Interview with Anonymous Worker #11 (Machinist), Connecticut Workers and Technology Project, by Robert Asher, March 1, 1982.

Asher: Could you tell me how long have you been working in manufacturing?

Worker 11: Five years.

RA: So you got into manufacturing after school?

Wll: Yes. Not too long after. Two or three years.

RA: After high school or college?

Wll: High school.

RA: Did you do some other work before you got into manufacturing?

Wll: Yes. Just odd jobs. Then I tried to get machinist trade and I started working on machines. I've been with it for five years.

RA: Now, when you say you wanted to get into machinist trade, you wanted to learn to be a machinist, is that the idea?

Wll: Right.

RA: Okay. So you didn't actually enter an apprenticeship program, though, did you?

Wll: Not as far as with the state goes, but as far as with my boss. It was like an apprenticeship program within the company.

RA: I see. So when you were hired by the company, they put you into a training program, is that it?

Wll: Yes. They were supposed to train us, and then after a certain amount of years you were supposed to be a machi-
RA: Okay. So that was the clear understanding when you were hired.

Wll: Right.

RA: It wasn't called apprenticeship; it was called a training program, is that it?

Wll: Right.

RA: I see. How many years was that training program supposed to take?

Wll: (It was) supposed to be for five years.

RA: For five years. So you're just about at the end of that.

Wll: No, because I'm not there anymore.

RA: Ah, you're at a different company. I get you. Okay. What kind of machinery did you work on in the first company?

Wll: Lathes, milling machines, horizontal milling machines, vertical milling machines, drill presses, different types of lathes.

RA: How long did they actually do any training before they let you actually operate a lathe, for example?

Wll: Right on the spot.

RA: You walked in and they put you on a lathe.

Wll: Yes.

RA: Now, was this making final product or what?

Wll: Yes. This was production basis. Somebody set up the machine and you just operate the machine. They show you what to do. Then after you go along for a while, the boss would show you the print, not show you just to
operate the machine, but he'd show you a blueprint and
show you what you're making and explain to you why
you're doing it and how to check your parts out, using
different gauges. That's how you learned.

RA: Was the first lathe you worked on a bench lathe?

Wll: Yes.

RA: Okay. It was a bench lathe. How big were the parts
that you were machining?

Wll: Very small parts.

RA: And what kind of tolerances were you talking about?

Wll: You're talking about between five and ten thousandths.

RA: Okay. So you're working pretty fine then.

Wll: Yes. Five and ten thousandths is close.

RA: Okay. So you're making a small part and the machine
was set up for you. You had to put the part into the
fixture, right?

Wll: Right. Well, into the cowlet.

RA: The cowlet. Okay. They call it cowlet.

Wll: In a lathe it would be a cowlet.

RA: You mean in a drill press it would be a fixture?

Wll: Yes.

RA: I get you.

Wll: Either a cowlet or a chuck.

RA: All right. Cowlet being c-o-w-l-e-t? Okay. Or the
chuck. I see. You would then bring the cutting edge
right up? By turning the gears, right? The wheel.

Wll: Whatever you have to do. Either turning down the part --
like this here was a South Bend turret lathe, which has
a multiple spindle of different toolings on it, which you bring in, and as you index it, it'll come around to what you have to do. It can do six or seven different operations, all in one shot.

RA: All right. So they're all pre-set by the set-up man.

Wll: Yes.

RA: So you basically just index each one in. Is that right?

Wll: Or turn it down with the turning tool.

RA: Right. But they obviously had to tell you how to read the turning dial, right?

Wll: Yes. They had to show you basically from scratch. First you start out on the drill press and then you work your way up.

RA: So you didn't start on the lathe.

Wll: No, I started off on the drill press.

RA: Oh, I get you. Okay. So first you worked with a --

Wll: That's the way you start. Every machine operator starts off on the drill press.

RA: Okay. Let's leave the lathe for a second and go back to the drill press. That was the first machine they actually had you work at. In company one.

Wll: Yes.

RA: Again, I assume that the job was set up for you when you first started on the drill press, right?

Wll: Yes. But it doesn't take that long to set up the drill press yourself. It only took me a month.

RA: So, with the drill press you put the part in the fixture,
you bring the lever down, initially, and anyone can do that off the street basically.

Wll: Right. But the whole object is -- anyone can come off the street and pull the lever and drill a hole, but there's other things involved besides that. I mean, you don't just drill a hole. You got multiple spindle drill press. It would be five drill presses with one table. There's drilling, and there's tapping, and then you might have to ream the hole, and counter-sink it, or counterbore it. So when you read the print you have to know exactly in your mind when you look at the part what they want. Whether it has to be drilled, tapped, reamed, counterbored, countersunked, whatever. There's a lot of things.

RA: Okay. But initially the set-up is being done for you.

Wll: It was, in the beginning.

RA: In the beginning, on the drill press. Until you learned it, in other words. Outside of set-up, is there any difference if you're going to, say, ream as opposed to counterboring, or whatever?

Wll: Oh, yes. It's a big difference. To ream a hole, after you drill it, if it's a close tolerance hole, you take a drill that's a couple thousandths less than the reamer. So you're only taking off maybe five thousandths with the reamer --

RA: So the reamer's like a big cut, in other words.

Wll: Yes. The reamer's like the final cut for the hole. So it's right, round within a thousandth.

RA: So you finish it with something else, or the reamer's
Worker 11

the finishing?

Wll: Yes.

RA: Oh, so first you make your approach cut with a large
drill you need to make the hole, and then you get it
down to the final tolerance with the reamer.

Wll: Right.

RA: I see. So the reamer is the most precise part of the
hole.

Wll: Right.

RA: But essentially it's just using another drill bit,
right?

Wll: No. A reamer.

RA: A reamer. Going up and down, you mean?

