

Leonard Lee

Tape 6

Another very important train that went from the north toward Chicago and got there in the neighborhood of 5:15. But it varied an awful lot and you'll see why when I tell you about it. They called it the fruit special. The farmers would bring in their fruit, their peaches, their strawberries or raspberries or whatnot. Primarily to be shipped to their personal friends in Chicago by express and there was always a tremendous number of them there. Each stop, they couldn't judge ahead of time how long it was going to take at this particular stop or that one. But that stop went clear up and down through this fruit region of Michigan and then landed in Chicago with this huge amount of fruit all in baskets. Bushel baskets, peck baskets, little fifth baskets all made up ready for their particular friend in Chicago. The fruit special that was just during the fruit season. The people did not have to meet the train. It went to express agents place and from there I do not know where it went.

Now today, Wait just one minute, we've left out something. We're talking about railroads of the past, let's get this in here. Now this is a single track as you know. It's not one track going this way and one going that way, and so they do have side tracks where they can take the train to one side. The head office in Grand Rapids is custom which train shall go and which one shall be on the side track. It must be a stupendous job. We don't see this but we know it must take place. These trains have to stop on this side track. One boys out and waits for the one coming north and vice versa. It's interesting to speculate of course the two trains, the flyers as we call them, they try to give them first chance all the way but its one of those things. Now today right now we have Amtrack. That beautiful train goes right through Breedsville. Don't stop. All trains stopped in Breedsville. Not all freight trains. But all trains stopped at Breedsville. One goes by at 8:45 in the morning. You can always set your clock by it and one goes at 9:15 in the evening. That's the way they started out and it came, but for the last 6 to 8 weeks it seems to vary a lot. They changed their schedule as much as 8 or 10 minutes and it usually comes a little early rather than later. The freight trains of today besides the general produce, they carry tremendous amount of automobiles. Course they come from Flint, they come from Lansing across to Grand Rapids, then shipped down by us to Chicago. Huge number of those. There's something they used to have here on the trains was a huge number of coal cars. Everybody used coal. That's all there was to it. The coal cars would always come from the

south and go north. Only some coal would fall off and of course they'd jiggle around on these curves. There was a lady in town, we called her old lady Johnson. I have no more information than that, Old lady Johnson. She would go out every once in awhile with a sack on her back and walk up and down the track and pick up coal. That was the way she kept warm.

If you look at that picture of my folks house, it was taken in 1903 or 4. It shows the dirt road. No sidewalk on that road and that's the way the roads in Breedsville were. They were dirt roads. At the far end of this River Street that we lived on, Andy Gaynor lived on the west side next to the river. Andy Gaynor improved his road. He put in gravel for the full length of his section of the road, improved it to that a point and then he stopped. The village didn't take him up and finish it and we kids used to have so much fun playing in that big big mud puddle by the side of that huge wonderful big maple tree. Just sheer water, no drains, no place for it to run to or anything, except its sure sad that it went straight down in a while. But all the village was like that. There's probably a lot that I'll leave out but I do know that the village bought several freight car loads of cinders from the railroad and those were spread on the main streets of Breedsville. Not the little side streets like Howard Street, but the Main Streets. So it improved it and then yes, that was when I rode on the little steam tractor while they were leveling off those cinders. That was when I was fairly young. Then there's another piece of interesting history about Breedsville road as I know about it. Now as I said there will be a lot of things others could tell about it, but I don't know about them. But we had our finger on Brennen Road. If you folks know, North Pine Street begins from the center of the town and goes straight north to Brennen Road. Go to your right and there was a very very low spot in that road up there maybe a hundred feet. Then there was a high spot maybe a hundred feet. I was working for the village that particular summer. So we took some sand off of that high spot over there and put it down there. Now here's the interesting thing today. Compared with today it's so different. We had a dump wagon. A dump wagon was just like any other wagon but with wheels, the bolsters etc. The dump part was this. We had a plank on the right hand side, whole length. One on the left had side full plank was just 1 foot high on the bottom, this was the interesting part, was made up of two by fours just laying flat. One right by side of another to cover that distance. Only there was a difference, these two by fours stuck out, and where they stuck out they were rounded. Each one of those, and they made a nice hand hold, on each one of those, well we would at the top of this hill we would risk hand shovels, we'd shovel this dirt, or sand it was, it was just a sand road,

we'd shovel it into this wagon, when it got down to the bottom, one man on each end would take hold of one of those two by fours and turn it over and lay it over on top of the two wheels to one side, and the next one tipped it over, same thing, okay when we got that done there was a whole one yard of dirt had been brought to the low spot from the high spot. And we repeated that all day long. It improved the road. The low spot wasn't quite so low, the high spot wasn't quite so high. Of course there was no top on it. It was just sand. But compare that with modern methods of building roads, a scoop that will take things away in a hurry

Friday Sept. 13, 1985

The Breedsville Blacksmith

The Breedsville Blacksmith shop. We do not know when it was built. But we do know it was here in 1873. It was operated by Stevens and Dickerson, that was a partnership. Maybe it worked, I don't know. It's an interesting construction throughout. It is 24 Ft. by 40 ft. The front shop and its back shop is 24 by 40. The back shop is two stories high. There's heavy plank floor throughout the shop. Not the upstairs. It was owned and operated by Charlie Adams or Charles Adams, just prior to when my Dad bought the place in 1903. It is block 10, lot 10. Something very interesting about the construction of the back shop which is two stories high, was the boards on the outside. They go up and down. They do not go crosswise. And they go the full two stories from the foundation up to the roof rafters all in one board. And each board is exactly twelve inches wide and at the eight junction of each board is a 2 by 4, so that is built exceedingly solid. I've never saw a building built like it before. It's interesting but the building itself means little unless you know my Dad, who bought it four years before I was born.

