

YOUNGSTOWN STATE UNIVERSITY

ORAL HISTORY PROGRAM

History of Industry in Youngstown

LTV Steel

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PAUL WIGTON

Interviewed

by

Janice Cafaro

on

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INTERVIEWEE: PAUL WIGTON

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SUBJECT: LTV, Campbell Works, foreign steel, EPA regulations,  
waterway, labor

DATE: September 16, 1986

C: This is an interview with Mr. Paul Wigton for the Ohio Historical Society and Youngstown State University's Industrial History Project, by Janice Cafaro, at 1215 Albert Street, Youngstown, Ohio, on September 16, 1986, at 2 p.m.

Mr. Wigton, will you tell us a little bit about your background? Where were you reared? Where did you go to school and things of that nature?

W: I was born in 1932 in Linesville, Pennsylvania, about fifty miles northeast of here. I graduated from Linesville High School and came to Youngstown in 1950 to attend college. I worked in the steel mills and attended college at the same time. I graduated in 1957 from Youngstown University with a B.S. in chemistry. In my senior year, I filled a faculty vacancy in the chemistry department. Two years later I returned to YSU, taking night courses for the next three years to complete all the available metallurgical engineering courses. In 1959 through 1968 I worked at the Youngstown Plant of Republic Steel's Mahoning Valley District as a metallurgical engineer. In 1968, the Youngstown district of Republic and the Warren district of Republic were combined to form the Mahoning Valley district.

At that time most of my duties were moved so that my location was in Warren where I was superintendent until 1975 when I made district manager of the Mahoning Valley district. I stayed on that job until 1978 at which time I was made assistant vice-president of steel operations. A year or so later, I was made vice-president of steel operations until the merger of Jones & Laughlin and Republic Steel in 1984 to form LTV Steel Company, Inc. Since that time, I have been in

the tubular division with my office in Youngstown once again.

C: Would you describe the climate for steel during your career?

W: The steel climate in covering my full career has been a very cyclic type of situation. The steel industry in the United States had been very unpredictable and very unstable from the standpoint of peaks and valleys in the operations in the demand for quality. So consequently, I have seen some very, very good years, and I have seen some very, very poor years. Outstanding among those years were 1973 and 1974. They were very good years, and during that period of time both the Warren plant and the Youngstown plant in the Mahoning Valley district were very profitable. 1975 on the other hand, proved to be a very, very poor year. Steel consumption dropped drastically and mills had to be shut down temporarily or schedules reduced to the point where many people were laid off. Over the next couple of years, the business again gradually built up until 1980 and 1981. These years proved to be quite profitable years, most especially for the pipe industry here in Youngstown.

The pipe mills which were operated by Republic Steel during that period were very busy and very profitable because of the energy business. But in early 1982 the energy bubble burst and the demand for tubular products fell precipitously. Since that time there has been a continual retrenchment in the oil industry and consequently also in tubular products plants in the Youngstown area. Since the merger of J & L and Republic, we have gone through a constant retrenchment and had to shut down many of the tubular products plants here in the Mahoning Valley and lay off a great number of people who, for a good number of years, have been very active in the tubular products business.

I have seen the cycles in the steel business go from very, very meager order patterns to a demand for the steel that couldn't be met. That has been my opinion of the chief difficulties in the steel industry. This type of very cyclic business has not allowed in any of the companies accumulation of enough capital to really modernize their plants. At one period of time we made lots of money, but then in a very short period we were at the other end of the cycle--not knowing where the next dollar was coming from. Consequently, there is a great tendency not to invest in long-term capital improvements. As a result of that, there has been a general decline in the steel industry in the Mahoning Valley. Many other important factors have contributed to this decline also. Chief among them is the fact that in none of the steel businesses here in the valley has there ever been a long-term, stable demand and price-cost relationship that will allow good, long-term projection of the business that could make it viable.

