but by default. They had to have a sawmill or two simply to procure timber because it was a timber procurement tool and it also made chips for the mill. So they had to be able to utilize whatever grew on the landscape out there so they often times built a sawmill or two or formed new lumber divisions, not so much to get into the lumber business but to be able to compete against their competitors who had also gotten into the lumber business. So they were about as interested in making chips as they were in making lumber but that doesn't really matter. They still needed logs to do either. And you had a tremendous expansion going on and obviously the procurement forces in those days, there was a lot of company logging going on as I'm sure you know about, Tom Kelly being your prime example, with the old Scott Paper Company. But I think they got, the companies had the budgets, they had the money and were willing to pour some out of it out in an experimental manner to test some of the new things that the equipment community you know was introducing. And then at the same time they were also getting some of the production, which they needed to fuel some of their mills. So why did it happen so fast, demand was one thing. I think probably labor was another. Of course, you could get, looking back on it you could find people much more willing to work in those days than you can now. And I think, you know most of your early vintage volume stuff say in the '50s and '60s were you took ag equipment or construction equipment and you modified it. Very few purpose built machines coming along there until 1960s, late '50s and early '60s. And I think loggers themselves are an innovative bunch. I mean they might not be engineers but they could come up with a way to take the bull work out and so you know I think they made a contribution. But probably demand and opportunity there met at about the same time or roughly in the same period and there was a lot of R&D money available in those days. I think your CATs and Deeres and Timberjacks looked around and said hey, you know this is something that's going to grow and let's put some money in R&D. And some of the pulp and paper companies put a lot of money into that. They made some of their own machines. Westvaco, Consortium, Owens-Illinois had a weird looking monster out there. Warner & Swazey the construction company that made ditch cleaning equipment, you know, they came out with a harvesting machine. Several Canadian companies, Rudy Vit, NESCO, you know, Cancar. That's kind of my take on it. It's just a confluence there within a fifteen-, twenty-year period where it just all seemed to evolve.

PM: Perhaps we can backtrack a little bit. I'm about to demonstrate my ignorance perhaps, but in what sense would having a sawmill be a timber procurement tool?

DK: Because during the period of rapid expansion companies were very competitive in their wood procurement work, reaching out fifty, sixty, seventy miles from a mill to buy timber. Well, you couldn't go out and rarely could you go out in those days and buy a plantation because no plantations existed. They were some maybe this high but they weren't of age yet to cut. But it was natural stands that contained hardwood, soft timber, soft wood soft timber, hardwood pulpwood, soft wood pulpwood. So in order to buy the tract you had to buy the whole thing. You couldn't just go in and say I want the pulpwood. So you wound up if they somewhere to utilize everything that was out there or most everything that was out there, many of them said hey okay, this is actually, it might not have been by design but in effect that's what they became, especially your chipping sawmills that were very fast, fairly economical to put up. But they were not very efficient producers of lumber. They made some lumber and a lot of chips. [Laughter]

PM: Instead of the other way around.

DK: Chips, hey, that's okay. Man, I've seen at some point back in 1973, for example, it was so darn wet

down here that these mills were utilized, they were looked upon as satellite chip producers more than they were lumber centers just to keep that paper machine going you know. They would still parcel out what they couldn't use, such as the hardwood component or whatever. That's what I was alluding to there.

PM: There would be no requirement, at least at that time, that they produce saw logs out of soft wood? I mean...

DK: Merchandising it to...

PM: That's what I mean, yes.

MC: What Canadians call best end use.

DK: When you have a hundred million dollars pulp and paper mill about to go down for lack of fiber and your ass and job is on the line, do you think you? [Laughter]

MC: Okay.

PM: That answers that question.

DK: In 1968 right after the Mobark, what was called the Mobark, forerunner to the Mobark chip harvester, it came on two trailers in those days instead of one. It had arms. A skidder rolled across it with logs and dropped them and the arms came up and rolled in...

DK: But to answer your question, you know in a perfect world you know you would, nowadays you do a lot of strict sorting everywhere. You know you wouldn't think of doing some of the things that they did thirty or forty years ago. But I've seen pine twenty inches in diameter run through a chipper to be taken to the pulp and paper mill. Shame but that's what they were in the business for, primarily to make paper and not make lumber. And I've seen hardwood, you know big as my body being girdled or bulldozed down to make way for pine plantations. Travesty. Twenty years later hardwood was bringing more than pine but nobody had the vision to see that. I mean it was kind of a weed tree in those days. That has nothing to do with mechanization I realize but.

PM: No, but it's interesting just the same and it's still relevant. I mean the reason why it works in Canada is because the government owns a lot of the land and they set the regulations. In private land you can do you know pretty much as you please.

DK: Yeah but now it's a different story than that today. You see loggers set up out there making twelve sorts you know. I mean they're taking it, you know, soft timber is down this size and so on. I was in Sweden in 1976 and I marveled at what they called saw timber, you know, this big. And I thought, man, we're binding stuff like that. And now what do I see here a few years later, saw timber this size. [Laughter] But another thing I remember saying, also on that Swedish trip I saw my first saw head, I think, 1976. I came back saying I don't think you'll ever see saws like that cutting down trees over here. I just don't think there's a need for it, blah, blah, blah, expensive and so forth and so on. They might, maybe in some places. And the next thing I know you know they were coming in Canada and the next thing I know they were going out West and the next thing I know, for all I knew, man, they show up in the South in 1984. Then in '85 they just take off and now they rule the woods. So I was certainly wrong on that. I remember an old guy down in South Georgia when I went to see my first one he said it's quicker than a hiccup. [Laughter] He said when you see the top of the tree shake it's already over. And it really is. I was amazed the first one I saw there. I've been around it for years and I still marvel at how

quick those things operate and how efficient they are. Somewhat dangerous, especially early on, but I think they've pretty much got that under control now. We still tell our people respect that saw head, you know. Any feller buncher, you let that guy know you're coming or signal him or whatever and don't gamble with that thing.

PM: Another thing that you said that I found interesting was that a lot of the changes and the innovations came from loggers themselves, those involved in getting the wood.

DK: Remind me to give you a story that we did last year on that very subject. Ray Hahn being a prime example up in Minnesota. He was a logger first and a manufacturer second. Pat Crawford, Chemco, Forest Pro, he was a logger first and a manufacturer second. Roger Drake was not a logger as such but he was kind of a smaller, up in Franklin, Virginia with a logging supply store and so forth. But one of his first partners was a logger, Ben Babb, who's now dead. And any number of others, the guy up in North Carolina, Hamby who developed the first pull through delimeter that you see so much of in the South that's designed to work with a knuckle boom loader, has knives that come around the crown and you pull it through. A logger developed that machine.

