



AMERICAN INSTITUTE OF MINING,
METALLURGICAL, AND PETROLEUM ENGINEERS

ORAL HISTORY PROGRAM

A 103 Year Odyssey and The Philosophy of Shared Responsibility

George A. Jedenoff

2020

PREFACE

The following oral history is the result of a recorded interview with George Jedenoff conducted by Britt MacKinnon on December 4th, 2020. This interview is part of the AIME and Its Member Societies: AIST, SME, SPE, and TMS Oral History Project.

ABSTRACT

George Jedenoff's 103-year odyssey began in Petrozavodsk, Russia in 1917 where he grew up the son of a railroad inspector and Russian nobility. Soon, the revolution in St. Petersburg began and the Jedenoffs fled the violence and destruction of the Bolshevik forces by immigrating to America in 1923. Transitioning from a life of luxury in Russia to a hovel and the onset of the Great Depression in America, George learned to face problems as opportunities and took to himself to excel academically and athletically. Jedenoff was granted the opportunity by Stanford University to study engineering and has devoted his career to developing leadership and motivation in the steel industry. Jedenoff recognized how the lack of job satisfaction and worker performance affected the effectiveness of companies. With his philosophy of shared competitive responsibility and positivity, Jedenoff began the error zero program and has helped more than 25 different companies improve job performance and productivity. By converting troubled steel plants into efficient ones, Jedenoff has had a noteworthy effect on the success of the steel industry.

Readers are asked to bear in mind that they are reading a transcript of the spoken word, rather than written prose. The following transcript has been reviewed, edited, and approved by the narrator.

TABLE OF CONTENTS

Part 1

00:05 Introduction

01:27 The Beginning of My 103 Year Journey – Immigrating from Russia to America

09:14 Stanford University – Engineering in My Blood

12:00 “You got any guts?” – First Pick and Shovel Job at a Magnesite Mine

16:47 Mentors at Stanford – A Professor for Two Generations of Jedenoffs

20:11 Developing Leadership and Motivation in the Steel Industry

24:05 My Most Telling and Important Experience – Managing the Geneva Steel Plant in Utah

31:21 Converting A Troubled Plant into an Efficient One – Improving Leadership and Communication

37:05 Error Zero and the Theory of Shared Competitive Responsibility – Incentivizing Job Performance

42:23 Work Duty, Personal Satisfaction, and the Importance of Listening – Outcomes of Error Zero

00:05 Introduction

MacKinnon:

Today, December 4th, 2020, marks the first-ever virtual oral history project interview for the American Institute of Mining, Metallurgical, and Petroleum Engineers Incorporated, AIME. Today, I have the absolute pleasure of interviewing Mr. George Jedenoff via AIME's Zoom account due to the COVID-19 pandemic. George has a wealth of experience in the steel industry thanks to over 30 years at United States Steel Corporation, followed by three years as President of Kaiser Steel Corp. and eight years of consulting in the steel industry in general management. My name is Britt MacKinnon. I am a Process Engineer-in-Training at Hatch and a Young Professionals Chair at the Association for Iron & Steel Technology, AIST. George, thank you for your willingness to help us capture your story in this way.

Jedenoff:

Thank you, Britt. You are very kind, and I feel very honored to have this opportunity.

01:27 The Beginning of My 103 Year Journey – Emigrating from Russia to America

MacKinnon:

George, let's start at the beginning of your 103-year long journey. Please tell me about your early childhood. Where did you grow up? I understand you are a descendant of Russian royalty.

Jedenoff:

Actually, of Russian nobility, Russian royalty is a small group of the Czar family and nobility is the much broader group. But, the ancestors of both my parents, for many centuries, were members of the Russian nobility. I have had a long life, a hundred and three years, surprisingly. I was born in a town you have probably never heard of, called Petrozavodsk, which is a couple hundred miles from St. Petersburg. It was the central office of the Murmansk to St. Petersburg Railroad. My dad was an official of the railroad as a graduate engineer from Kyiv Polytechnic Institute. He was stationed there, and I was born in 1917, about two months before the big revolution that started in St. Petersburg, very close to us.

It was a very violent revolution, and my parents decided they should get further away from there because it was just too dangerous. There were just no questions asked; you got shot or tortured or something else. So, we got moved to a couple of locations, and then, as the revolution progressed, my dad filed for a transfer. And, he was moved to the Chinese Eastern Railroad in Harbin, Manchuria. It is a very interesting railroad. It was built by Russia, operated by Russia on land that was leased from China by the Czar in 1897. The railroad was built about the same time as the Trans-Siberian Railroad, which is much better known. But, it is a shortcut to the Seaport of Vladivostok, which was very important, especially during the revolution because that is where supplies and armaments were brought into Russia.

So, it was a shortcut and was across a relatively flat land compared to that portion of the Trans-Siberian Railroad, which was along the Amur River and was quite unstable. We were there for several years until it became apparent that the revolution was going to hold fast. So, my dad decided to investigate going to America. When I was four years old, he sent my mother, my older brother, and me to California, where he had some contacts. We were there for several months and then decided to come back and make a recommendation to my dad that we should emigrate. Now, my dad and my mother, neither one of them spoke any English, so this was going to be quite a change.