My Dad was born in Ockham Cobum in the, we would call it Bacody of Surrey that is near London. He had his schooling in the public schools and as I piece things together as I grew up he was one of the best educated men I ever met. His penmanship was perfect. He knew and loved

good literature, both English and American. Kipling, Longfellow, Lincoln to name just a few. Reading aloud, much of this to us as a family, we loved it. He knew from the English stand point. When he became an American Citizen, he studied much in detail our American history. He said our American history was given in English History when he went to school, but it was very very brief in their English you know. As a young man, very young, he was signed up as an apprentice to his uncle Richard Lee. This apprenticeship included blacksmithing and of course horseshoeing because they're so related and because everything traveled with the power of a horse. Also included in his apprenticeship was machine shop, sheet metal working, plumbing and many other related work. Oh yes, including foundry work. He was almost a veterinarian as far as horses were concerned. Especially the condition of their feet and legs. Last Saturday I was at our Gideon Meeting. We were talking about my Dad's blacksmith shop and somebody said "Did he get instructions in that or did he just try it and see what he could do?" He did not just try it and see what he could do. He was very well educated in it. The family in general, that is the Lee family, Pa and his uncles and Dad and soon for a number of generations were very well versed in a work in all the various engineering works in the vicinity of London. For instance it would be my Dad's cousin, a son of this Richard Lee, that he was operating all of the buses in London. Anybody who was in and around London during World War 2 and right afterward noticed the word Lee across all the public transportation buses. But you will notice something else behind, wait a minute there was no gasoline allotted what-so-ever for public transportation. There wasn't enough available. It had to be used for the armed forces. So just to show the quality of workmanship the man was capable of The son Richard, behind each bus, there was a little two wheel trailer. Looks like an oversized tin can. There was a door at the top, they put wood in. Just wood and smoked stack to take it out. Then underneath that was a compartment where they burned charcoal. The charcoal would make the heat and the heat would heat up the wood and the wood would give off fumes and these fumes would be conducted by a rubber hose to a specially built carbonator in the bus. That's the way all the buses in London were run and they all had the name Lee on the side of them. So that shows the professionalism, if you wanta call it that, of Lee as a family. Not that we did anything just like that, but Pa was in several shops in America. He had one of his own out West. The last was at Fulford and I forgot the name of the other street, in Chicago. But they were on one corner and the other three corners there was a tavern. The owner of the building, they were renting it on lease and he says I want to put in another tavern there, so he says if you fellows will break the lease, you can have all the tools. So he

broke the lease and shortly after that he was here in Breedsville. The small forge was one of the things that came from that and I feel sure that and the vise at least were from that deal and that would go back to probably about to Civil War time. The vise and anvil. They go back to probably Civil War time. Historically blacksmithing is one of the great arts. St. Patrick the Patriot Saint of Ireland wanted a bell in the 11th Century. He went to the blacksmith with his request and a bell was made. It was the biggest bell in Europe at that time. They took the flat metal and he bent it around and he brought the edges together and after he got it together, he riveted them. When he got through riveting them he bronze welded them. Now listen I know what I'm saying. I said Bronze weld. You gonna say they didn't have bronze welding till they had the acetylene torch. Oh yes they did. You handle the forge right you can bronze weld. My dad did a number of interesting bronze welding jobs. For instance, my brother Bill had a motorcycle and he broke the crankshaft. Pa bronze welded the crankshaft and finished it off by hand. That thing ran for several years afterward. Yes, you can bronze weld in the forge, but you must know what you are doing. You cannot be a sheer amateur. This large bell actually was about six and a half inches tall. But it was the largest in Europe at that time. That bell right now is in a glass case with a wood frame and the frame is studded with precious jewels. It's in one of the large cathedrals in Ireland.

Another thing about the history. I was told this was in the Old Testament, but I never found it, so I'm gonna just tell you as if it was. Solomon was going to do honor to the greatest craftsman in his realm. So he started with a stone rakers. They had tremendous amount of stones and houses were made with stones. "Who made your tools, Mr. Stone Mason?" Why the blacksmith did. He went to the carpenter. "You did wonderful work there. But who made your tools?" The blacksmith did. He went to the boat maker. They had a number of boat making shops on the Sea of Galilee. As well as the great sea as it was called, in other words, the Mediterranean. And he said "Who made your tools?" The blacksmith. They went to pottery makers and of course that is just a spinning wheel, but "who made the wheel it was turned on? Who made the shaft etc.?" The blacksmith did. Solomon said, "Yes the blacksmith is the greatest craftsman in the realm." He also found the same thing about the goldsmith, the silversmith; their tools were made by the blacksmith. But I cannot find this in the Bible. No, it is not in the Bible. It's in the Madras, which is stories.