Wll: Yes. A reamer is another tool.

RA: Right. Okay. I know that your drill will just rotate
around, but a reamer goes up and down, isn't that it?

Wll: No. A reamer spins around like a drill.

RA: It does. Okay. But it's different from a drill.

Wll: Yes. A reamer is a straight cutting tool. It looks
similar to an end mill, not really an end mill. It's
hard to describe. It's like a straight drill, sort of.
It's straight, with cutting teeth all around. It's
made to do a finish. It's a flat bottom. There's no
point on it.

RA: I see. I get you.

Wll: You have to drill the hole first before you can put it
in there.

RA: I get you. And then there are cutting edges all along
the shaft of the reamer, up and down.

Wll: Right.

RA: Whereas in the drill, basically, it's just the tip that's doing most of the cutting.

Wll: Right. The point.


Wll: Tapping is used for screwing something in, such as a screw or a knob or whatever is threaded. You wouldn't most likely use a reamer if you're going to tap.

RA: You're making a thread in other words.

Wll: Yes. You're just threading a hole.

RA: I see. So what do you use to make a tap?

Wll: A tap is --

RA: -- is the device that makes the thread.

Wll: Makes the threads. Right. You put in a tapping head that you plug into the drill press. It's a tapping head. They call it a floating tapping head. They've got females and they got males, whichever goes in. The tap goes into the hole and threads the hole. It has elasticity.

RA: The tap can bend a little bit?

Wll: No.

RA: It's flexible?

Wll: It's flexible. When it gets to the end of the hole, it snaps back up.

RA: It's made to do that, in other words?

Wll: Yes. In the tapping head.
RA: That's interesting. I wonder how they do that. There's something about a tapping head so that when it goes through the hole it then comes back?

Wll: Yes. It's in the tapping head.

RA: It reverses itself, then?

Wll: Yes. (It) reverses itself, automatically, the way it's in the tapping head. They're pretty expensive.

RA: I can imagine.

Wll: It's just a small little unit.

RA: When you start on the drill press initially, you just drill holes, and then you get into more complicated things like reaming and tapping. Is that it?

Wll: Yes. There's counterboring.

RA: Which is what?

Wll: After you did what you did to the hole, drill it, whatever, then you can come down with a counterborer that's used mainly so that a head of a screw doesn't stick out.

RA: Okay. I get you.

Wll: The counterborer has a pin in the middle that's the same size as the hole you drill. So you know that you're central. The pin goes directly into the hole, and then the counterborer comes down on it and cuts around the hole a certain diameter. So when you put the screw in there, you usually make it deep enough so that the screw is flush with the bottom.

RA: Now is the tolerance on the counterboring really precise?

Wll: No. Usually counterboring is not really that precise. Unless it's specified, but it's not usually.
RA: Now, how long did it take you when you just started with that drill press, and first you just drilled holes basically?

Wll: Right.

RA: Did you move to reaming next basically?

Wll: No. What they did was show you (how to) pull the lever, on it, do this, and that's that. But you didn't know why you were doing it, or how to set-up or --

RA: Whether it was reaming or tapping or anything.

Wll: Or if something went wrong with it, you wouldn't know the difference.

RA: But then gradually you're learning. You watch the set-up man.

Wll: Right. That was the whole object.

RA: I see. And you talk to him and he tells you what he's doing, and then you can figure it out yourself.

Wll: No. What happens is, after the first couple of times, then he will have you try to do it yourself, and then he will explain to you different things about it, and you have to try to do it yourself.

RA: So he's your teacher, so to speak.

Wll: Right.

RA: I get you. Okay. I never talked to anyone who's really told me how you start from scratch in becoming a machinist. So this is very valuable to me.

Wll: Oh, yes. That's the way it is.

RA: Okay. So, you mean, in other words, after three or
four days, he might have you try a set-up.

Wll: If you've never been on a machine before, I don't think -- no, not three or four days.

RA: A little longer.

Wll: Maybe a month.

RA: I see.

Wll: You can get hurt very badly.

RA: If you don't set up correctly.

Wll: Not only that, even just drilling a hole, so to speak, is not drilling wood, or something like that. Usually with a lot of drilling operations, you're drilling metal. These that come out of the foundry have pocket holes in them sometimes. If you don't know how to lift the drill right, (it's called lipping, in the trade) on the grinding wheel, and you don't come down right, if you come down too fast -- this is a hole that you're drilling all the way through, not a hole that you're just drilling to a certain distance. When you're drilling a hole that goes all the way through the part, if you don't come down just right, you have to feel it, and if you don't lift the drill correctly, it will take your hand right off.

RA: So there's a certain art to that.

Wll: Yes.

RA: It's not really unskilled. You've got to get it just right.

Wll: Right. Because if you don't, it'll grab at the end of the hole, and the piece will go flying, and your
hand will go along with it. It'll wrap it right around the drill. I've seen it happen to quite a few people.

RA: Is the key the first approach when you begin to cut or just the right speed throughout the whole cut?

Wll: You have to clear your chips.

RA: You have to keep clearing your chips?

Wll: Yes. Keep coming up and down until your chips (are) out of the hole. So the flute, they call it, and the drill is where the chips go up. But the thing is, when you feel you're coming near the end of the hole --

RA: That's the key.

Wll: Yes. You have to let up and gradually -- you got to feel it going down. You can feel it in your hand. Still and all, that drill has to be lipped perfectly because if it isn't, you hit an air pocket, it's going to go flying.

RA: So you tell by feel and does the sound also change if you're going to hit an air pocket?

Wll: No.

RA: So it's all feel basically?

Wll: Yes.

RA: Okay. Obviously, if you mess up and you go too quickly, then the piece takes off.

Wll: Yes. It'll grab your hand around it and cut your hand open.