In addition, the next most important factor affecting the steel industry in the Mahoning Valley is its location; the Mahoning Valley is land bound. This has kept us at a very distinct economic disadvantage because of the movement of raw material, and that was increased by the railroads reluctance to negotiate competitive rail rates from the Lake Erie to the Mahoning Valley. The railroads in the past, in the 1950's, 1960's, and 1970's, battled vehemently against the use of self-unloading boats and against the use of commercial docks along Lake Erie. The boats could not unload at their own docks. They penalized any ore that was unloaded at docks other than ones owned by the railroads. Consequently, they were able to keep price up when moving ore from Erie to Youngstown and Warren. This also added another competitive disadvantage to the steel industry.

C: You were talking about the cyclic nature of the steel industry. This must be due to various factors. Would you say foreign steel was among them?

W: Certainly, since 1980 that has been the case. Foreign steel had a drastic effect on, not only the volume, but also on the cyclic effect of the steel industry. It has made the peaks and valleys even greater because the foreigners tend to ship steel in large amounts and also have it on the docks or in warehouses.

At the first indication that there is any downturn in the business, they would immediately start cutting prices. That, in turn, would cause the rest of the price structure to fall and generally the volume too. Customers would start buying it and would, in a sense, start speculating on steel and buy ahead at what they thought was the lowest price, accelerating the downward trend. Then the foreign steel aspect has had its effect there. Moreover, the overall price reduction of steel in this country has added one more burden to the area that I mentioned before, that of capital accumulation. If you can't make the profits, you don't think about investing for the future. That, along with the cyclic nature of the industry, has really in a sense crippled us. But the cyclic nature of the steel business has been caused by the natural cycles in the macro economy of the country. Those have been accentuated to a degree in the steel industry with the labor negotiations, especially since the 1950's.

During that period we have seen the automotive industry and the other major factorial users add to this cyclic problem. Starting six or eight months prior to the end of the steel contract, they would start stockpiling steel. Consequently, the mills would go up in production. As the mills went up in production, they would start producing steel on the older antiquated mills, where the costs were higher so the cost-price relationship was higher. That was done to fill the

automotive industries' need to build up an inventory in case there would be a strike. If there was a strike, they would use all that inventory. If there wasn't a strike, which was the case through the 1960's, then they would end up with huge inventories. The auto industry would sign contracts and they wouldn't have any orders for us. Then the whole thing would collapse; then they would have to start over again. When that would happen and that type of cycle would coincide with what you might call the normal macro economic cycle of the country, there would be drastic depression for short periods of time. It has been my experience in watching the steel industry over the last twenty-five or thirty years that the cycles got deeper: The peaks were higher, the troughs were deeper, and the cycles got closer together in time. It used to be that there would be a period of time, a year or maybe two years, that the business would be good. Then it would slack off and there would be a slow period before it started up again for whatever reason.

In recent years, because of all of these factors and then thrown on top of that, the import situation, those cycles have become sharper, higher in peak, but closer together in time frame. As a matter of fact, we're going through one right now. Three months ago we were very concerned about having enough backlog orders to run our mills. Today we are taking orders in that can't be filled on time. This is due partly to the U. S. Steel steel strike which has caused automotive companies, appliance makers, and other factorial users to say, "Hey, we have this strike in front of us, maybe we better place some extra orders." They end up placing extra orders in two or three mills.

Right now we are going through a cycle in which there are many orders being placed, and it looks like we are going into a period of great prosperity. Probably it will drop very rapidly when and if U. S. Steel comes back to life. When the automotive industry makes the predictions for 1988, they're not going to have a very good car year because they are not selling cars right now. They are pushing new incentives and now the incentives are selling cars for them. But they are probably cars that would have been purchased next year instead of this year. We seem to be heading in to one of those peaks and one of the upturns in the cycle of the steel business.