Pa opened his shop in Breedsville in October, 1903. He knew that most farmers would want there

horses sharp shod for the ice in the winters. That was so in Chicago in his shop. An icy day would come and every owner wanted their horse sharp shod right now. And they many times worked from six in the morning till twelve at night because tomorrow, it might thaw and then they wouldn't want it. He knew there'd be a lot of that when he came, as well as all the small things that needed repairing. So he set up his small forge. The one we mentioned. Small round one. He set up his anvil and vise and all the small tools that had to go with it. Now he was ready for all the small things, not the big things. The most important part of a blacksmith shop in the tuyere iron. I want to read exactly what it says here about the tuyere iron. The world wind blast and ice clinker heavy nest tuyere iron produces a circular rotary blast. It will not blow the hot or the hot air up and out the chimney. It concentrates the blast and heat in the tuyere nest, thus making a hotter fire and heating one third quicker. Supplied with a swinging pick. This is out of this catalog that I received in 1935. Of course equally as important the tuyere iron is the most important thing in the shop. To use the tuyere iron, you must have a blower and we're shown the picture in the backyard. But here's one to go along with it. This one's shown as electric. We couldn't have had electric. There was no electricity in town, but that's just to illustrate it. Pa took this new tuyere iron and installed it in the way he wanted it so it could be made into a little bit of fire when he wanted for little things, or made into a great great big fire if he wanted it. He put the foundation clear down as if he was building a foundation for a skyscraper almost. He built the forge on top of that and a space underneath to clean out the ashes and the chimney. All setting on this solid foundation clear down to the bottom of everywhere. The same winter he put in the foundation for the anvil. The anvil is probably the second most important combination from the fire. He set that in concrete down below the floor and then set the big square oak probably fourteen inches square or maybe sixteen inches square straight up and down and the anvil on top of that. Of course the fire, I mean the tuyere irons and the blower and the forge as built up with Pa with concrete, as the one at our museum is built up with bricks, is of no use until you have the proper coal. So Pa would order one or two sacks of coal at a time. At \$11.75 Ton or 90 cents a sack. That was back at 1935 prices. Maybe it was less than that in 1903. I don't know. Now I can not find blacksmith coal anywhere. I've searched the country over. I also know that charcoal works very good. But it uses up much quicker.

Another very important tool is the vise. They're listed here, "A 4 inch vise, or 4 1/2, 5, or 6 inch vise. 6 inch vise is what we have here, only cost \$27.50 in 1935. But they weigh a tremendous

amount. Now just a few of the tools as used in the blacksmith shop is the hot cutter. Like a coal chisel, there's a hole through the shank and then a handle put in there. Usually an old wagon spoke. Because you're always taking out wagon spokes and putting in new ones. You use that and hit it with a sledge hammer. When you shim like that, it the hot cut in other words, you use it on hot metal. Or more blunt like this one, it's the cold cut. A few more tools that hardy that we saw in the back yard. Set that in the anvil, put the iron on it and hit the iron and it acts like cutting with a cold chisel. And there's the flattern. I could've shown you in the back yard but I didn't. The wood handle on that put on a nearly finished job and it's perfectly flat on the bottom and hit it with a sledge hammer. It helps flatten the metal out. And there's various types of punches. This one is illustrated here. You can take a hot piece of iron and just punch a hole right through it. Punch half way, turn it over, punch the other half way, put it off to the edge or over the hole in the anvil and then it goes clear through. They come in a hundred different sizes, more or less. Many different sizes. There are many different type of hammers used in the blacksmith shop. The one I prefer is not shown in this picture. It is the ball peened hammer. The little one that I showed you in the back shop is a ball peen hammer like that type. I like it heavier than that for most use.

Most things when you are handling them in the forge, on the anvil, in the vise and so on. You have to use tongs or else you'd burn your hands up. Here are three different kinds. The flat tong, just for metal. Clamps onto the medal. Can be down to paper thin, it can be two or three inches thick. According to what you want to take a hold of. You have many different sizes of that. Then there is the bolt tong to take hold of a round bolt. There's the ferrier's tongs. Now it was asked, what does the blacksmith of today do. Well the blacksmith of today is not necessarily a well rounded blacksmith; he is what they call a ferrier. A ferrier is a blacksmith that specializes in horseshoeing. That's the type of tongs a ferrier uses. This picture is in proportion. Its 24 feet across the front and it's 40 feet deep. I did this in here while I was talking to the group down to Hartford. I did purposely by hand so it's a little messy. But about there is where the forge is and then the anvil and then over here is the vise. A big workbench here, another big workbench in here. Another section, it's almost as if the forge was a dividing line between the two, but it isn't. Behind that is another big workbench with another heavy duty vise. Not quite so heavy and that is the woodworking section of the shop. Right here in the middle we'll call it, oh four feet from the work bench, there's a square tripod and that is hooked into a concrete bar in the floor so it can be taken away or not. That is where is the