PM: That's new to us because that doesn't, or at least isn't used in Canada. You don't see them.

DK: Right. It was a logger who developed the first gate delimeter, just a stand-alone device. You're probably familiar with it.

PM: Yeah, we are familiar with that one now.

DK: A guy down in Florida who was backing some trees, I remember being on his job and he told me how it evolved. He was backing some trees around trying to get a grapple full, a grapple skidder, and inadvertently in so doing he was pushing the tops, the crowns through a thick stand of hardwood, some sort of gum tree. And when he brought them forth, pulled them out of that most of the limbs were gone. He said hmm, so he spends the weekend in his shop you know, builds a crude deal and it took off from there and was very popular for many years. You don't see as many of them now days but that was just a happenstance sort of thing. But yeah, that story you'd find quite interesting. There's a guy in Montana who has developed, a guy named Joe Bybee, who's built a recent machine. So these guys are pretty darn smart when it comes to. They're out there with it every day and, of course, they've had great input to input the engineers who come down from Canada, Tigercat, Caterpillar, John Deere and over time, hey, what do we need to do to this thing. What would you do? What do you need that you think we can design and so forth. So a lot of recommendations and suggestions to one extent or another were incorporated in some of these new designs.

PM: Two other names I can think of who would probably fit in this category would be Bob Larson and I forgot his first name, Prentice.

DK: Actually, it was Leo Heikenen who made the Prentice. And a guy named Norval Morey who was a logger himself who peeled popple by hand up there in Michigan. He developed the Mobark line of equipment. He was a woods worker. Now Leo, I'm not sure if Leo ever worked in the woods or not but he developed the Prentice. Even the latest Tigercat, what they did is a helluva story there with Tigercat as you know. They came down and interviewed loggers. I mean who in the world thought we needed to be showing a feller buncher in 1991. The last thing, I remember saying as much, saw that first machine down at a demonstration in South Georgia in 1992. Someone was saying who in the hell is Tigercat, you know. That thing won't ever get anywhere. Look how funny looking it is. It's odd, you know, shaped funny. But what they did they did their homework. They went around and they spent months talking to loggers saying what do you not like about your feller buncher. What do you need? What would you like to

have? One on one, back to basics you know. And these loggers unloaded on them and they took it back to Canada and by George, they came out with a machine and it's a Cinderella story. And it makes a complete forwarder line and makes damn good equipment. High, very pricey, but loggers will pay it if it's alive. It's interesting, some loggers are always complaining about the price of equipment. But Tigercat's a case in point that if you do build a better mousetrap, that gives you excellent service and lasts longer, then price is not necessarily the object.

PM: I can't remember, in the last few days someone told us, must have been either L. O. Wright or Tom Kelly, that one of the important people at Tigercat used to be at Koehring and his name is John.

DK: John McDonald?

PM: No, John...

DK: John Kurelek?

PM: Yes, yes.

DK: That's correct.

PM: Yes and he's really interesting because he was involved in their short wood harvester and feller forwarder.

DK: That's correct. John has quite a history. He's generally I think credited for coming up with that continuous rotation saw head idea, although it wasn't Tigercat. It was at Koehring, when he worked at Koehring, that he came up with it. As I understand it, the Koehring people, the first heads went on swings to tree, excavator type machines. And they were quite popular in Canada and then we saw them begin to show up down this way a little bit. But everybody was accustomed to the drive to tree shear type machine. Hydro-Ax, the market leader at the time, turned down Koehring's bid. Said lets see if you can wed your hydrostatic machine to this head and you know, cut it just like that. Hydro-Ax said no and then they went to Barko. Koehring went to Barko and they would up putting on one on a machine and through trial and error and so forth made it work and it took off from there. But Koehring was the cat's meow in the early days you know. Now it's known as Waratah I believe, isn't it? I think so.

PM: I think you're right. I mean it's a bit confusing because they've been sold and acquired, etc. Getting closer to people who actually worked more directly in the woods, one of the things that really interests me is that there really seemed, at least in the '50s and '60s, to be a kind of a local ability and knowledge and skills and so on to fabricate and to devise and to build. I remember Walter Jarck with the Go-Getter selling his plans for whatever it was.

MC: Thirty-nine cents.

PM: Thirty-nine cents and people taking them and building these forwarders out of whatever was available and with local people and blacksmiths and so on. That seemed to be a real presence in all of the local communities in the South, at least at that time.

DK: That's correct. Franklin Equipment Company prided itself, from their ads for years, they had blacksmiths, kind of a ghost type image of a blacksmith working there and they prided themselves in that type of, I don't know if you'd call it technology or expertise or whatever. But they boasted about that and for many years there they had the blacksmith image tied to their machines and so on. Oh, there's still a few. Another guy I think of, a guy named, ever heard of I. B. White?

PM: No.

DK: He was out of Blountstown, Florida in the Florida Panhandle. Mr. White, it's hard really to know who came up with the first tree shear. You get different stories. But Mr. White, while he, I don't think it was near the first, he improved on maybe the Harrington tree shear that evolved, the Roanoke tree shear that evolved from Harrington Manufacturing Company up in North Carolina. I think IP [International Paper] was instrumental early on in cutting a tree with a shear. Mr. Bush over in Louisiana, maybe even earlier than that, a Bush combine came out of the '50s. But Mr. White had a unique deal. He designed his machine so that it would conveniently fit on the front of a skidder. You could have a cutting tool up front and then you could have a grapple on the back and you could cut and skid with the same machine or you could bunch with it or whatever. But he had a thing that could raise up like this and when you went in skidding mode it was much easier to maneuver with the center of gravity back a little bit and so forth. Timberjack bought some of his patents and so forth early on. They offered a similar, he made a machine also that would cut hardwood. I think it was a big saw type deal or something. I can't remember exactly. But they never really did do much with his ideas but he made a little bit of money out of it. I'm just trying to think who some of the others were. But you're right, all these guys, some we never heard of you know, could do weird things, crazy things with stuff and make it as we say, everything in those days sort of had to be built sort of horse high, bull strong, and pig tight or at least loggers thought they were. So they were way tremendously overbuilt, big and bulky and over time, you know, they came down in size. But the timber was bigger in those days too. I've always thought this is very ironic. When I came on the scene there was no such thing as a continuous rotation knuckle boom loader. You had your smaller units that could pick up sixteen thousand pounds maybe possibly. You had no huge skidders. These skidders might have had a hundred horsepower, hundred and twenty. Yet the timber was a helluva lot bigger in the late '60s and early '70s. So what we've had here is, machines have expediently larger, horse high, bull strong, and pig tight, for a timber resource that has grown smaller. But I guess you needed the bigger capacities to handle more smaller stints. So that's you know, it's not really, it's kind of interesting when you think of it in those terms.