- C: In addition, within the automotive industry, the quality also has been improved so that now the steel is expected to be more durable. What effect has this had on demand?
- W: There have been great strides made in the quality of the steel mill products over the past ten years. I think certainly in the past ten years I have noticed that we have made greater strides in nearly every problem area in the automotive industry that you mentioned. It is probably because the rejection rate

we have in the automotive plants now is very, very low when compared to three years ago or five years ago. And now the steel in the automotive plants is every bit as good as the Japanese, not generally better than them. So there has been a lot of improvements in the quality of their processing and also the quality of the corrosion protection that they put on cars. Now, what used to be a dream of a car that would last ten years without any rust perforating through the body is now virtually a reality in most American cars. That same kind of thing is true with the seamless oil country tubular goods that were being produced at the Campbell Plant here after the J & L Company rebuilt it in the early 1980's. Although we have just idled it because of lack of business right now, it had absolutely nothing to do with the quality we produced. As a matter of fact, we were producing a product that was better than could be produced anywhere else in the world.

We were selling a special product that we called Superior Performance Casing, which was made to half of the tolerance of the American Petroleum Institute's specifications. We tried to accept the chemical and dimensional specifications for oil country tubular goods. We were making all of our piping in Campbell at half of that tolerance. In other words, if tolerance said that wall thickness could vary by fifty thousandths of an inch in thickness, we were making all of our pipe so that it would never vary more than twenty-five thousandths in thickness. That was undoubtedly the best seamless tube mill in all of the United States. Yet it is idled at the present time because of very, very dire straits of the oil producing industry in the United States.

So, quality has changed quite considerably over the years, and all for the better. It is not a myth. It is fact and it is a very true fact. Perhaps one of the important things about the quality changes that have taken place in the steel industry in this period of time is that it has been done at continued lowered cost of production. Most people think when you produce a higher-quality product that it costs more to produce it. That is not true in most manufacturing and it is certainly not true in the manufacturing of steel. If you have the right kinds of processes and run them properly, the quality of the product improves. And the more uniform you continue to make that production, the more the quality improves and the more the cost is less. Uniformity and consistency are the keys that help in making the quality products to earn the business. That is what happened in the steel industry all through the United States in the last ten years. Our costs really have come down very dramatically.

C: Without the cost of modernization procedures?

W: There are two aspects. This has happened. We have been able

to make this happen even with, I won't say antiquated equipment, but equipment that is of present state of the art, even though it may be five or ten years old. Also, throughout the industry, there has been a considerable investment in the United States that has made a big improvement in the quality. That has been the investments which most steel companies have made in continuous casters. The advent of continuous casters allowed a quantum jump in quality level, but the casters were put in primarily as a cost matter. But the quality, the improved quality, came right along with it. It's a chicken and egg situation with quality and cost. You just keep moving up on that circle, but certainly capital investment has helped it. It is most readily noticeable in continuous casters which make slabs, and the blooms or billets that are used to roll farm mill products, like squares and those types of steel products. Casters in both of those areas have made a tremendous improvement in cost and quality.

C: Have these improvements helped the steel industry to compete with foreign steel?

W: Yes. There is no question. Without continuous casting as the major processing from liquid steel to the solid product, it would be virtually impossible for the steel industry to compete today in the world market. Not all steel in the United States is made that way. That last figures I have seen show that 65% or 70% of the steel was made that way. The rest is then poured into ingots and then the mold is stripped off. Each year, as new casters are put on, the number of ingots being poured are going down. In Japan and Korea, for example, more than 90% of the steel is produced through continuous casters from the liquid state into a semi-condition solid state, rather than by pouring it in molds.

C: What do you feel is the future for the Campbell Works?

W: The future for the Campbell Works depends on a number of things. First and foremost is that without a drastic change in the oil drilling activity in the United States there is no chance that there will be a need for new products. At the present time, we monitor this. The oil industry monitors this primarily by what they call the Hughes Rig Count, which is stated every Monday. This is really a count of all the rigs in the United States that are actively drilling wells, whether they be gas wells or oil wells. Just to give you a comparison, the Hughes Rig Count in the first quarter of 1981 got up 4600 units drilling wells. During 1986, there were weeks that it had come down to around 670. Now it is creeping back up. Our analysis indicates that there will not be enough business for the Campbell Mill until the rig count gets up into the 1200 or 1400 range. Then there would be enough of a demand for the high quality products that Campbell produces, which would allow us to start the mill up again. This would have to appear to be a long term trend

in order to start the Campbell mill up. Just because there is going to be a lot of activity for a month or two or a quarter or two, it would not justify a start-up.