wood working part of the shop took place. I can't tell you the whole art of building or about repairing wagon wheels but I'm gonna tell you just a few things about it. A wheel comes in and needs a tire shape. First what is a wheel? It's a hub made out of wood and then there's spokes made out of wood. We would buy these by the hundred or two hundred at a time. Probably one or two dozen different sizes in spokes. This part goes into the hub. Of course, you usually didn't replace all the spokes. You just replaced the ones that was bad. And then the other end was a point on it and that was the interesting part. Each one of these had to be the right size to go into the fellie is the common name for it. The proper name is wood rim or fellow. Pa would buy those already bent. It's half of an outside wheel. The holes were drilled by hand for each one of those and then they, it's a rather exactic business, but the spoke after it's in place, you mark it the depth you want it to come down too. Then if it's way long, you cut it off to a certain point. Then you take the spoke pointer and just point it somewhat like a very blunt pencil sharpener. After you've done that then you take the hollow auger and then that brings the end of the spoke down so it's straight up and down. Up just the right size for that to fit in the hole as you have drilled. Here's a picture of some of the spokes. Pa would buy them by the bundle as shown in this picture. How many to a bundle, I have no idea and he'd have at least a dozen different sizes spokes. Then you've already off the outside rim. Which is the metal all iron rim. Then you have put in your spokes and put on your fellie. Then you must take each one of the fellies, wrong word. After you've got the spokes so they're the right size, then you must make the circular distance around the wood rim or fellow. A little bit smaller than your finished job is going to be. You'll see why in a minute. Each one of those spokes you split with a wood chisel of the right size. Then you drive in a wedge. That completes, oh you have a little wheel special made with a handle on it. You walk around and measure the distance around that wheel and you allowed about 3/16 of an inch or a little bit more depending on the condition of the hub. Then when that is done, then the fun starts. Because you must now take the tire and make it when it's hot, 1/8 inch smaller again depending on the condition of the wheel, than the wood it's going to go on to. You've already got a lot of heat in there. Then you heat it once more in the forge. You put in the tire shrinker, which is a special machine that clamps on to both ends of a heated portion of the tire and got a long handle probably eight feet long. You can just literally just get up there and jump on it almost to bring it down. And as it's coming down, the tire is hot, you don't want it to make a big lump like this you hammer it down. In other words it's a two man job. You're hammering that down you might have to do that many many times and when you

get through the tire is smaller than the wheel. What's the good of that unless you can get it on after you have completed all these various things about the wheel and the tire. By the way the tire was possibility an inch and a half which is narrow. Maybe two inches would be about average width. Once in a while we'd get a three inch and boy we didn't like those because there was so much more work to get on. But after you've done that you take your tire and bring it out here on a specially built mound of dirt built up there good and high. You put that down and usually do it in a group of four. One on top of the other. Then small pieces of wood, long as your hand or a little more. Build a fire all the way around the tire and then when you get it hot and you'd take one of your tools and just gently tap the tire and when it began to have a dead sound as we called it, how to describe it. Does from somebody that knows it. When it's the right temperature by sound, you pick it up, you bring it over, all special tools for lining it up and levers to pull it down. Hand levers. These two people preferably three with sledge hammers and one twelve pound hand hammer. No, two sledge hammers and one twelve pound hand hammer. The operator, then he would drive that tire onto the wood wheel. It's hot. If you leave it there it's gonna burn itself loose from that wood. So immediately right now or a little bit sooner you take that and you turn right around behind you and you put this in the tub of cold water. That cools it off. Your job is almost done. You put it back on the standard over here and you put in as many holes as there were in the first place and put bolts in them. That was two - one of the two fellows came together and two and usually two more. Built them and put in the special bolts just for that job. By the way, there's a nice little drawer. Pull it out. All the various sizes of bolts you need just for this one little job. All there lined up ready for you. That was one of the first things we boys would do, would be bolt off the wagon wheels or buggy wheels usually. Buggy wheels were three quarter inch wide. Same process but much easier to do. We boys did not do any of the fitting of it. No. We would do the molding at all. That was about where we started as far as blacksmith work was concerned.

Well, I've told you a little bit here about putting a rim on a wagon wheel. There is probably four times as much I should have if you really wanted to know it all, but it's just an idea. Now, also in the blacksmith shop was the wood wagon making. Primarily wagon tongues. I'm not gonna go into that in detail, but putting wagon tongues is another complicated affair. But not near as much so as the center of the wagon tire. Also there's bolsters to make and many other wood wagon parts to be made. All by hand. There was no electric power you remember.

Let us look at our map. This is just the front shop we're talking about now. But over here towards, well there's a door here. Two thirds of the way back. Just a door to go in and out. Not for bringing large articles in. Just for a person. Just beyond that is what we call the post drill. That one we had is very similar to this one shown. When there's a lot of holes to drill, you just stayed there and crank the crank and the fly wheel went around, drill went down further and further automatically or by hand, whichever you wished. And you'd drill holes through the metal.