PM: I mean that's one of the things that forest engineers in Canada talk about, is the effect of tree size on productivity. They talk about small tree forests and how you cope with that in order to increase productivity.

DK: And I think smaller tree size was a driver in this advancing mechanization for that very reason. Rocky Creek Logging Company down here at Chapman, Alabama sixty miles south of Montgomery have two hundred thousand acres of timberland, one sawmill. They logged with D6 CATs and carts and skidpans and chains and whatever at least until after CAT came up with a skidder in the early '70s. But when you've got trees that are as big as this table at the butt you can log with a lot of different things and make it take you know. But when those trees get down like this then you've got to have a better mousetrap. So I think that figured into the scheme in retrospect.

PM: Yeah, that makes sense to me too. I think so as well. A lot of what might be thought of as minor innovations but still important like all the early loading systems and so on that people were devising and pallets and that sort of thing. And there's one company name that keeps coming up all the time and you can probably guess it but I'll ask you to talk a little bit about Taylor Machine Works.

DK: Well, you know I guess they were, you know, they made a lot of different things. They even made a skidder at one time.

PM: I didn't realize that.

DK: For a short period, called it Big Red you know. But they had the old, there were so many outlying yards in those days of short pulpwood and so forth, satellite yards, and so the trucks would come in and they were either offloaded by hand. Originally they were offloaded directly into a car that may have held cattle the day before you know and the manure would be knee deep or whatever. So the guy not only had to load the pulpwood out in the woods on the truck by hand and drive the truck to the railhead and offload it. He was lucky it was a flat car, you know, a rack car version, pitched in the middle so the five foot three wouldn't fall off. But if he was not so lucky he had to put it in a boxcar that had previously hauled cattle and the manure was either dry or wet. [Laughter] Not a lot of fun. But then they got mechanization where they would take an old loader, an old pulpwood Taylor yardster or whatever they called it with slings and hooks under there and offload these bundles and put them directly onto the short wood car or put it down on the yard and reclaim it later. That's how Taylor really got, and at the same time or maybe right before that in the early '50s, they also made the old Logger's Dream, which was largely a crude jammer of sorts I guess, if you would, with, took three men to operate. I think one to sit on the controls and operate the winch and another guy out in the woods to hook it, you know, to set it, and then a guy up on top of the truck when they got ready to you know to load the logs. They might wait until they got a load skidded up and then they would use the same machine you know I think to load the logs or they could do that. But they had a Pulpwood Dream that handled short pulpwood that looked a lot like the Logger's Dream, which would handle the logs, the pulpwood being in bundles on a rail yard and tricycle type weird looking thing. Old man Bill Taylor came up with that idea. They never did get really beyond, I mean that was a significant contribution in it's own way, but as far as going anything, I don't remember much Taylor did from the Logger's Dream era up until they came out with that skidder. In the interim they were making more rough terrain forklifts for sawmills and this sort of thing or these rough terrains that would continue to service the outlying wood yards for the short wood handling in a pretty big way. But the skidder I don't think was around but about maybe four years, five tops. And after that they even made a yarder. They made one or two yarders for some of the swamp applications and so forth in the South. Maybe they only made one but they did.

MC: Now by yarders you mean a forwarder?

DK: No, a West coast type yarder, a small one, a high [linear?].

MC: A high [lead system] ?

DK: Yes, that's correct, they sure did. I know we had a reporter that went over to Mississippi and watched it and had a big demonstration. It could have been just a prototype but they got some guy from the West coast, they felt like there was a future you know in the South for a select number and so forth. But it never did really, it just never did really work. I mean it worked okay but there never was a big demand for it. But yeah, there were a lot of Logger's Dream sold. You can still find their skeletons scattered about. Now he may have made another machine or two. Tom Kelly or somebody could probably fill you in better than I could because some of that may have happened before I came along.

PM: Was Taylor a small company?

DK: It was a pretty good size company for a southern company. I mean it got into cargo handling equipment and cranes and that's where most of its business is today. They still are a dominant factor in making forklifts.

PM: I didn't know that, all right. That's interesting to know.

DK: But Mr. Bill Taylor, Sr. died many years ago and Bill, Jr. he's got some serious health problems. He's about yea big and can't walk and so on. But it still, the family still has operations. They've been up and

down like many companies you know with financial difficulties and so forth. But not as robust a company as they once were, no, but still there, still surviving.

PM: Maybe we could talk a little bit about some of the company invented systems. And I suppose the first would be the Bush combine.

DK: Yes, that happened before my time but was very ingenious looking contraption. Tom Bush was the father of that, a brilliant man, really understood hydraulics and metallurgy. You know what I'm trying to say. But did a lot of things. Made a big use in Jim cranes for unloading barges and so forth for IP and coastal Carolina off intercoastal waterway wood yards, that sort of thing. I think applied he saw a shear cutting steel somewhere. This is the story I got. And thought hey if it'll cut steel, it'll darn sure cut a tree. Actually they had a little research group going around Olla, Louisiana, Jena in north central Louisiana, around some of those oil fields up in there. They actually took a Ford farm tractor and made a hydraulic shear, the story I've heard, in the early '50s and cut a few trees. And based on that success he got some company out of Texas that made oil fields or whatever, Timberline Equipment Company I believe and they, in conjunction with IP they developed the first Bush combine. And it's downfall however though it cut pulpwood size trees, a good size, maybe twelve or fourteen inches maybe about sixteen with the stump and then it cut, it was a short wood harvester is what it was. And then it had to be rehandled by a forwarder or something that came along or drive it out and put it on a trailer, you know. IP was the captive client, bought maybe a few dozen over time, not that many. A few dealers bought them. But I'm not sure that many individual loggers ever bought the combine. I don't even remember what it sold for but I'm sure it was a nice sum for that day and age. But it took, it was certainly, I don't know how reliable it was, don't know anything about that. But it just never did, I think labor was still plentiful and cheap and that was one of the things that held it back. But from that Timberline or Continental Emsco I believe it was went on and built a so-called, I think they made a TC100 thinning machine, a tri-wheel thinner that did a similar type thing but I think it was smaller and a little bit less cumbersome and less expensive. And then I believe they came up with yet another model of that machine. I can't remember the real difference in those two models. I remember the TH100. Some of the TH100s still worked into the '90s down here in Bay Minette, Alabama. I went down on the last company crew IP had. They still were running three and those things were still, you know, in their own way making short pulpwood. It's just that you know it had to be one of the last remnants of that sort of technology still going. In fact, I wanted a nameplate off of one for my collection but I never did get one. [Laughter]

PM: A few moments ago you listed a number of examples of company people developing their machines. And maybe we can talk about, I mean we know about Bush and the Bush combines.