RA: If you're pulling the drill press lever with your right hand, is your left hand on the fixtures, so to speak?
Wll: Yes. If you're right-handed, your left hand's on the fixture.

RA: Now, why is your left hand on the fixture at all? Just for balance?

Wll: You have to hold the fixture. If you don't, it's going to go flying. You're holding it with that.

RA: You're holding it!

Wll: Yes.

RA: It's not locked in?

Wll: No.

RA: Why not?

Wll: Because if you have to do five different operations on it; like I told you, (with) a multiple spindle drill press, you have to drill, tap, ream, counterbore or whatever. Or, say you have to drill ten different holes. You might have to go through ten different . You just flip the fixture around. It's already pre-set. Just fill in the holes -- eleven thirty-seconds drill. You have to maneuver it. The only time the fixture would be locked in place is if you're only drilling one hole and that's it. But it's never like that.

RA: But, now, what puzzles me is that is the hand really strong enough to prevent any deviation, in terms of the line-up and everything?

Wll: It's already lined up. The holes in the fixture are very precise holes.

RA: So once you're through the hole in the fixture then, you're okay.

Wll: Yes. It's already lined up. The only thing is, though,
you have to make sure the table it sits on underneath is clean. Completely clean. There's no chips underneath. Because it'll make it vibrate. It won't be drilling correctly, because it'll cause a lot of complications. It has to be put flat on the surface. Square.

RA: So you're not holding the fixture. You're holding the part, is that it? Or both?

Wll: No. The part's in the fixture.

RA: All right. The part is in the fixture, clamped into the fixture. So they're like one unit. And then you turn it. I get you. Hold it on the table, bring it through the hole in the fixture.

Wll: Right.

RA: But you could just anytime just pick up the whole part and fixture together. Right? Is that the idea?

Wll: Yes. See, the fixture -- toolmakers make the fixture.

RA: Right. And that fits around the part.

Wll: Right. So they know, in this part, what holes have to be drilled on the . And it has to be precise. So they make the fixture that holds this part that way. The holes are already in the fixture.

RA: I get you. So when you turn the part-fixture, that one unit to one area, bring the drill in through the fixture hole, then you turn it to another side, whatever has to be done.

Wll: Right. Right. You put the part in the fixture, lock it in the fixture. These holes are marked, like eleven
thirty-second drill, or whatever. So if the guy was just an operator and didn't set up the machine, what you would have to do, say he had five different holes to drill on the machine, you have five different spindles, you'd put some tape on top of the machine and write eleven thirty second hole up here, so you don't lose contact. Because you can't see the numbers too well, you can't sit down and look at it. But once you know what you're doing and you set it up yourself, you don't need any of that stuff. You just go along and do it.

RA: I get you. So you really got to get the feel right, and master that, so that, at least the way they're doing it here, without a computer tape drill or anything like that, there's a lot of feel and skill involved.

Wll: Oh, yes.

RA: Okay. Now, you say sometimes there are accidents if you don't do it quite right. Something that you could hurt your hand or whatever.

Wll: Yes. If you never did it before.

RA: Have you ever seen people get hurt?

Wll: Yes. I've seen people cut their hands. It happened to me one time.

RA: Well, thank God, it wasn't too bad.

Wll: Nothing serious. But I've seen people get really hurt.

RA: When you start learning the set-up, is the art of the set-up in putting the fixture on the part, at this point, on the drill Press? Is that the key to the set-up, or does the set-up also involve putting the bits in the
multiple spindles? When you begin to do those early set-ups on the drill press, what is actually involved in the set-up?

Will: What's involved in a set-up in a drill press is when you get the print -- You know you're drilling the holes; that's what they want you to do is drill the holes. So the easiest way to do it is you've got the fixture, you look at all the holes that are on the fixture first of all, and you notice -- I told you they're all marked -- what size drill . First of all, basically, you take the part and you match it up to the print. Place it on the print, and you look at it and see which holes take a picture. It shows you which holes are on the print, and you view it, you hold the part up to it, and visualize; it shows you where those holes are. By that way there, you look at where the holes are on the fixture, and then you have a good idea of how that part goes in the fixture. Then you put the part in the fixture. If it fits correctly and it matches up to the print where those holes are in the fixture that have to go into the part, then you know you got it in there correctly. Then, first of all, you look at all the holes in the fixture, get all the different sizes down, mark them all down, go and get all the different size drills. The ones that have to go through the part, which is a cast- ing, have to be lipped. It's a through hole; it goes all the way through. The ones that don't go all the way through you don't have to do anything to them. Unless
you have to sharpen --

RA: When you say lip the drill, are you attaching something to the drill?

Wll: No. When you sharpen your drill, it has like an overhang on it. An overhang sharp edge. You can't see it, but if you look with a magnifying glass, you can see it. That's what catches the end of the hole. That sharp edge, it swings it around. The way it catches on the bottom there. But if you lip it, lipping is you have to take that sharp edge a certain way on the grinding wheel, and you have to square it off, so that when it goes down, it's not bringing it around. It's just going straight down.

RA: Okay. So you learn how to lip the drills.

Wll: Yes. That's nothing.

RA: That's not that bad. Do you have to actually check it under a microscope afterwards or do you feel it with your hand or what?

Wll: No. You just get the feel of it after a while. You can see if you did a good job or not.

RA: I get you. Okay. You haven't told me about tightening the fixture on the part, once you've got everything lined up.

Wll: Yes. Then, after that, you have to figure the way you're tightening the fixture on there. Some fixtures are unbelievable. You put a part in there, but you have to turn it. Once you get it in the fixture, to tighten it in the fixture, there might be five different bolts that you have to bring it in on. To position it
correctly. Usually you can figure it out yourself by looking at the print and with the holes' line-up, but if it's something you can't figure out, then, of course, you would ask the foreman. Like I said, you get all the drills together that you need and then you just put them in the drill presses and then you just go at it.