There's another thing that should be mentioned in connection with blacksmithing. Bolts. There's so many things people want a long bolt for. You can forge, got special tools for it. You can forge the head. On a bolt using the forge and the anvil a few special tools. But you can't forge threads. So we have the dies and you'd cut the threads. Well if you wanted them about an inch long or six inches or whatever length you want, you would hold the metal in the vice and then just literally hand power turn that around till you got the threads cut. I have cut threads on a one inch diameter rod as long as a foot on both ends.

His was not one of the old time shops. He brought in the new blower for instance and many other new things. Still he was old according to today's standards. Course, for instance, the metal that you worked with was wrought iron. It contains a tremendous amount of silicone and it was much more difficult to work with in the forge. It's so easy to melt it and it would drip away and there's nothing there. Today's steel and this came in maybe in the twenty's or so in general use is about 5% carbon and other things. It's nice soft metal and it works so much better and it's so much better and easier to work with than the old wrought iron.

Horseshoeing is another big section of blacksmithing. It is completely separate in many many cases. That's all they do. Now this horseshoe here, Pa would buy these by the keg. Just like this already made to this point. Then if you wanted it sharp shod, then these points would be brought up and sharpened and then a piece in here welded on and brought up and that sharpened. Then there was also like this and that is a very crude horse shoe. I didn't make it and either did Pa. But it's the only one I found. That's partly work. The horseshoes themselves had to be, every shoe had to be shaped for that particular horse. So the shoe itself, although he bought it already made, had to be

shaped for that particular horse's foot. Pa has shod horses that were wild horses two weeks before he shod them. Wild horses from off the wild range. And they're feet had never been touched before. If he started, he always put the shoe on the horse. I am not a horseshoer. I want to tell you one little incident with me and horseshoeing. I was about twelve years old. Pa put the twitch in the horse's nose. Now that's a piece of one quarter inch rope. Just ordinary rope. Out of the right size and it fastened to a stick. Call it a yard long. I don't know just how long it was. You put that over the horse's nose and then I, the twelve year old was in front of the horse and twist on his nose. He doesn't like that so he might behave. If he doesn't behave, then Pa has a little snap that he can snap right onto the twitch on the nose. That goes through a section of the harness and then it goes down and connects down towards the foot. We'll say it was the back foot for example. But it's the same either way and then he had a little strap device that goes around the foot, around the ankle and then this would fasten onto this rope in a moving fashion. So Pa would attempt to get the horse to pick up his foot. He'd keep on pestering and pestering by pulling his foot. Eventually the horse would be exasperated. He would pick his foot up a little ways. Maybe only a few inches. But then he would take up on that rope. As he took up on that rope, the horse would kick again. And each time he kicked, he pulled his own nose, through the rope, went over the top down under his nose. After a few times, and he kicked some more each time, it'd go a little higher. Finally it would get up to the point where Pa could reach the bottom of that foot and then he would go ahead and put the horses. Took all the trimming out of the horse's hoof to the right shape and size. Then fit the shoe to fit that particular horse's foot and then nail it on again. As I've said, horses that have never been shod, never had their feet touched before, Pa has shod them.

There was a circus came to town and they had ponies in the circus. They wanted Pa to shoe the ponies. He came home and told us about it and he says "I made shoes for those ponies. And I made them from plain iron. The whole shoe when it was finished was about as big as a tablespoon. Very very small ponies." So he did everything between. He was at least half way between there those two extremes. Many Many different size. He'd have keg after keg after keg of shoes sitting in the back of the shop.

I'm gonna tell you one more thing then we'll stop. In the shop here leaning against the wall were bars of iron. They were from one quarter inch thick and one inch wide. They came in sixteen foot

lengths and he would just set them on end and that's where his stock of steel just sitting on end like that. Then he also had them three inches wide and one half inch thick. That was very very heavy iron. Also he had a ground iron all sitting on end from here to, oh there's a back door right in here somewhere. And that all stood on end right in from there to there. That took care of an awful lot of iron. Now the less than one quarter inch thick iron he had some left. That you could double it over by hand. He had a rack above your head in this vicinity in the shop and so he had a big stock of iron on hand. And that could be used for anyone of a thousand different things.

4 October 1985

We have spoken a lot about this front shop. This is Chapter 2, by the way, of the blacksmith shop at Breedsville. We haven't mentioned too much about the back shop, but gonna tell a lot about that. But right now I'm gonna tell you about the upstairs of the back shop. I have a photograph of it. I remember it when this is the back shop and the upstairs is here. There was a raft that came down here. Made out of timbers to go upstairs. It's been gone long long ago. The upstairs was rented by my dad to another man. Who I do not know at all, but he wanted to paint buggies and wagons and sleighs, and similar things. He himself paid for the raft to put it up there. The upstairs measures 24 by 40. Lots of space to work in. He was there one or two years, but he was not successful. He didn't get enough business and he closed up. As far as the upstairs is concerned, now the upstairs we're gonna leave it completely alone for awhile and we'll come back to it.