DK: Well, some others who did that in a smaller way, IP also worked with some of the manufacturers like Franklin, you know, to make certain things, do certain things a certain way with some Franklin forwarders and this sort of thing. I remember Owens-Illinois, which in those days owned two or three pulp and paper mills about, had a machine down in Florida that it developed. I can't think of the name of it now but it's probably in that timeline. It was a huge big thing. It was a tree length harvester. Westvaco up in Virginia developed a feller forwarder type machine as I recall back in the early '70s. There was a consortium of four or five companies, maybe IP, Union Camp, maybe, shoot I can't think of, maybe Continental Can was involved in that. About six companies contracted with a guy to make a machine called, was it called a big ax. I don't know but I think I could point all of it out to you in that timeline. Just have to go back and look at some of those things. Those are just a couple of examples. Most of them though worked with what came off the shelf or had modifications made to it and tried company crews. Champion had company crews. Scott had company crews in a big way until the '90s. They were one of the last ones to go out, Scott and Union Camp, in the South. Weyerhaeuser still has a few still going mostly out West and Simpson Timber Company. But that's just about it. The recession of the early '80s and high interest rates, deep recession, you may recall that one. That did a lot of company crews in. And then you know the

recession of the early '90s took care of just about the rest of them or maybe they survived 'til the mid '90s and so on. But I think they served their purpose.

DK: ...efficient company crews at a low dollar cost but only Tom knows if all the true costs were assigned to logging like the mechanical costs and supervisor costs. And it may have been, I don't know. What Scott did have was that water tributary that most of their stuff was brought right into that river system and floated down and you know you can put a lot of wood on a barge and save a lot of dollars over putting it on trucks. But I just, I don't, oh, Boise Cascade I think had something going on over in Louisiana for a while with some of the machines they'd modified. I mean it was pretty common to see somebody come up with, and a lot of your regular companies, your machinery companies, were coming up with some things that made it to prototype, some didn't. Some never got down to prototype stages you know. Some did get beyond it and made a great contribution. But probably for everyone that did get beyond it, probably were two or three or four that did not.

PM: Until you mentioned it I really hadn't thought about it but I think having company operated crews acted as a bit of captive market. You know they could use their machines and may be much harder to do it with some...

DK: Yeah, IP was the only one that really did much of that. But yeah, they would.

PM: I mean it would facilitate the mechanization process, at least to that extent.

DK: Exactly, they were using Alabama, Arkansas, Louisiana, the Carolinas, those Bush combines, mostly a coastal plain type. It had to be pretty flat you know but some of those operators got pretty darn good production out of it. But what happened, here's another thing that happened to the Bush combine. It predated the advent of the chipping head rig. You know what the chipping head rig is?

PM: No.

DK: Okay, the chipping head rig was a sawmill design that most sawmills, when you think of a sawmill you think of saws cutting off the slabs and the outside is dispersed before the inner. But in this case, this was a set of heads, conical heads on chipper discs that actually chipped the face away, sides, top, and bottom. In a profile you have a round log and you had a chipping head to come in here on the side and it might come in here and chip out and leave that and go down and so forth and so forth, okay. You know, it didn't chip the whole thing off like a saw would but it chipped some here and some here and left that one by four out there or that two by four on the side and then it went through. You chipped first and then you went right through again with saws, chip and saw, chip-n-saw.

MC: Oh, chip and saw?

DK: CanCar was the big leader in that technology. I don't think they discovered it but they exploited it. What this did is it took, it redefined pulpwood and saw logs. It redrew the line, said okay, now we can take stuff so big and make lumber out of it, even smaller down to six, as it got better and better through time. You could go up to about a fourteen inch and maybe say from eight to fourteen. A lot of that was going into sawing pulpwood. And so Bush combine, one thing that knocked it out was that the fact that the head rig came along and hey, now we can take this smaller pulpwood or larger pulpwood, as it were, and make it now soft timber. These were the sorts of things I was telling you about making so many chips while they made lumber.

PM: Right, right, because with the Bush combine you got pulpwood and that's what you got.

DK: That's right, yeah.

MC: Is this what one of our people called super pulpwood?

DK: That terminology, that's taking it to yet another level but it's the same principle, yes. That terminology didn't evolve until the last decade where you've got canter equipment now that some of it's coming out of Canada by Auto Log and so forth, that takes even yet a smaller five inch log or whatever, maybe even four, and go through and these primarily are small timbers mills. They don't make boards necessarily but they'll make a six by six, four by six, four by four. But yeah, they're up there, taking what has become known as pulpwood and redefining it once more.

PM: Because chips work just as fine.

DK: Yeah, and a lot of this is coming out of, instead of naturally grown forest like the Bush combine, you know, was into, it's the plantation wood that you see. But few of those mills around, there are two in Alabama, maybe three, one or two in Georgia. But that's the super pulpwood. Some call it canter wood.

PM: You mentioned the consortium of five or six companies. Was that uncommon or common?

DK: No, that was kind of uncommon.

PM: That's what I would have guessed.

DK: Yes, that's right. But it was, and I think it was toward the latter end of the cycle, as I recall. It wasn't right there at the very beginning. It was somewhere toward the latter end and they said well, we want to put some money. Let's instead of our doing it separately, let's all come together. I think a company out of Illinois they contracted with to build a machine or two. Oh, I know what. They built the Probst harvester, P-R-O-B-S-T. That's correct, yeah. And I think some guy named Probst was the engineer who was the namesake for that. But I don't think they built but one or two.