RA: So that's the set-up on the drill press.

Wll: It's not the whole thing, though. Plus, if you see any reaming or counterboring or tapping on there that shows, you'll see on the print you have to tap some of those holes and you have to counterbore some of those holes. You have to do that. Then you get a counterbore, what size you need, and the tap, what size you need, and you just line them all up. What you do is, you know which operations you have to do first before you can tap it, or counterbore it, so you set it up in sequence. First I have to drill these holes, then I have to tap it, then I have to counterbore it over here. Once you got that all set up, then you just go right down the line and that's it.

RA: And then you stay in production in that particular with that set-up for a while usually.

Wll: Right.

RA: How long did your production runs go? Did it vary? Sometimes two days, sometimes a week, or what?

Wll: Yes. Sometimes a couple hours, sometimes two weeks.
It all depends.

RA: Were you on hour rate or piece rate on the drill press?

Wll: I was on an hour rate.

RA: Was there something like a production standard or anything like that?

Wll: No. I wouldn't work on a piece work type thing or a quota type system because I don't work that way.

RA: You don't like the pressure, in other words.

Wll: Well, it's not just that. Usually those quota type things is where you just push a button all the time, and stand there and go crazy all day to run that stuff.

RA: So in this factory where you first started, everyone was hourly basically.

Wll: Yes.

RA: I see. I've often been told that when you've got really skilled work, they don't want you to go piece rate because they don't want you to mess something up.

Wll: Yes. That's right.

RA: So they've got to pay the hourly, and they've got a general idea of what they expect from you.

Wll: Yes. And then they charge the customer. It's all tied in.

RA: How long did you work on drill presses before you got to lathes?

Wll: I'd say about two months.

RA: About two months.

Wll: Yes. But then I wasn't on it that long.

RA: So you progressed pretty quickly?
Wll: Not really. A lot of guys, they'll put them on the lathe for a while. Not for a long period of time. Maybe just to have them do an easy production. I learned a lot just how to run it. You can't just go up there and run it. On the lathe, it's different. You have to know.

RA: Exactly. You really have to understand the indexing and everything else.

Wll: Yes. And know how to bring the tool in. It's a lot involved. You can't just go up there and do it.

RA: On most lathe jobs, if there's a blueprint, would there also be a suggested rate of feed?

Wll: Yes. It gets into a lot of things. You have to think about what type of material you're using, whether it's steel, or it's aluminum, or whatever it is. Then you have to figure out which feed to set it at, and which is going to cut good. Then on the feed, if you want to set it on automatic, for automatic turning to turn the part down, you get a better finish that way. You have to figure out what feed to do it at. There's a lot of things to figure out.

RA: Did you have any experience in high school in machine shops, or anything like that?

Wll: No. Not in high school.

RA: So when you started working on the drill press basically you hadn't done a lot of metalworking before then.

Wll: No, I hadn't. I more or less bluffed my way. I worked in a factory before that doing some drilling and stuff,
but it didn't have anything to do with that type of work. I just wanted to get into it, because that was the only way you could do it. It's like anything else. You've got to bluff your way a little. But then the foreman like me. I picked it up quickly. That was it.

RA: Did you like the lathe more than the drill press?

Wll: Oh, yes. Nobody likes to stay on the drill press. I can't stand it. But I ended up staying on there for a long time. About a year and a half.

RA: On the drill press?

Wll: Yes. I mean, once in a while, I broke off. I did other things. But I'd say about seventy-five percent of the time I was on the drill press. That's one of the reasons why I left the company.

RA: I see. They didn't really change much in terms of the kinds of drill presses or anything.

Wll: No, because it was a small place. Usually a small place is like that. I wanted to progress so I moved on.

RA: So then the basic reason you left that small company was to get more experience on other machinery.

Wll: Plus you don't learn as much in that place because the tolerances weren't that great. When you change your tolerances, whether it's five thousandths or fifteen thousandths, your set-ups are different. It's a lot different. It's more to do than what I was just telling you.

RA: I see. In other words, the finer the tolerance, the more complicated and longer the set-up. Is that right?
Wll: Yes. Because you have to be very careful and push it slower. This is where you were talking about piece work and production lines. When you're deal-with close tolerances you can't have either one. You have to take your time.

RA: Have you gone ever to work as close as half a ten thousandth? Have you ever gotten that fine?

Wll: No. That's tool-making. Tool-makers work with tenths and very close tolerances. The closest I ever worked with was half a thousandth. Usually you don't but I had to (tape unclear)

RA: On a lathe or something else?

Wll: On milling machines.

RA: Let me ask you about that later. All right. So you went to a second company. Was that the company where you're working now?

Wll: No.

RA: Okay. I just wanted to have an idea of the sequence. What did you do when you started in the second company?

Wll: I was running milling machines, which I didn't have any experience on. I ran one before where I used to work, once in a while. But that was just pulling a handle. I didn't learn that much. But this next company, I still was pulling the handle, but every so often they did have me perform and showed me what to do -- how to change the cutters and how to do simple, different types of set-ups on the machines.

RA: Now these were not then. These were just
straight milling operations.

Wll: No, no. These were very complicated milling operations. This is why you couldn't set up. The foreman was really the one who had to set it all up. But if something broke down on it, he would have me change the cutter, or if the fixture moved, he would have me indicate it in with an indicator. This way here I was really more or less learning what that milling machine was all about. It takes a long time to master it.

RA: Now what kind of parts were you working on with those milling machines when you started?

Wll: I was working with aircraft parts.

RA: So they're hard metal alloy parts.

Wll: Right.

RA: Some might even be aluminum. I shouldn't say hard metal.

Wll: No, they weren't aluminum. They were made out of titanium.