As we have found out, Mr. C. O. Titus made this 1873 map of Breedsville. We don't know where he got his information. This was never filed. It was never recorded. But as one great writer has said. "There was a great man who knew his business when he laid out this Village of Breedsville, because everything according to Hoyle the original map." But it is not recorded. So everything in here originally was just made by leaps and bounds. In other words, you begin from the center of the town where there's a specific exact spot. Then you measure so far to the boundary line and then up so far and so on. That's the way everything is described in the Village of Breedsville originally. But in 1900 Andrew Gaynor was our supervisor and under his supervision, they laid out the present map that we've got now. This is recorded. And if you say Block 10, Lot 10 that means the spot where the blacksmith shop is and you don't have to say anything about inches or feet or they don't

use inches anyway. They use tenth of an inch. The lot lines in the old map are not the same as the present map. This map was put in in 1900 and it gives the people a lot more something to work on than they ever had before 1900. There's questions ever once in a while that have to be answered. I'm getting off my track. Let's look at 1873 map. Here was the tannery and that's right there. It's facing Mill Street. The tannery comes over. Here's the blacksmith shop. Here's the large clothing store. This is clothing, misc. etc. This is the one that burned and when it burned it took everything in that block. The date I've forgotten. Here is where it ties in with the Breedsville Blacksmith shop as I knew it. This was here before 1873. This was here before the big fire. This shows just space in there as I remember it. There was an alley that went clear through from street to street there. Now this strip in there is shown as Lot 9. How come I don't know, but it is. And then this Lot 10, that is the blacksmith shop. That is interesting in this respect. Well first, I remember specially weeding onions, and weeding carrots, a nice garden on this side of the shop. It was nice. Then some reason or another I didn't get in on weeding here. It came the wrong time of the year or something, I don't know. This section in here was the most wonderful garden you could ever ask for. You could not get onto it early in the spring. It was too wet, but when you stated growing things, it kept growing, growing, growing forever. There was one day, one summer, Mother and Auntie Carrie and so on went up to Fruitville and visited for two or three weeks. Pa sent from the garden a big box of vegetables. There was lettuce in there, leaf lettuce, and there was cabbages, there was tomatoes and I don't remember what else. But he shipped that box parcel post to there. Now that was a mistake. Can you put cabbages and tomatoes in the same box and ship it the way they are handled then and now? Yes, it was dripping when it landed. Anyway that was a wonderful section of garden. Back of the shop, remember here was the tannery and there's no specific line that I can see in any map that says exactly where the line is on the tannery. But Pa, back of the shop, he plowed that up and tried to raise a garden. He had such good luck here he tried it here. He couldn't raise anything. But he found something. He found numerous little tiny pieces of leather. Leather - Tannery - Tannery - Leather - Apparently the dump from the tannery was right back of the shop. Well it's just interesting. By the way this soil here was almost solid plain muck went down between a foot and eighteen inches. A solid muck. Grow anything and just below that, so we found out later by a ditch that was put through there, was pure water sand. Always have water there. We said that I know there's a stream of water sand eleven inches under the ground at the sight of the shop. I know that's a wonderful stream at eleven feet because I've drilled a well there and we've used it. I presume that

this is the same one that has this spring that is about in here somewhere. Between the big white house and Kriske's. You notice I said two maps. Then I said onions and radishes outside the shop. Everything grew wonderful on the north side. Muck, etc. Nothing grew on the east side. We don't know where the dividing line was at that time between the tannery and the shop.

There's many routine things that are done in the shop. Well, welding a sickle bar. A sickle bar is a part of a blade of a mowing machine that goes back and forth. The head is one piece and the bar is the other. That's three quarter of an inch wide and it's one quarter inch thick and it has various sets of holes in it to fasten these cutting blades onto. Invariably when they break, they break just at the last hole where the head is fastened on. The old way was to take three or four more extras on while the new piece in the forge, new piece of three quarter by one quarter onto that. Drill a whole series of holes for all the new pieces. That was done in the forge. It's a very very exacting science. It don't sound like much but it is. Eventually we got so we used electric on it. The electric if you do it right and boy every little teeny portion of a drop that goes in there must be right, you can do the same job in one tenth of time you did before and it's just as good because of the way it goes together. OK, enough about sickle bars. Except that we'd also sharpen sickle bars. We'd use the foot caller grinder. Now I didn't use that foot power grinder an awful lot. Yes I did some, and we'd sharpen those blades on the sickle bar. The part that moves back and forth on the mowing machine.

Another thing was welding shafts of all kinds. You could have a shaft that big around, we'll say two inches in diameter. Put it in the forge and weld it or later you'd weld the same shaft using the arc and it was just as good. And not near as much hard work. I have welded them up to better than two inches in diameter and I have welded shafts if you want to call it, half the size of a lead in a lead pencil and made it work. That's another story. Another thing at this time in the blacksmith shop there was various castings that got broke and the only thing to do with them was put a piece of lightweight steel on and bolt it in place to hold the two pieces of casting together. That was the only way to do it. I'm talking about earlier in the shop history and then another thing was farmers especially would come in with a piece of machinery and the bearing were worn out. Well we would pour new bandit bearings in those pieces of machinery. That is a whole great big science in itself. Just pouring bearings. You have to know what your doing and it's something you don't learn in five

minutes time. Then there was on the steel plow shares. There was welding new pieces on the end of a plow share. Pa would often use a rasp which is a very course file as used in horseshoeing. He would weld that on the end of a plow share, make it longer, bring it down. Then there would be the shaping it in the fire. In other words you would gradually work it down to a nice fine edge and usually touch it lightly with the hammer.