MC: Yes there was one example that I'm aware of in Canada that happened quite early and that was L.R.A. [Logging Research Associates] and that was a consortium of four I think, four companies that really developed the full tree to roadside system, actually I think may have been one of the very first ones.

DK: Yeah. These ideas, I'm not saying that the companies did not have some good ideas but one of the more intriguing apparatus that I remember would be Beloit harvester that worked while the tree was erect. That was kind of neat. And one of those things worked in Maine for years and maybe a few in eastern Canada. I'm not sure.

PM: Yeah, that's right. There were some in New Brunswick that worked for years and years and they had a really good record. I think that was developed by Larson, if I remember correctly, or at least in cooperation.

DK: I think he had the idea and then would up, yeah, I think you're probably right but Beloit is the one who actually took it to market I think.

PM: Yes, yes, that's right. And I think they were the first one, though I may be wrong about this, to develop the grapple skidder to work with it because it could bunch.

DK: Yeah, that stands to reason, yes. I always heard it was either Beloit or what was that other one, out

of Michigan, still making machines. Can't recall it now.

PM: Clarke?

DK: No, [Paylor?].

PM: We were talking about the Beloit just briefly. And one of the Canadian companies, I think it was Marathon, I think had something to do with it as well. But that gives rise to another question I wanted to mention. For a period of time in Canada when mechanization was kind of working it's way through, after the skidders got fairly well established there was a move towards tree length harvesters that felled and delimbed to make a load for the skidder. And that doesn't seem to have happened, or at least those machines or similar kinds of machines were not used down here, as far as we're aware of at least, which kind of struck us.

DK: What period was that?

PM: Well, this would be the early to, no, the early to the middle '70s I think. I mean Beloit would be one of them but the other two that were tried in Canada with not as much success was the CAT 950 I think and then the Timberjack.

DK: That good, CAT 950's made good boat anchors. [Laughter] Strike that from the record, will you. I think here again it was a case of labor still being available to do that work, to take the limbs off and to top the tree. You know, I guess looking back on it, things were happening so fast that my guess is a lot of these guys were saying hey, I can now get this thing down with a shear. I can't find a man who's willing to go out here and fight all the insects and rattlesnakes to cut a path to the tree and cut it down you know. But I can pull it out to a clearer area and get somebody to swing a saw and get the limbs off of it. But then when that guy became scarce then something else came along, either the gate or the pull through or whatever. That's just my guess. That's one reason it may have taken a little bit long in stages down this way.

PM: Yeah, that makes sense because it seems to me once you're committed to getting you know a tree, a full tree out, you know whereas the tree length harvesters produced tree lengths at the stump, that would be the big difference there.

DK: Right, yeah.

PM: You okay so far?

MC: Yeah, I've just got some strategic questions.

PM: Well, one other big question that I have and then maybe we can pursue some of yours, is there seems to have been a really rapid shift from short wood to tree length systems here and short wood, as far as we're aware, has pretty much disappeared and tree length reigns supreme.

DK: Have you see a load of short wood since you've been down here?

PM: No.

DK: You can still find it but you have to go looking for it. I mean you just don't happen upon it. And I can, you know, well remember when it was very common. Well, it happened faster in some areas than it did others. My mentor, Charlie Klein, used to tell me that your more progressive loggers and your more

mechanized loggers appear on the east coast, the South Atlantic region, and as you go west in the Southern Pine Belt, the mechanization trails. And I watched it over the years and he was exactly right. Don't know why unless they had more plants that were, more agricultural interests that were siphoning off labor. I suspect that had something to do with it. More shipyards around, you know, and more naval military installations in the Carolinas and Georgia. More tobacco farming, more whatever, more peach crops, but yet he's exactly right and this was in 1968. In my first years on the trail it was common to find a guy cutting with a tree shear and skidding with a grapple skidder. But when I would go to Louisiana, for example, or Mississippi, he may still be using chainsaws and not have a, and in the same year, you know. I vividly remember making a trip to East Texas in the late '70s and the focal point of my story was that grapples had finally began to become commonplace in the state of Texas, grapple skidders. I mean it took that long. Timber is larger out there and labor I guess more plentiful but a lot of it had to do with tree size too. But you started seeing knuckle boom loaders mounted on trailers years earlier in the Carolinas and Georgia than you did in Mississippi and Louisiana. They still had them on trucks. Now it's rare to see one on a truck. They're all on trailers. Now you're seeing and a few years you started seeing track type loaders like you see out West and in parts of Canada and Georgia and gradually you started seeing a few as you came across. I don't know if that pattern still prevails or not but for many years it did. Conversely if you go from Texas, Arkansas, Oklahoma, Louisiana back East, you will see piggy back trailers used, pole trailers, folding poles much like you see in Western U.S. commonly used in Texas, Oklahoma, Arkansas, Mississippi. When you get to the Mississippi-Alabama line it starts stalling out. When you come across Alabama, you won't see any. They're rigid frame trailers. Somebody figure that one out. I have never been able to figure that one out.

MC: A challenge I'm not sure we can help.

DK: Has anybody brought that to your attention?

MC: No.

PM: No, but now that you mention it, you're right. We haven't seen one. However, we're going to Mississippi in a couple of days.

DK: You will see some in Mississippi. I think this holds a lot of truth, the statement I'm about to make. Weyerhaeuser's influence in Western Arkansas from the 1969 purchase of Dierks Forest, Incorporated and Weyerhaeuser brought people in from the west coast and said hey, you know, why don't you consider this and they had some company crews that did it and so forth. And then you had some more [lamint?] influence probably in Louisiana and word got around and some Louisiana loggers saw what was happening in Arkansas and blah, blah and it just kind of took off. But I think it was planted back there in that period of time. I see a few pole trailers around here but they're not folding poles, where the back axles ride up on the tractor. You might see some pulling the pole around just for the light weight but you got to go to Mississippi before you see, might see a few West Alabama loggers doing it but as you go West you'll see more and more of it.

MC: Well, having started it by saying what was the impetus to mechanization, what were the obstacles?

DK: Capital investments. Finding somebody who would willingly finance this guy who might be a little bit dicey, has never borrowed fifty grand or whatever in his life. In those days some of your dealers, you understand the dealer system and broker system in the South, the middleman?

MC: No, my next question was about the wood dealer system. So if the wood procurement system is part of the obstacle and part of the story, go right on with it, explain it.