RA: Oh, which is very valuable. Save the scrap.

Wll: Yes. I was working with -- it was all angles, very complicated angles, using trig. They were within half a thousandth.

RA: I see. So what would happen? You'd lock the part into a fixture or what?

Wll: Yes. Same thing. I'd lock the part into the fixture. You had to have that part exactly set in there, perfect, into the fixture on the table of the milling machine.

RA: Okay. You wouldn't be hand holding it anymore, would you?

Wll: No.
RA: That's really in.

Wll: It's locked tight into the table very hard. You use a big huge Allen wrench to tighten it in or you're using a big wrench.

RA: The milling machine has been set up already, so you bring -- what do they call it? -- the head, basically?

Wll: No, it's an arbor. You got the cutters on an arbor. There's an automatic feed lever that brings the part rapidly up close to the cutters. Then you get the cutters going and then you flip the lever in the direction that you want the table to move in. Then it feeds in at a certain rate. You were saying the feed in a lathe. The feed of a milling machine is even more cautious.

RA: Than a lathe?

Wll: Yes.

RA: Really.

Wll: Yes. You have to make sure that feed is exactly perfect in comparison to the size of cut you're taking and the type of material you're cutting. It has to be just so, or the piece and the fixture will go flying right out of the table, when it goes on the cutter.

RA: I see. But the rate of feed and all that on the table had already been set up.

Wll: And the speed of the cutters. That has to be a certain rpm's too, in accordance with the feed.

RA: Did the set-up man set the speed of the cutters or did they have you do that?

Wll: Sometimes I did it, and sometimes he did it.
RA: But he usually set up the table with that rate of speed and all that?

Wll: Yes. Well, I knew basically what it was because I did mostly the same parts all the time. I memorized it.

RA: But initially when you first went on there, he had it all set up, and you just basically pulled the lever, so to speak.

Wll: You had to check the parts out. Then, afterwards, if it was something that wasn't right, then he would have me adjust the machines to fix it.

RA: Now did you gradually get to do the set-ups on the milling machine?

Wll: I used to help him, but I never actually got to just go out there and do it all by myself.

RA: So we're still not talking about a tape machine, but just a traditional milling machine. No computer controls or anything.

Wll: No.

RA: Digital readout or not?

Wll: No.

RA: Regular skills. Okay.

Wll: Regular horizontal milling machine.

RA: Okay. How long did you work on the miller?

Wll: I was only there for six months.

RA: Six months. And you stayed on basically the same kind of machine for the whole time period?

Wll: Yes.

RA: And then where did you go?
Worker 11

Wll: Then I went to another place. Then I learned a lot more; I really got into it.

RA: In factory three or place three, you learned a lot more.

Wll: Yes.

RA: Any particular reason why?

Wll: Yes. A lot of places, like those places I told you about I worked in, they wanted handle pullers. They didn't want you to know too much, because they didn't want you to stand there and run the machine all the time. But this place I was working at, that I finally got into, they taught me. The foreman showed me everything, step by step. How to set-up and all the machines. I watched him and I did them. Then he would leave me alone and give me just a print and a part, and I started making them. That's where I learned most.

RA: Was place three bigger?

Wll: No. It was a small shop.

RA: Small like the others.

Wll: Yes. It was just that for the money they were paying you, they couldn't get a skilled machinist. So they figured they might as well train somebody, and save themselves some money. So I took advantage of it, because it was like going to school to me.

RA: Right. So place three, though, didn't pay any significantly more --

Wll: I was getting more money.

RA: A little more than place two.

Wll: A little more.
Worker 11

RA: A little more than one and two. Okay. But, for whatever their reasons, place three decided they wanted to train you.

Wll: Yes.

RA: So you got your training in place three.

Wll: Yes.

RA: Still not on any computer machines, tape machines?

Wll: No.

RA: Okay. Did you work on lathes, as well as millers, in place three?

Wll: Yes. I was setting up everything. Lathes, milling machines, drill presses. Basically those three. I set up all the milling jobs for myself, and the lathes. After a year there, I was on my way.

RA: You were a machinist.

Wll: I understood everything-- I had a clear picture. It wasn't hard anymore. Really, it's easy. Everything fell into place.

RA: Now that place was still an hourly rate, right?

Wll: Yes.

RA: Did they make any major changes in the machines while you were there? Bring in any new machines?

Wll: The only thing they did, they bought a new building, they expanded. They did order some new machines, but I left there prior to that. Not too long after they moved.

RA: Okay. Then you went to place four.

Wll: Yes.

RA: What did you work on in place four?
Wll: Place four is where I'm at now. It's not as hard. It's an easier place. I went down as far as tool machine operator, not up. But I do do some set-ups. Most of the machine operators don't do their own set-ups like I do. But my foreman knows that I have the experience. The reason I wanted that job is because I'm making a lot more money. More money than I would be making anywhere else.

RA: Now that's interesting. You think just because place three is a larger corporation, maybe, or what? Place four. Is that probably why they pay more?

Wll: That is the reason.

RA: And they have a union, too, right?

Wll: Yes.

RA: Which might have something to do with the pay scale.

Wll: Yes. I think it has something to do with it, but I don't think a hundred per cent. I think, well yes, I guess maybe it does have a lot to do with it.

RA: I don't want to pry into the exact amount but was like it a fifty per cent increase or double the rate as you were making before, or what?

Wll: Almost double.

RA: Almost double. But you were actually doing work that required less skill?

Wll: Yes. Doing less work, less skill, and making almost twice as much money.

RA: That's incredible. And are you working on lathes or milling machines, or what?
Wll: Yes. I'm working on them, but they're easy jobs; just keep doing the same jobs all the time.