C: The oil market is on the international level. Don't you service foreign markets?

W: The portion of it that we serve, or the portion of it that the Campbell mill serves, is strictly the domestic market. As long as the world oil price is this low, there will not be much growing activity in the United States, and we cannot compete as good as the Campbell mill is in the world market. There is no way we can get our prices low enough to sell to the next biggest market which is Russia then, of course, the Middle East and then China. There are a number of European mills that service the Russian market. The Japanese sell to Russia too, and they certainly serve Southeast Asia and the China area. There is no way we can compete with them in the world market with their labor and raw material costs and their transportation costs.

The cheapest we could get product onto an ocean-going vessel is probably about \$40 a ton right now. All Japanese mills are built so that the pipe almost literally rolls down the shipping table into a ship. Here we have to put it in railroad cars and take it down to the Ohio River and onto a barge which takes it down to New Orleans and loads it in an ocean-going boat. Other options would be to rail it to Baltimore, or for a short period in the year, send it up to Erie on truck or train then out through the St. Lawrence River. We are not worldwide competitors.

C: Was 1981 the peak for the oil production?

W: Yes, 1981 was the absolute banner year for the oil companies and for all the steel companies that produced oil country pipe of any kind.

C: Do you know the tonnage?

W: The total domestic oil country pipe shipped was 4.4 million tons. I know that Jones & Laughlin at that time had months that they shipped 100,000 tons of tubular products. They not only had the Campbell mill, but they had mills in Aliquippa, Pennsylvania, and out in Indiana Harbor. I don't know the maximum amount shipped out. I know out of the electric weld mill that belonged to Republic Steel we shipped 30,000 to 35,000 tons of pipe virtually every month during 1981. Currently we are shipping maybe 7,000 to 9,000 tons per month. Do you see the comparison?

C: Yes. Have your profits been low since 1982? What about the Campbell mill?



- W: Yes. It was a constant loss. We were able to pare that loss down, but we were never able to get it to a break even point. The people in the mills did a marvelous job with quality as I already mentioned to you. In addition to that, they did a marvelous job with cost. They never were able to get it down to the point where we could make money. During this period, on a given product, what was selling in 1981 for \$1,000 a ton could easily be purchased today for \$600 a ton. There has been a constant reduction in prices, and at the same time a constant diminishing of the ball game available. Those two things just presented have made it impossible to live with the low volume of pipe. Quality and price, at the same time, generally cannot do enough in the cost side to make up for that. But during this period of time, up until early 1986, the projections kept indicating that the next quarter was going to be better and the next half was going to be very good, until 1986 when the oil price really took an absolute nose dive. We laid out our strategy for the seamless mill with the new product, and it is a very good product. We did this late in 1985 before the price in oil started to fall. We essentially said that we would work through the first half of 1986 and if we could get enough business on this new product, we would stay in this business. We thought that we could capture a large percentage of the business and keep it, except by that time, the drilling level had dropped to the point that even if we had all of the business that there is in the country, it would be hard to support the mill. So that is when we decided to take the steps in our planning that if we were able to do it, it was fine; and if we were not able to do it by mid-year, we would have to follow an exit strategy.
- C: Giving Youngstown's disadvantageous location how was it still able to prosper into the early 1970's? What has happened since?
- W: The pressure of the quality and the price of foreign goods was becoming readily recognizable. But I think the steel industry really stopped investing in Youngstown early, perhaps in the late 1940's or in the early 1950's. Although there has been some capital investment since that time, none of it was significant. The investments that the steel industry did make were in areas where there were water ports on the great lakes.