DK: Well, some of your companies in those days would finance equipment for contractors directly. But then there's this element called the wood broker or the timber dealer, the middleman who is somewhat, I guess generic to the southern way of, the southern wood supply attained, understand that when your mill interests came down south from New England or wherever, Pennsylvania, it followed the coastline where the water was and so forth. What they typically did, they wanted to remain good neighbors and they saw themselves as outsiders coming in so they felt like the smartest thing to do would be to find some community citizen held in high regard and let him deal with the guys who would actually cut the wood and bring it in. And so the custom of the timber dealer or wood dealer took root and it worked well in Virginia and you know it worked all the way around and that's how the middleman and he got a commission out of every cord or ton of wood that went into the mill. And it was his problem to deal with the loggers and help bail them out of jail on Monday morning and do that sort of thing as the case may be. And he provided the stumpage and he also would provide them a market and he kept the wood bought up and a place to haul to and worked all that out and all the producer did was go to work and make wood and take it to the mill.

PM: Would the dealer even buy pulp when the companies weren't buying it as a way of trying to keep the producer going?

DK: Well, always did the best he could but I mean he was under a quota as well so everybody...

MC: Had to give somewhere.

DK: Right but he would often time finance a chainsaw even or an old beat up used truck you know, this sort of thing, very meager belongings that it took, possessions that it took to get a few loads of wood out a week. Or he might advance him on his, you know, the other thing you got to remember, there was a lot of cash going on and this sort of thing but the system still exists today except there's not a whole lot of capital, not a lot of money lending going on like it used to be. I mean everybody is much more astute with tax records and all this sort of thing. It still probably happens but it doesn't happen with abandon you know. But in recent years there's been sort of a logger shortage so I have heard reports that some dealers were, maybe with company backing, beginning to funnel some money out to help a guy buy a used skidder or a new one or whatever to make up some of this logger shortfall that you heard about for a while there last year. Right now every mill is pretty much flush with wood down here. So you don't hear much about the logger shortage that was there for about sixty days. A lot of that was weather driven anyway. But what were the obstacles to mechanization? Okay, I think financing, price, maybe availability. I think to some extent, availability of the equipment to an established dealer, you know, an equipment dealer because this was kind of sporadic and sparse in coming you know. It came to parts of the South before it did others. These newfangled knuckle boom loaders and these skidders might show up in south Alabama five years before they showed up in east Tennessee, or two years or one year, you know. I mean it didn't all just hit out like a shotgun blast because a manufacturer first had to be able make enough and then you had to find somebody who was willing to take his line on that he could trust and so forth. So it took a little doing. Some of the guys were just scoffers and doubters, you know, for a brief period. Some, you know, southerners are pretty conservative anyway so you had to have somebody to step out and be the guinea pig and try one and then after they saw what it would do then word traveled fast. Hey, I've got to have one of those. Maw, I've got to have one.

MC: Would you say that the wood dealer system was the idea of the companies?

DK: Yes, that's how it originated. And many companies, this whole dealer system thing has been sort of up and down like a roller coaster. It's still around and actually in the last few years it's gotten stronger with some companies, IP for example. It's still very much entrenched in the southern landscape, the timber dealer system. And you can get people, it's kind of like abortion. You can find people who fall on

both sides of the issue and they can defend both sides vigorously. But one reason it has sort of come back into favor is because of industry consolidation in the last few years. Everybody's running lean and mean. They don't want a lot of boots on the ground and foresters driving pickup trucks.

PM: The other thing that we've heard about, sorry to interrupt, is that companies recently have been selling their own land as well, which may have something to do with it.

DK: That's correct, that would be part of it as well, yeah, certainly. Many times when they sell huge blocks they get a cutting concession, you know, for a fifteen, twenty year period, so many tons a year or whatever. But yeah, they, you've had loggers, not to jump around on you or whatever, but one fallout from all this is loggers with foresters on the payroll now. They used to work for Acme Paper Company and now they're working for Joe Jones Logging, going out and buying stumpage for him to cut. That's been a definite trend in the last few years. Something you never saw back twenty years ago is a forester working for a logger. I'm sure some of these guys had to really, that was a tough mental adjustment for some of these guys to do that because too many foresters with an education tend to look down on the uneducated logger who may be a financial success but not an educational success. And a lot of that has entered into the system and still is out there unfortunately. It's just human nature you know.

PM: But this idea one might have thought that the wood dealer system grew out of the southern social conditions itself. The idea that the companies from outside came in to bring in this set of middlemen and take advantage of the relative cheapness of labor is a very interesting thing.

DK: Well, you could talk with Bill about this at length. Get him to give his own views on that but that's the story that I've always heard, is that's how it came to be and that they were in town to run machines and to make paper and they wanted somebody else to take care of the procurement side of things. Because you got to remember, in those days they probably had very few foresters on staff anyway and this was an opportunity for the locals to make some wood during the wintertime when they weren't farming or whatever you see. And many went from, how many loggers have told me that they got into logging from agriculture part time, full time, and so on. As long as a dealer does his job and is upright and just, he deserves a commission for going out and buying the timber and dealing with the landowners and working all these contracts out and all that sort of thing.

MC: He's probably got the biggest hassles of anyone.

DK: Right. But if he's just out there though to rip somebody off then personally I have a problem with that and some of that certainly has happened. But on the other hand, some of these dealers have been good to these producers and have helped them along and have taken great pride in seeing them gain their own legs, so to speak, and become a self-sufficient businessman. Many of them might have failed even without a dealer involvement or whatever. So you can, I'm sure there's a lot of success stories out there and a lot of heartache where some people have been victimized. And, of course, you've got to remember that it got it's footing in that unmechanized era but yet it's still around and doing quite well and is quite vigorous in some circles now. It's not necessarily universal. But I don't think you will find that system existing anywhere else. Bill Stewart says that it's a derivative of the agricultural era, the tobacco farming and all that sort of thing. Bill is going to be an interesting study for you guys. I'll guarantee you. As the southern boy used to say about the country preacher, he'd preach at the drop of a hat, well, Bill would drop the hat. [Laughter]

MC: I like that. That's good. Make sure we've got that on tape.

PM: We do. I think what I'm going to do is I'm just going to flip it over.

PM: ...they're going to make out of [to pay you?]

DK: It would be an interesting study for somebody just to study the dealer system and do a lot of the anecdotal things that came out of that. I have heard some hilarious stories, you know, about. But anyway, it would be very interesting.