RA: Tolerance is not half a --

Wll: The tolerances are pretty close but not really that close. Some are, some aren't. But it's nothing. It's the same job all the time. You got it memorized. It's easy. They're the kind of jobs where you don't have to use your head.

RA: That's interesting. Now, eventually, has your foreman or someone there told you that they'll move you up to more complicated stuff?

Wll: No. Each job is proscribed. Labor grades. It's like the army. You're either labor grade six, five, four, three, ten, or whatever. That particular machine operator job is for machine operators. That is your particular job. That's what you're doing. That job doesn't change.

RA: Does this firm have the highest labor grade as a one, and then go the other way?

Wll: Yes. It goes from one to ten.

RA: One to ten. And you're probably around what -- a five? Or six?

Wll: Six.

RA: Suppose you have the desire to eventually become a -- well, I guess the next step up would be set-up man for you?

Wll: No. My step would be if I could get a machinist's job.

RA: How do you do that?
Worker 11

W11: What you have to do is bid on the job through the union. They have a bidding system. When there's a machinist's job open, they post it on the board, and you have to bid for the job.

RA: It sounds like you'd be prepared to bid on some of those machinist's jobs with your experience.

W11: Yes. It does, but there's a lot of political stuff involved. I think it would be years before I got a chance to do it.

RA: Is that because of your age? Because you're fairly young, or what?

W11: No. It doesn't have nothing to do with that. There's guys my age who are machinists. You have to go by seniority -- union rules. It's not fair, but even with a guy who has less skill than you have, but if he's been there longer, he's going to get the job. That's why I don't agree with all that 100 per cent.

RA: I get you.

W11: But still and all, I'm not complaining because I'm not going to be getting any more money anywhere else.

RA: And eventually you'll have enough seniority to bid on those jobs.

W11: Yes. A long time though.

RA: Is it going to take you four years, do you think? Three years.

W11: Maybe ten years.

RA: That much?
W11: Well, I'd say maybe ten years.

RA: Is that because there aren't that many jobs in the machinist's category?

W11: Right. Not only that, there's a lot of people ahead of me on the seniority list. And they're not leaving. People stay in that place.

RA: Of course. That makes sense.

W11: Why work harder somewhere else and make less money?

RA: I got you. So, right now, do you think that the way things are done --- at the level that you're at, the machine operating -- the company gets production about as efficiently as it could? Or could things be done to make it more productive?

W11: I think there's ways to get the parts out faster. Different set-up ways. The way they got it is very backwards. I found out the reason they do it that way is because there's other things, like the machinist might make, the other parts that have to be made, doesn't have to be done that fast. So they have that in accordance with everything else so it all comes out at the same rate of speed, production wise.

RA: I see. They don't want to bottle-neck with parts, waiting for the machinist to work on them.

W11: They want it so it's all about the same, all done with, so they can give it to the assemblers. But it's very slow.

RA: So it turns out good for you. They're not pushing you.

W11: No. Very slow. So slow that you go crazy.
Worker 11

RA: Sometimes you daydream and --

Wll: Yes.

RA: But they're paying you awfully well.

Wll: Yes. And on top of that, you can get a raise. You get periodic raises during the year. Everybody gets the same amount of money.

RA: Are you supposed to do your set-ups now in your labor grade as a machine operator?

Wll: No. The only thing you're supposed to do is maybe change the tools, and that's about it. Like I told you, I do set-up most of my jobs --

(End of side one)

RA: You do most of your set-ups now.

Wll: Yes. But they're the same jobs. It's easy.

RA: But the foreman knows it.

Wll: Yes. He knows what I know. The other people can't even do it. They're machine operators, but I've got more experience to do set-up jobs. The jobs I do are easier to set-up than the jobs I was doing before --

RA: So the foreman knows someday you're going to be a machinist. He knows you have the background.

Wll: Yes. Probably he has (it) in his mind.

RA: But he's never come over to you and said, "I know you're going to be a machinist."

Wll: No. He wouldn't do that. That's the way he is.

RA: I get you. But he himself, is he a machinist or a tool-maker, or what?

Wll: No.
RA: He's not.

Wll: No. He's just a foreman. White collar worker with a tie and that's all he does. That's the way it is in a big company. They have white collar workers with a tie and that's your foreman. He walks around all day. Rather than a small shop, where I used to work in, the foreman works too.

RA: Exactly. Does that foreman know as much as you do about metal working?

Wll: Yes.

RA: He actually does?

Wll: I think he does, but sometimes I don't think so. I can't really say. Sometimes I don't think he does.

RA: Has he had the same actual hands-on experience that you have had?

Wll: From what I have been told, no. But then, some things he says to me, or shows me, I don't know whether he's telling the truth or not. I don't believe everything he says anyway.

RA: So you really just can't be sure.

Wll: Yes. I'm not sure. He knows when he's trying to get over on me, he can't, because he knows I know what I'm talking about. That's why he leaves me alone and let's me set up the jobs, rather than call a machinist over. See, he calls a machinist over to set the jobs up for everybody else. Though for me, he doesn't have to do that.

RA: That's interesting. Does he ever give you advice that
you think is wrong?

Wll: Yes. He has done that in the past, where a tool broke. But to make himself look good, he had to make up something to try to put it on me. But I knew it was wrong to begin with before when he was doing it. I notice even more now, he has me completely ... He leaves me alone now because he knows I caught him in a situation where he wanted to set-up the machine for me without calling somebody else over. I knew the way he was doing it was wrong. But he wants me to think that he knows it all.

RA: So then, basically, he probably doesn't know as much as you.

Wll: That's what I think. I just keep my mouth shut because I'm making my money. If they want to treat me like a baby, sure, let them spoon feed me. That's what they're doing.

RA: Do you ever get a chance to talk to the machinists?

Wll: I always talk to them. They feel the same way.

RA: About their foremen?