We would come across the question of all kinds of small tools. This is a pruning knife. When you're using this, you hit it here and this is sharp and it cuts right into the piece of apple wood. Then when you have done that, you take this which is sharpened this way. Then you'd pry it sideways and then while it is open like that, you take a small nice little sapling off of a variety of apple tree you want to have apples. You could begin with a wild apple just so it's an apple. Then you prune it and then see what kind of apple will grow. There were hundreds of different kinds of small tools that were made in the blacksmith shop. That is just one of many. This one was made with a wood handle. Some of them just stuck straight out just steel handle. If you needed a tool back then, you didn't buy it at a hardware store, but had it made. One man came into the shop and says, "I want a pruning knife." I says "OK, Let's get it down on paper." I wrote down exactly how long he wanted it from here to here. We got it all done. He came back a few days later. Oh it's fine only it should be a little longer in here. OK, let's look at the sketch we made. We did and the way I'd made it was according to sketch and that sketch is what he'd OK'd. Every farmer has a slight different idea of how long he wants this made. But there's hundreds of tools like that.

Another big step, A momentous happening. We mentioned this earlier, but in reference to a blacksmith shop it was momentous. We had electric lights turned on in Breedsville on May 25, 1925 at 10:30 A.M. But you can't imagine how much that meant to us. Of course we showed you the picture of the gasoline lamp that we used before that. That was good, but boy, just pull a string and you got lights throughout the shop. We had lights. The first thing of importance, Pa said to me, I was in my upper teens somewhere then, I could figure it out, but I haven't. He says go to Kalamazoo and pick out, we'd decided about what to get. And I brought home a three quarter horse electric motor. It was high speed. 1725 then there's a 3450. I brought home the high speed. It had a one quarter inch shaft and it also had an arbor. That's a piece that will slip right on. An arbor in this case is a piece that will slip onto the three quarter inch shaft and one or two set screws to hold it

secure. There's two flanges and you put your emery wheel between those two flanges. When we got that going, boy you wanta sharpen something. My goodness, you really could sharpen it in a hurry. You could do it in one tenth of the time you did with the old push thing. And the one we push-pushed with out foot was so much better than the old grindstone. Pa never had a grindstone. What Pa had, the old one was so much better than the old grindstone. But there's actually three quarters horsepower. But don't think high speed is the whole thing because I'll tell you some more later on. We put an electric motor on the drill. Here all those years we turned the crank to drill holes, now we turned the switch. Course there's more to it than that because everything had to be ranged accordingly. He put a motor on the blower and he must've been pretty darn good because he lined up the shaft on that motor with the shaft on the blower. No intervening things to allow for slight few thousandths variation in the spacing for line up. No, he put it on and it was perfect and it stayed perfect. He put in a small grinder. That came in handy for a lot of things. Electric lights had come and all these things came with it. My brother Leroy wired that shop. My brother Leroy had been exceedingly interested in radio. He built a seven stage radio cover that long himself by hand. You could get stations, that was when 1000 Watts at the most on any radio station. And you could occasionally that would be all the way from California to here without any re-broadcasting. You could occasionally get that. Bring it out on that great big nice speaker he had. Leroy was so good at that. But he went into wiring and I helped him wire quite a number of different buildings. The shop was one of the things he wired. 1927 or the spring of 1928, Pa got the acetylene welder. That was such a great big step forward. You could weld steel to steel. You could weld cast to cast. You could weld cast to steel by using bronze. And bronzes and brasses of all kinds you could weld now. With just a torch. There's somebody in this picture that we've got to remember. This was Walt Buck. Remember very early we told about Buck's living on the back street on Howard Street? He was one of the son's there and he worked for Pa for a long time. Walt Buck after he left here with all of his abilities that he had gained in the blacksmith shop, went to Chicago. They were making, this was a little while ago remember, making buggies and that's with the wheels three quarter inch wide, one quarter inch thick for the tires. His job there was just literally the welding of the ends together. Somebody else shaped it and he just welded them together in the forge. Somebody else fitted it exactly to the wheels but that was his job. But then he went on to that and then he went to, he had got into acetylene welding much earlier than my dad did. So what happens when Pa gets his acetylene welding? Why from here to Three Rivers, well you can gain some knowledge by driving

over there. It was worth it, because Walt knew an awful lot about acetylene welding then. He'd come over to us. We went over to him. Between Pa and I and Walt, we learned an awful lot about acetylene welding. The main thing about acetylene welding or any welding, there's two things. Do not think you can sit down in one hours lecture from somebody and think you've learned it. There's two things you must have to be a good welder. You must have practice, practice, practice, practice, practice and you must have study, study, study, study. I was in the shop in Fennville, my own shop and our preacher came to visit us. Then a few weeks later it came out in the sermon. He was saying. If you want to be a specialist in something, study and get all the possible information you can. He says just for instance, I visited this man, he's got a wonderful religious library. He has a wonderful library in general. But the main part of his library was on welding. Not one book, but many books and many magazines. I told you earlier he had two piles, two feet high, each of the American Blacksmith and in later he had equally big pile of probably close to it, books of all kinds. First on acetylene welding, then on arc welding. He knew it from the book form, he knew it from the practice form, and he and I both, at different times, I was in my own shop for a while and many times in the winter, I would deliberately take a piece of cast iron, always kept some around for this purpose. Then I would take that piece deliberately break it and then grind it exactly thus and weld it.