MC: I mean it certainly would and it's just the thing for sociologists. If they realized what a fascinating topic it would be I'm sure that...

PM: More would be studying it for sure. I mean there is something not quite like this but there are some similarities historically in New Brunswick as well. And you know people arranging for workers to work for the winter living in wood camps and that sort of thing, that was all organized by certain people.

DK: Yeah, oh yeah.

MC: One of the big differences in New Brunswick is that very quickly the wood that they were looking for in the 1820s and '30s was no longer available from farmers. It had to be derived way back country and you had to pay people to do it so you actually had to move to an employment system rather than one built basically on merchants with debt from farmers.

DK: I see, yeah.

PM: The British took all, all the good stuff that was close and easy to get. [Laughter]

MC: One of the interesting things down here is that cut to length systems don't seem to be as, how should I put it, on the rise again as they do certainly in our neck of the woods where Swedish equipment is definitely there. It has grown in ten years and some people claim it's the wave of the future, as opposed to our fully detailed feller buncher system, from feller buncher, grapple skidder, delimber, and slasher. Why is the cut to length system not as popular in the South and what is happening on that?

DK: We've had many discussions about that internally here and have editorialized on it.

PM: Significant?

DK: Yes. I think there are several reasons and I'm not going to give you these in necessarily chronological order but I think there's a, you must understand, you asked me a question a few moments ago about going from short wood to tree length and we need to come back to that because I don't think I gave you a complete answer. But mills back in the '60s, '70s when short wood was giving away to tree length systems with such abandon, mills invested tremendous amounts of money into wood yard systems that were designed to handle tree length, or at minimum random length. They went to very elaborate lengths to put in cranes or whatever to handle this stuff and to stack it and to put in tree length drum debarkers, whatever, but at a considerable investment. They are reluctant somewhat to change that system. I'm not saying that it would take a lot of capital dollars to handle certain amounts of random length cut to length wood because seems to me you could introduce that in some way into your system and make it work. And I think a few of them have. But that's one limiting factor is a reluctance to modify those systems again to accommodate cut to length type material. You know the industry has been through, is just crawling out of a recession in the paper side of things and so that's a factor. I think another factor is loggers see this to some extent in the South as a return to short wood. So there's a cultural barrier in there, a mental block among certain contractors. And we all know that it is not back to short wood but I'm just offering that as a reason. I think they are a little bit fearful of the technology. I'm not sure. I think they're a little bit suspicious of it. They look at it sort of like a fowl looks at a wiggly form on the ground. Is it a snake or is it a worm, is it an enemy or a friend. I think another reason is the

infrastructure is not intact in the south yet amongst the logging equipment community to support this technology. Some dealers could do it but some could not. They just don't have the mechanical talent and the commitment there to deal with it. You know this is pretty sophisticated equipment that demands certain maintenance procedures. I think typically your average southern logger is not as maintenance prone or astute as he should be. Now having said that, let me say that there are certain things in place that maybe are changing this thinking. There are pockets of cut to length activity out there. You're sitting in one of them right now. Ponsse put about six or eight machines or maybe ten sets of machines down here in the last two or three years. And a pulp and paper mill that spent big money to go to tree length is handling this stuff under certain conditions when it comes in. I think they put it directly into the gum debarker when it comes in and they don't try to stack pile it in with all the other tree length stuff. And this was a dealer, one of these dealers who is the driver here. It's not a logger. You see and the reason for that is he's having to buy his timber and there's been such a glut of pulpwood on the market, this guy sees cut to length as an advantage when it comes to dealing with a landowner because he can extract the maximum value quite easily through this cut to length technology. So he might be able to go in and buy this timber from this guy, you know, and say here's what I can do. I can do you a better looking job. I can be more efficient. I won't tear your land up as much and I'll pull more valuable products out of this thing. And it happened at a time when the market fell out of pine pulpwood down here and whether the guy is going to stay the course or not, I don't know but it's been a couple of years.

We're talking about pure dedicated harvester forwarder systems now, Scandinavian technology. Now another thing that's happening, it's also happening in BC I just read in *Canadian Forest Industries*. In the last couple of years we've seen a significant acceptance of processor heads that are mounted on excavator type carriers. Timber is still being felled with a hot saw, skidded to roadside, and the processor-equipped excavators are processing that stuff with the computer technology. They're sorting like gangbusters. They're getting it down accurately. You know, they're delimiting it and cutting it all automatically and they're able to sort the stuff down very accurately and are squeezing and merchandising this timber stand to the nth degree, taking the human guesswork factor out of it. That is working for a lot of these guys that are being forced to buy more of their own timber and the companies are asking them to do that more and more. They don't supply the timber to cut carte blanche like they used to in many instances. So I understand that's also happening in BC to some extent, which is kind of incredible in itself. So okay, is it going to happen anytime soon? No. But it's going to happen on a case by case pocket-type approach and it may happen sooner than we think. It's got all the advantages of being more fuel efficient, two men versus a whole crew. Sometimes you can drive the machines from one tract to another. You don't have to have a low boy. You don't have to go into the big BMPs and close a tract out. It doesn't take near as much effort to close a tract out when you go in. It looks better, get more, squeeze more [goody?] out of the trees, all of the above. The downfall there is production drops and the training issues. Where do you find operators who can take to this stuff and look after it and who can really make it hum. That's an issue all over the country and some of your companies are addressing this with simulators and all that sort of thing and it helps. You do have some training centers I think in Canada and a couple have popped up in the U.S. But down here, you know, it's hard for a guy to convert to CTL too. I mean how's he going to trade in his equipment. He's got this traditional stuff out there that he's paid for. He knows what it will do. It's just a big, big hurdle for a guy to say okay, I'm going to trade seven machines in for two. A lot of these guys feel for their employees and they really want to take care of their workers. So you've got all that in the mix, and especially if he's not assured that his dealer can take care of it. On the other hand, it's more, you got a lot more trash type, understory down here that works and is not, it's a real problem in many places with bar and chain heads, chains flying off, saplings and vines and crap. Lot of understory that is a big problem. A logger in Georgia who went to cut to length with a Ponsse system said man, I had no idea I'd encounter the down time. He even hired a Hispanic with a bush saw to go out and cut stuff away. It was more effective to pay that guy the labor than to keep his big expensive machine going, to keep the guy in the seat and not down putting the chain on all the time. So that was one underestimated area. He underestimated it but yet he's over south of Atlanta

about fifty miles and he knows he's into real estate cuts largely, second thinnings and this sort of things. And I think another thing that's going to play into more CTL systems is fuel costs, insurance costs. If they could just find the right labor they could train because it's working. Finding the right labor, you need fewer of them but you just got to have the right ones. Yes, it is a little bit less productive but yet you've got less directly to look after and support and fewer engines wearing out and tires wearing out, less fuel consumption. The job looks better. And no, it's not as productive but yet you could operate it in maybe twelve, sixteen hours a day if you wanted to and sort of overcome some of this stuff. So the second shift thing has just caught on with some people with conventional equipment but that's a big barrier. There's some issues there and some questions that remain to be answered about all that but it'll probably shake itself out. And it will work for some people. It won't work for everybody.