Even though it didn't become startlingly apparent until maybe the early 1970's or the late 1960's, it was in 1967 or 1968 that we shut down the old Republic Steel open hearths in Youngstown. Then it was in 1978 when Lykes shut down the Campbell Sheet & Tube. Of course, then it became very, very evident. That trend started much more earlier because money was not being spent in any of the Youngstown mills to invest in modern steel-making facilities. The money was being reinvested at other more

advantageous locations. The Mahoning Valley steel industry has been doomed for a great long time.

Most of my career has been during the final throws of the Mahoning Valley steel making business. Massive industry once in Youngstown is almost virtually shut down. I think right now the LTV pipe mill is the only steel operation in the valley.

C: You feel that if the waterway had gone through, it might have made a difference?

W: Yes, it certainly would have. If there had been in the late 1940's and early 1950's a really concerted effort made to put in a lake-to-river canal through here, the steel industry most certainly would have benefitted. The steel industry along the river might have been completely different. It could have been rebuilt. It would have been ideal then to have coal coming up from the Pittsburgh area. That would have made a tremendous difference, but there were two major factors that prevented it. It was the lack of foresight of most of our industrial and political people and the very strong lobbying efforts that were put forth by the railroads. Almost any way you look at it, in my own mind, I put the blame in a major way for the demise of the steel industry in the Mahoning Valley on the railroads. I would have to say that the pressure they applied against building a canal and their price policies were important factors.

C: How did EPA regulations affect Youngstown's steel industry?

W: Well, the EPA regulations in the Mahoning Valley were just about the coup de grace because by the time the EPA was really forcing stringent regulations--which from my experience started around 1973 or 1974--the demands that were made and the investments that were required by the EPA regulations were often times more than the facility was worth that they were trying to clean up. It literally cost more to clean the air facilities on an open hearth furnace than the open hearth furnace was worth. The operating cost of the types of the environmental equipment which were required were very, very high. This added to the lack of cost competitiveness of the facilities themselves. Although a valiant fight was made in the Mahoning Valley to hold off the advances of the EPA and the demands of the EPA, there was no way that wave could be permanently held back. Ultimately, it meant the end of a lot of facilities here. Economically, the steel facilities were on a banana peel and the only thing the EPA did was give it that final push and pushed right down.

C: When was the campaign against the EPA restrictions the strongest?

W: It was strongest, I recall, during the 1973 to 1975 or 1976 period. This was when they organized programs here in the Mahoning Valley. There were big delegations that went to

Washington to plead the case of the economic crisis in the Mahoning Valley.

C: What about labor role in the steel industry?

W: I don't think you can blame the demise of the steel industry in the Mahoning Valley just on the Mahoning Valley labor. This was a strong hold for the steel-labor movement in the United States in the late 1930's. I would be hesitant to blame anything on the Mahoning Valley labor in and of itself, but labor overall certainly has a large ear to the bag in the condition of the steel industry at the present time. Even then, labor couldn't do that all by itself. It probably had a time or period during the 1950's and 1960's where labor and management did sort of a ritualistic dance every two or three years when a contract expired. There would be a demand by labor for higher wages and finally management would agree to some of the demands and immediately increase prices and then the cycle would start over again. The management in that period of time probably did not take the very, very strong stand that they should have in holding down labor costs because it was just so easy during that period to pass the cost on to the customer. That trend came to an absolute halt when world market steel became available to the United States. It could no longer be kept at bay.

Labor and management together--I can't blame one without saying that the other hasn't been a part of it--they have both been a part of this whole system. Now labor is showing an overall tendency to be less militant and also to recognize to a much higher degree that we are in a broad worldwide market and anyone who wants to be a part of it will have to find ways to cut costs. The cost of labor is certainly one of those issues. It is too late to reorganize or reconstitute the steel industry as it once was.