Wll: It's the same foreman. They got a guy who doesn't know half as much as those machinists telling them what to do.

RA: Which is stupid, isn't it?

Wll: Yes, very stupid.

RA: Jesus Christ. You know, American government talks about productivity and everything like that, and these businesses supposedly have some idea of how to run things, and they've got foremen who don't know what they're talking about.
Wll: That's right.
RA: I hear this all the time. It's not new.
Wll: Oh, you've heard this before.
RA: Oh, of course. (It) happens everywhere. Not everywhere, but --
Wll: A lot of places.
RA: A lot of places. Sure.
Wll: But it's remarkable. He doesn't belong in here.
RA: And this is a company that is thought of generally as a high-tech, well-run, profitable company.
Wll: Right.
RA: It's mind-boggling, when you think about it.
Wll: What he really is, is a baby-sitter.
RA: Yes. And he probably just has some kind of I.R. degree, or something like that. You know, Industrial Relations degree.
Wll: No. He doesn't have no degree.
RA: Really.
Wll: It's just that he started from the bottom. He had a low grade paying job within the company, like twenty years ago. But since he stayed there for so long, they had a foreman job open, and he's been a foreman there for fifteen years.
RA: So, in other words, he really couldn't cut it, in metal working --
Wll: Oh, no way.
RA: -- but he did on foreman, and they made him a foreman.
Wll: Yes. Because he started with the company.
RA: But I've talked to a lot of workers who say, "I didn't want to be a foreman because I don't like hoarding it over people, and so on."

Wll: Oh, no. There are a lot of machinists there who have had the chance. They've asked them if they want to be a foreman. But they refused.

RA: Exactly. Because they don't want to do that.

Wll: There's more aggravation.

RA: And people get angry at you.

Wll: And nobody likes you. Nobody like my boss. They hate him. Especially my particular foreman, nobody in the whole place likes him.

RA: Are there any now computer tape machines?

Wll: That is the only thing. There is more computer machines.

RA: That's the first thing. I've been running one where I work, but it's the same thing all the time.

RA: But there's just one on your shop? Just one tape machine in the whole shop?

Wll: Yes. No, no. There's three of them.

RA: Three of them. And roughly how many total machines are in your shop?

Wll: I don't know. I'd say about thirty.

RA: Okay. Were the tape machines there when you first started working? Or have they been brought in since you started working?

Wll: No. They were already there.

RA: They were already there, and guys were on them.

Wll: Yes. Everything was already there.
RA: Then you've done some work with the tape machines.

Wll: Yes. Every week I work on the tape machine. It's the same thing all the time. It's a tape-controlled milling machine.

RA: What do you mean by every week? One point in every week you work on it?

Wll: Yes. Maybe twice a week, maybe once a week. It's a certain job you got to do on there all the time.

RA: Do you prefer to work on the tape machine as opposed to --?

Wll: Everybody does.

RA: Really?

Wll: Yes. Because (with) the tape machine, once you get the part in there, all you do is push the button. After you got the part in the fixture, like I told you, on the table, clamped down tight, you push the button, and you sit there for three hours. And you don't do anything.

RA: So you can relax. No sweat.

Wll: Yes.

RA: See, I've seen plants, like in Colt Firearm factory, where they had a tape machine with an automatic feed for the part. It's making a very small part, maybe five cuts every minute and thirty second the part drops down. They've got --

Wll: Oh, wait. Hold it. I think you're talking about a screw machine.

RA: No. It's not actually a screw machine. But when I say automatic feed, I mean the parts, they're very small parts, they come down and they're put into the
fixture automatically. You see.

Wll: Oh, yeah?

RA: It's a total c and c machine. Computer control. The guy who was working it basically just stands there. Every five parts, he takes out a caliber and measures it. If something's going wrong, he's supposed to call the set-up man. I mean, he must just go out of his gourd standing there.

Wll: Well, that's one thing I don't like about my job. Because a lot of jobs I do are like that. They're very boring and you go out of your mind.

RA: But he doesn't even clamp the fixture or anything like that. He just watches the thing. The part, when it's done being machined, just drops down --

Wll: I have a job similar to that. It just automatically runs constantly, and I just collect the parts. Afterwards, I check them, collect the parts, make sure nothing goes wrong with it. It just keeps running all the time. You don't have to clamp down, nothing. I have to do that once a week.

RA: For how long? The whole day?

Wll: The whole day. He rotates all of us, so we don't go crazy.

RA: Cause no one likes that?

Wll: Nobody likes that job.

RA: I see. So it's one thing to work on the lathe, which is a three hour job; you fixture it in and everything --

Wll: No. Not the lathe.
RA: The miller.

Wll: Vertical miller.

RA: Vertical miller. But this one, where it's just automatic feed and everything, is something that nobody likes.

Wll: Right. Nobody wants to do that job.

RA: Do the guys in your shop talk at all about, get worried at all ever about more tape machines coming in and guys being laid off or replaced or anything like that?

Wll: No, you never hear about that. Because even if you have tape machines you still have to have people running them. And a lot of companies aren't buying tape machines because they're so much money that it's not worth for them to buy them. For the parts they're making, and everything else, it wouldn't make up for -- some of these tape machines they go for millions.

RA: Well, it depends on the kind of machining you're doing; how complex it is and so on.

Wll: Yes.

RA: So there's not a lot of fear in your particular shop over the tape machines coming in in large numbers.

Wll: No. Anyplace I ever worked at, there never was no fear about it.

RA: Now I know that at Pratt and Whitney, right now they got tape controlled vertical turret lathes, and a lot of people are concerned that whereas now they've got one worker on one vtl tape lathe, they're worried about
Worker 11

two.

Wll: I've been in Pratt and Whitney. Not for too long.

RA: But they're worried that eventually they're going to be asked to operate two lathes, and maybe even three.