MC: Why is twenty-four hour operation even an issue? It's the norm in Canada.

DK: Well, maybe you need to read my...

MC: Magazine.

DK: And just consider it's a lot, I don't know. You talk about a, in many places it's hard to get, the logging force down here is growing older. Most loggers I know don't want to work more. They want to work less. The last thing they want to do is worry about their machines being run out there at night without their being out there. Where it will work is if there are two brothers who own the company, or three or there is an heir apparent, there's a son in the mix or two, who are willing to take on that second shift and be out there on the job or if a guy can find somebody he can trust. That runs his cost up but if he's got somebody already in the mix. Another issue down here is some insurance companies are not going to insure twenty-four hour operations. They're very leery of that. Bituminous has already said un-uh, we don't want any part of it. We have enough claims as it is out of loggers. Now I think some of your other insurance companies are going to look at it a case at a time, look at a guy's record. So okay, we'll try it. Let's just see what happens. You fighting, in the wintertime you're commonly fighting a lack of daylight anyway in Canada and that's another reason that it's a little more common there. Whereas, here you know you can still get eight to ten in even in December and January. But that's why this is, a lot of loggers, a lot of companies are saying well, if you run your machines twenty-four hours a day you going to save interest costs, financing charges, that you get greater utilization of machinery and all that sort of thing. On the other hand, you're also wearing the machines out twice as fast. So if you wear your machines out ahead of your depreciation schedule, what are you going to have left? The IRS says okay, you can depreciate it in five years, that's it. But if you wear it out in two, what the hell are you going to have? These are the unknowns that we are playing with now and trying to sort out you see. So how is a machinery dealer going to, if you've got ten thousand hours on your '03 model Timberjack feller buncher and you go to trade it, is he going to give you as much for a two year old machine with ten thousand hours as he would a four year old with seven thousand hours? Don't know. You know it's all so new that it's yet got to go through a cycle of machines to see how it's going to impact things in that regard see.

PM: Are the loggers also worried about it intensifying competition amongst them?

DK: Perhaps but here's another point. Now most contractors can't even work five eight-hour days because they're on quota. So they're saying why in the hell should I go out there and kill myself and work double shifts to produce twice as much? You're not even taking what I can produce now see. And that's a big issue right now. But now the companies' tact is okay, you ought to be able to work for less if you work your machines double shift. So that's where they're pushing from because they're saying okay, in South America is happening and in Canada it's happening and you're two dollars a ton higher on average than your brethren in Brazil are and this sort of thing so this is what we want you to look at you know because we can become a global player and stay in the game if you'll work with us and help us out. And

they're making some legitimate points here but here again, a lot of this is cultural I'm sure and the thinking is so radical you know. But we may break through this too just like we broke through the short wood to long wood, the tree length thing. But right now that's where we are. Some of the guys who have taken it on seem to like it. But it's kind of special cases where they've got a son or a brother who is willing to take over at five o'clock or four and go to midnight or whatever you see.

PM: Can we go back then to the shift from short wood to long wood.

DK: Yes. Okay, I think the point I made was that it happened faster in some area than it did others.

PM: Well, it seemed to happen very quickly here and not only did it happen quickly but it kind of took over everything.

DK: Yeah.

PM: Whereas in Canada there always was some short wood.

DK: You got to remember to, a lot of people don't realize this but there were some mills accepting tree length, or long wood, might not have been long as a tree, back in the '50s. It was happening in Texas at a certain sawmill out there. It was happening in Florida down at Alger Sullivan Lumber Company in Century, Florida, and some pole plants down in Florida and so forth. So it was certainly the exception but it was not unheard of. I've gone back through the archives and I've seen it back as early as '54. But I think manpower, I think the labor, the production was phenomenally increased. It was much safer to go to tree length. You could get a load on a truck so much faster. You could get it unloaded so much faster even if you had to go through, a professor at Virginia Tech will go through that old Currie Cost Cutter type thing, the giant chainsaws and all that, that was a short cut to get him where a mill wouldn't invest the twenty million needed to handle it direct but it would put in a remote chainsaw type thing and run it through there. The only thing wrong with that was it was a price to pay for that too and it took a special trailer that had extra standards and that meant your weight, your trailer probably weighed twenty thousand pounds, for crying out loud, you know, by the time you got all that steel in there because once you cut this stuff up you had to have enough standards to hold it, so anyway, but a pretty impressive thing to watch a giant chainsaw go through a whole truckload of wood. You know it just, and the mills saw what was happening and here again the growth period, the demand I think played into that and they were willing to make those investments and then the new mills coming on, they said oh well, there's no question. We're going to set this up to accept tree length you know. But they got to a point though there that so much was coming in tree length to some mills a few loggers actually went back to short wood because they could get unloaded so much faster. It overwhelmed the system you know. Or they had a mix of some short wood and some tree length. But yeah, it happened pretty fast, maybe faster than it did anywhere else on the continent. I don't know. You never had that eight-foot wood here or anything like that like you do in the lake states. It was either short or it was cut to length logs. And what was so amazing, even your sawmills went to it as well, many of them did. Instead of cut the size logs they began taking it to a large extent and now the norm for your sawmills, OFB plants, whatever.

MC: Well, I ran out a billion questions some time.

PM: Well, I'd like to thank you very much, Mr. Knight. We really appreciate your time.

DK: I hope I've shed some light on things.

MC: Oh, very much.

PM: Oh, I think so, for us at least anyway.

DK: But you'll enjoy Bill. He's quite a character. He too has had a heart condition, still has it but he's dealing with it so you might compare notes there.

MC: Yeah, I do have congestive heart. You've got it. It don't go away and it don't get no better.