Arc welding and acetylene welding are similar in certain respects. Acetylene welding, you have two tanks. One is acetylene and one is oxygen. It's a whole series of valves and regulators. It comes down to the tip and you have a flame that comes out there exactly the right shape and you have to change the shape of that according to your regulations and your heat. I can't tell you without a piece of paper. In preparing two pieces of, we'll say cast iron or steel, either one, you grind them in this shape, as if they were two very blunt coal chisels. Or looking at it this way, if I can draw it the way I want, you put your flame down in the bottom and play it back and forth. This side and this side and at the same time you've got your welding rods here and you bring it down close enough so it's nice and warm. The whole secret is this, you must get this side and this side to a flowing heat exactly at the same moment that this rod comes to a flowing heat. Then that has become one. Then you just continue that right on up continuously. A drop at a time. But this piece of rod must be flowing at exactly the same moment that the piece your welding is flowing. Don't get it too hot because if it's burned, certain types of material you never can weld. As I said it is

practice, practice, practice, practice and study, study, study. There are so many types of welding.

You ask what happens if you make a mistake. Let me give you an example. I had down here welding fenders. The Model A Ford was one that had a typical form of breaking it's fenders. It would begin on the outside and then work on up. And it would keep on going till it fell off if they didn't fix it. I would first line it up, put clamps on it, put a steel bar underneath and weld that in place. Then I began at that outside edge and just gently flow that metal in, and you don't wait for it to flow in because if you do your gonna have it flow out. I mean it'll just go clear through. I had gone about half way up and there was a young fellow that was watching me and he say's that looks so easy. He says "would it be all right if I try it?" Sure, Sure, go ahead. So he took it and he rode in that bead just as nice as you could ask for at the bottom end. And then he went a little further and it plunk- everything fell right down on the floor. I says "don't worry", I says "just put another little tiny bead where you left off and then you'll be able to fill in that hole you made". So he did and the more he did the bigger the hole got. It go bigger and bigger. He said take it away. So I took the torch and I did just like I told him. Nice little bead, worked up around the sides of the hole that he had made. Filled it in. Slowly and gradually and then filled it all into one. It's just a matter of getting the metal the exactly right temperature. This metal exactly right temperature at the same time this rod is at the right temperature. It flows in just as nice as you can ask for. "Gee Mr., Gee Mr. Lee" He says. "I've got a lot more respect for you as a welder than I did." Knowing it's the right temperature can be described as, you know what a pan of water looks like, actual surface of the water. When it is liquid you can see it's liquid. When it's solid, you can see it's solid. And you've got to be able to discern that onto a spot the size of a lead of a lead pencil or a little smaller. You've got to be able to see that and just flow on and right into the other. It's a continuous movement. This is the actual movement you make. Your torch is here, your heating here. Your rod is over here. Back and forth like this. Theoretically, that's the way you do it. There are a lot of variations. There was hundreds of parts at that time, that there was welding fenders as I mentioned. Welding frames on a car. That's something that's really important. You don't do it too often, but it's so important. There was the bumper supports. Especially the back bumper on a Model A. It would break off and you would weld it right in place. Don't take it apart.

This is another phase of welding. This is cast iron welding. But it's a special type. A bean spray rig.

They do an awful lot of spraying for fruit in this vicinity and bean was one. I'm using that as an example. Everyone, they have two cylinders, three cylinders, four cylinders. Whatever it is and on the bottom of each one of those cylinders there's a little brass set screw so you can get it out nice and easy. Before the cold weather actually sets in when freezing time. Every farmer is super careful to be sure to take out those brass plugs so there's no remaining water remaining. Invariable they wouldn't necessarily leave the plug in but a little gob of gook would collect at that opening and water would collect before all of it had run out. There would be a piece about wide as my two or three fingers, two or three inches long round at this end. This is still attached here. This cracks off here. No two cracks are alike. Then you take that same shape I showed you before, only this is part of the casting. Very often this back end here is still fastened and how can you grind in there. You can't. You take a diamond point chisel, you grind so these two edges that come together are the same shape that I showed you. Then cast iron has a characteristic that is different than steel in this way. You heat it, it expands. If you just heat it in one spot, it contracts. When it contracts, it causes another crack. If you just go ahead and make a nice beautiful perfect weld on the bottom of that bean spray rig pump, it's worthless. You must prepare this crack, then you are very very careful to keep it perfectly clean. Bronze welding. No cast iron. Then you set this on a foundation of cinders. Remains of the forge for instance, but we didn't like to tie up the forge so we used some other method. Then we would take a group of bricks and build a brick wall around it. Not a tight one, just as tight as you can conveniently do by hand. Nothing exacting about it. But you'd go clear around that like that.

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