I don't think the steel industry will ever be the economic power that it was in the 1960's and 1970's. There are united steelworkers who are certainly concerned with every bit as much of the depression of the steel industry. They have had massive layoffs of their own people in their own organization. Membership is a third of what it was ten years ago. Of course, now steel companies and union negotiate for each company where all during the 1950's, 1960's, 1970's, and early 1980's, they went along with U. S. Steel and negotiated one labor contract. We've gone from so-called coordinated bargaining to each company negotiating with the steelworker's union whenever their contract is up. There is really no longer the ability of the steelworkers' union to shut down the industry nationwide. Ultimately, that will be good for the industry because it provides a better economic balance of power between labor and management.

U. S. Steel is on strike now. The longer they stay on strike,

the less likely it is that they will be able to get back all of their customers and both sides of the negotiating table have to recognize that they are virtually dealing with the future of the company. It didn't used to be that way. It used to be that the institution of the steelworkers was negotiating the institution of the total steel industry of the United States and that it was a go or no go situation. It isn't anymore. It is each company for themselves and consequently that makes each union local important. It is like, "Hey, am I going to go on strike? Is the steel company down the street going to get all of my business?" It has changed that negotiating manner completely. Never has this been in the history of the steel industry, since they had the coordinated bargaining back in the 1940's, until just the last three years.

C: Why has it changed to a more local, individual company problem as opposed to the whole industry? What has stopped the adhesiveness of the union?

W: I think that it has just been the evolution of all of the things that we have talked about here today and what happened and what has ultimately happened are the cycles that we have talked about. The macro-economic picture has changed the steel industry because in the past the steel industry and the various companies in the steel industry all worked quite rich and were specially cash rich, so that they really could stand the strike. If one was on strike, they were all on strike so nobody could butt heads with the others. As time has passed, the financial strength of the various steel companies has changed dramatically.

Wheeling-Pittsburgh is in Chapter 11 and a couple of the other major steel companies are very near that level. There are a couple of others that still have pretty good financial strength. Of course, U. S. Steel has very good financial strength. They diversified more and got into the oil and gas industry and this gave them a better financial base. They always were one of the strongest financial companies. The financial need of an individual company has to a degree dictated how they negotiated with the union. In the past, all of the companies were closer together in financial strength and earnings. Consequently, they could act as a group. Now the divergence is so far that what one company can do in negotiating with the union would be entirely impossible or outrageous for another company to do.

It was an absolute 180 degree change in the way steel negotiations are carried out. We are talking about an industry that at one time was a monolith and now has completely split into various sizes and stability of companies. Next I expect we will go through a period of reorganization and redistribution of markets and geographical areas and product markets. I think the future will be toward smaller steel companies with certain geographical areas and more specialized products. In the past

the big companies like Bethlehem, U. S., Republic, Jones & Laughlin were companies with a vast array of products and they marketed those products all over the country. That whole trend is going to be, in my opinion, restructured in the next period of time. I'm sure that we will be seeing that as we have seen the advent of the mini mill on this market.

It is a small entrepreneurial organization that has one small electric furnace and a caster. It makes a very specialized product usually in the non-union situation and supplies that product to a special market in a certain geographical area. It is most readily apparent for these companies who get into small plants to make a very common garden-variety product such as concrete reinforcing rods. If the mini mill saw this was successful, they then said, "Let's take off this next layer a little bit higher for the quality bars that are needed." The next thing you know they say, "Gee, let's take off a higher quality low-carbon bar." Then it was the high-carbon bars and now the alloy steel bars. The mini mills produce pretty much a full market basket of various grades of products. But they don't do all of those things.

An example of that is the mill that is being built here now, the North Star Mill. North Star has made their mark in the steel business by producing the lower quality levels of billets and bars. This was the first step in trying to set up a mini mill that made a larger cross-section bar and also a much higher quality bar for pipe. That part of the industry, the mini mills, has been infringing. That isn't quite the right word. It has been gobbling up pieces of the steel market in what was traditionally the big steel companies' market. There has been a big change. As it has changed, it has gone completely away from the Mahoning Valley and now in the form of a mini mill it is coming back to the Mahoning Valley mainly because of the facility that was available here and also the labor market--the kind of devastated labor market--that allowed them to pretty much come in and make demands of the labor. They made demands on labor costs that could not have been accomplished when the steelworkers were well organized and strong. So maybe the steel industry will come back. I don't know where the Mahoning Valley will be in that format, but there are old mill sites that can be rebuilt.