Wll: I operated a vertical turret lathe. A handle one.

RA: A manual one. But, see, what they're worried about is that then there's going to be a real strain watching two or three tape machines.

Wll: You can't do that.

RA: Not where you're doing.

Wll: You couldn't do that there either.

RA: There's talk about it.

Wll: What do you mean? Running two and three tape machines at the same time?

RA: That's right.

Wll: One person?

RA: The computer's supposed to phase them such that you can do it. What the operatives say is, "Yes. But suppose something starts to go wrong on one, and your back is turned, you know, because you're changing the fixture --"

Wll: You can't do that.

RA: Well, apparently, there's thought that Pratt and Whitney is going to try it.

Wll: I don't see how because if you have three different tape machines and you have three different machines running at the same time, there's no way one person can -- (laughs) How about if something goes wrong in
the third one --

RA: Well, this is what the operatives are worried about. With centralized computer control, with one computer running all three machines, theoretically they can be phased so that one machine finishes, you go over, you do whatever kind of adjusting you have to do on that machine, then you move to the next, and then the next.

Wll: You mean, the machine's just going to keep running? I can see that on some machines, but not on a vertical turret lathe, no way. The vertical turret lathe, you work on big huge parts that you have to set down. Usually on these big huge parts, you're only making a couple of cuts on it, and then you have to take it off. It's not a production type machine where you just throw parts on there all the time.

RA: But still the talk is about having -- apparently the computers can phase them properly. The tables on which they have the computer vtl's are big enough to hold two lathes, and the employees are betting that pretty soon --

Wll: Two what?

RA: To hold two vtl's. The concrete blocks on which they've got the lathes, right? On the floor.

Wll: The vertical turret lathe is a big huge machine.

RA: I know but they've got --

Wll: With a platform.

RA: They have a platform, right? Where they've brought in the new lathes, the platforms are big enough for two. Right now they've only got one on them. But they've
got enough room for two, you see. And everybody's saying very soon they're going to put in --

Wll: I don't think they make vertical turret lathes with two tables.

RA: No. Not with two tables, two vtl's. You're talking about two vtl's on one platform, with the worker going from one to the other.

Wll: No, what I'm saying is, the vtl is what sits on the whole floor, that big huge machine.

RA: Right.

Wll: Right. But what's on the platform is the table. You understand? The table is on the platform. The table where you put the fixture. That means you would have to have two tables on one vtl. I don't even think they make them that way.

RA: I don't think they're talking about two tables on one vtl. They're talking about two vtl's, close enough together so you can do something on one, work on one, and turn around and do the other.

Wll: I still don't see how they could do it.

RA: Really?

Wll: Yes. Because it's too big. You got two huge tables side by side spinning around, what are you going to do? Because the parts are so big. A vtl isn't used for production, where you just throw a part on it. You take one specific, precise cut on it.

RA: Well, I'll ask the person who told me about that. Maybe they were not thinking of big parts.
Wll: Either that, or maybe they don't know what they're talking about. Does this person particularly work on a vtl?

RA: Oh, yes. Well, I'll try and get that clarified. That's interesting. Does it ever seem to you that there might be a possibility of going to another company, having the same pay and being able to get a machinist's job?

Wll: Yes. I've had it in my mind, but I made up my mind I want to get out of it.

RA: Totally.

Wll: Yes. It took me five years to find out. It's a rat race. A rat race trade. Plus I don't like working in a factory to begin with. I'm just doing what I'm doing now until I figure out what I want to do.

RA: I get you. What's rat race about the trade?

Wll: In the machinist's trade, you're under a lot of pressure. You got people watching you all the time. Even co-workers, to see how much you know. Plus, to me, it's a very boring job. I don't like working on machines all the time. To me, it's very degrading.

RA: Do you think if you were a tool-maker, you'd like it better?

Wll: No. My whole ambition is life was to be a tool-maker. I wanted to work myself up to be a tool-maker. But tool-makers, believe it or not, don't make any more
money than I'm making right now as a machine operator.

RA: You're kidding.

Wll: No. Because my company pays so well. This is what I'm saying. It doesn't even make no difference to me whether I'm a machinist or not where I am because, compared to someplace else, I make as much as a tool-maker would make, and they have to really do a lot of work. Use their head a lot. They have to know a lot. A tool-maker isn't no big thing. I mean, you have to know a lot and you have to be heavily skilled. To me, they're not paid -- I mean they're paid good. One thing about it, you've got job security when you're a tool-maker. I don't care if there's a depression, you're not going to be out of work. The thing is though, there's a lot of pressure in tool-making. I know a lot of tool-makers that I'm working with right now that are inspectors. Inspectors don't make anything, right? But they went down from a tool-maker because they couldn't take the aggravation. I worked with guys who had been tool-makers for thirty years and they just couldn't take it. Say you're working on this fixture for three weeks. There's fifty thousand dollar tied up into it, and you make one small mistake on it, that's fifty thousand dollars down the drain. Those guys don't sleep at night.

RA: Really?

Wll: Yes. Especially at Pratt and Whitney. I know a guy who's a bartender now. He was a toolmaker at Pratt
and Whitney for twenty-five years, and he couldn't sleep at night. He was going crazy. He was working on hundred thousand dollar parts. He was nervous; you know, everytime you make a move, cutting, or whatever you're doing, you're like this. He's a bartender making just as much money as he was making at Pratt and Whitney as a toolmaker, and he's having a lot more fun.

RA: That's for sure. That's interesting. So, basically then, you've decided that it wouldn't be worth staying around to become a tool-maker, which would be the top of the trade, so you want to eventually get out and do something else.

Wll: Yes. It's just that it's money I'm making now and that's it. You know what I mean?

RA: Course. I understand.

End of Interview