C: We also have scrap metal.

W: Yes.

C: There is a big market for it.

W: As a matter of fact, that is one of the things that makes it a pretty good location for mini mills. We are in an area which is still a kind of a center for most of the manufacturing in the United States. Consequently, we have the availability of

scrap from automotive plants and all other manufacturing that can be melted in electric furnaces. We have a good market for that.

C: Do you know what the future of LTV will be?

W: No. This company and this corporation will be reorganized but one cannot predict in what form. It will be a period of time, which I would guess would be two or more years before the company will be reorganized. The bankruptcy codes allow a company or a corporation to attempt to reorganize without the creditors liquidating it.

C: Do you see a comeback for maybe your company in particular and then the steel industry in general?

W: Yes. There are within LTV some very fine up-to-date, state-of-the-art facilities that just can't be allowed to be dismantled so to speak. This includes places like the Cleveland East Plant and the Indiana Harbor Plant and as a matter of fact, the Campbell Pipe Mill. In any normal environment they are going to be reformed into kinds of companies that will use those facilities to produce steel because they are good, modern plants. Yes, the company will be back in some form or another, but I don't know what that will be. What the future will be for the rest of the steel industry in the United States is difficult to say. Most assuredly, it will be a smaller industry. In the good old days, in the 1960's and 1970's, 100 million to 110 million tons/year of production was normal. This year we will probably end up with around 71 million tons. There are a lot of predictions for the future which say that 65 million tons might be closer to the norm. This is predicated on the long-term economic projections the require a couple of the important factors.

One is the influence of foreign steel coming to the United States which considerably is cheaper. Also, the usage of the steel in the United States has been following a long-term downward trend. There are a number of indices that are used by some of the economists that compare the use of steel with the total economic activity in the United States, or the total manufacturing, so that you come out with a factor that is a number of tons of steel that will be used for some economic activity. Those factors, no matter what it is, is what the economists use as the base. It has been on a downward trend for a long number of years. It will undoubtedly continue. That is due to substitute materials in automotives and the use of different materials in all parts of our economy. It just used to be that you just wouldn't buy something unless it was made out of steel. You would be surprised if you went in the store now and found anything made out of steel. You know a lot of those products as well as I do. The automotive industry has been the leader in that because the pounds of steel per automotive unit has been going down and down and down and

it continues. These are some of the factors.

C: Do you have any final observations as to your experience in the steel industry?

W: I guess that what I said in the last five minutes sums it up as much as anything. I have followed the industry for more than thirty years and have seen the good years and the bad years. Over the long haul, I have watched the big changes in the industry come about. The average production year being 100 million tons a year down to where we are now at 70 million tons. I can readily see that going down even lower. I suppose that when I leave the industry it will be half of the size that it was when I joined the industry. It will be vastly different in technology and in plant size. It will be vastly different in concentration. When I started in the steel industry it was the Mahoning Valley, Pittsburgh, Chicago areas and a couple of others. Those were the centers for steel. Now there is steel made in South Carolina, Oregon, Texas, Utah, Arizona, and in almost any state that you can think of with mini mills. I have seen the very, very drastic and complete change. I say that with really no regret, although it has been difficult for the people that have lost jobs then being assimilated in the other parts of the economy.

The change in our economy and in our industrial base in inevitable, and it has been both a pleasure and anguish seeing an industry change as drastically as the steel industry has in one short career. For example, this took fifty or sixty years to happen in the textile industry but less than half that time in steel. From that point of view, it has been very, very exciting. But this kind of change has caused an awful lot of torment and anguish too in cities, areas, families and so on.

C: Thank you very much.

END OF INTERVIEW