My dad filed for immigration, and we were granted admittance into the United States. So, in 1923, when I was not quite six years old, we emigrated and settled in Seattle, Washington. We had to have a sponsor, and we were sponsored by the Russian Orthodox Church. But, it was kind of an unfortunate period, as it was a complete change of life for my parents not knowing the language, and the economy was not too good at that point. Earlier in his career, my dad served as Chairman of an international railroad committee that came through Russia. The head of the Milwaukee St. Paul railroad was very impressed with my dad and he said, "if you ever come over, look me up." So sure enough, when we landed, my dad tried to get in touch with this gentleman, but, unfortunately, he died about three months before we landed.

We had no contacts whatsoever. So, we started life in Seattle, Washington. Then, about that time, the depression came along, and that really was tough. So, that was my earlier beginning. My parents went through a terrible adjustment period. Even if the economy were better, the strain was pretty heavy. So, when I was about 11 years old, unfortunately, my parents separated, and my mother moved to California. She was awarded me by the divorce judge, and my brother stayed with my dad in Seattle. So, that is where the beginning started.

09:14 Stanford University – Engineering in My Blood

MacKinnon:

Wow, what a journey! Now, I understand your father was a mechanical engineer, so it seems that engineering may have been in your blood?

Jedenoff:

Yes, it was. The only real technical university in Russia was called the Kyiv Polytechnic Institute. My dad took mechanical engineering with a major in railroad management. That was his start. You know when you are growing up, you are thinking what do you want to do with your life, and engineering seemed the most attractive to me.

MacKinnon:

Awesome! Why did you choose to study at Stanford?

Jedenoff:

Well, Stanford is an outstanding university. Even in those days, when it was not quite as famous as it is today, I just felt it was the best university in the area. Having visited it once, I just fell in love with the school. I just thought this is the place, but I did not have any money. I was playing football for the Polytechnic high school, and we won 10 games out of 10; we had the city championship. I applied for a scholarship. Of course, I am only five foot seven, but people were not as big in those days. If you had a lineman that weighed 280 pounds, he was a giant. So, I applied for a scholarship, but times were tough, and there was not much money for scholarships.

12:00 "You got any guts?" – First Pick and Shovel Job at a Magnesite Mine

Jedenoff:

The depression was hitting. The Alumni Association had a program where they would interview people who they were considering for athletic scholarships. So, I went, and I met the Chairman of the Hercules Powder Company. He was a guy about my height and outweighed me by 50 pounds, and he sized me up. He says, "Hey kid, you're kind of little." What are you going to say? Then, he looked at me, he says, "You got any guts? Are you willing to work?" I was not sure I knew the answer, but I said yes. So, he got me a job working underground in the mines at age 18. The first job I had involved working with a pick and shovel, and it was a magnesite mine, which is a mineral that I, later on, found out was very important in the steel industry as a refractory.

We got paid 50 cents an hour working in [the mine]. We were located way out in the sticks, and they had a dormitory where all the miners lived because it was just too far from any other place. We had to pay out a dollar and a half a day for room and board. So, that left two and a half bucks a day for the work. I worked all summer, and there was another fellow that was on the same program with me. He also went to Stanford. We were lifelong friends, and his name was Paul Durckel, great guy. He and I got to work seven days a week, even though the mine worked just six. There was nowhere to go, and we just did general cleanup maintenance work.

We stayed at the dormitory, and the miners, [there were] about 250 of them, were a pretty tough bunch of guys. They drank red wine after dinner and played poker, but they would not let us do anything like that. As a matter of fact, it ended up like we had 250 fathers. They took a personal interest in us, and they wanted to make sure that we made something out of our lives. For young kids, that was pretty hard to beat. So, that was my experience. During that summer, I was notified by Stanford that they did not have enough money but not to get discouraged. I could borrow money; they would help me find jobs. So, I went ahead and decided that I would try and go as long as my money lasted.

I had enough for about two-quarters of three. Stanford was on a three-quarters system. And, I said, well, I was going to go two quarters, and I could always say I went to Stanford. It lasted me six years. So, it turned out to be a good decision. At the end of the first year, which was very, very difficult, I qualified for their best scholarship, the George Gamble's scholarship. I was able to maintain that for the rest of my four years in Stanford undergrad. So, that is the way it went.

16:47 Mentors at Stanford – A Professor for Two Generations of Jedenoffs

MacKinnon:

Amazing. Now while studying at Stanford, did you create a mentorship relationship with any of your professors?

Jedenoff:

Yes, there were a number, but my most favorite one was rather unusual. His name was Stephan Timoshenko, and he was a world-famous engineer. He wrote the bible on strength of materials. Oddly enough, he was from Kyiv Polytechnic Institute, and he was my father's professor in 1910. Then, he went into Westinghouse research after the war. He preferred teaching, and so he became a professor at Michigan, and he wrote the bible [on strength of materials] at that time. A few years later, Stanford talked him into coming to [teach at] Stanford. It was interesting that he was my father's professor and my professor, 1910 and 1940, [respectively]. He was a wonderful teacher and an excellent man. He was one that really helped me. In the Graduate School of Business, which [is where] I got my MBA, I majored in production management.

There was a professor, Paul Holden, who was a brilliant guy. As a matter of fact, as the war started, he was picked by our government as the head of the OPA, which is the Office of Production Administration that handled all the material. We shifted from a peacetime economy to a wartime economy; all the demands for materials and everything became different, and there were shortages. There had to be a Czar that decided who got what. Well, Paul Holden got that job. But, at Stanford, he taught executive management and had been a consultant, and he was brilliant. Maybe one reason I liked him is he gave me two A+'s on my grades. He only gave three of those out in his lifetime, so I felt pretty good about that. Paul and I remained friends for many years. So, that is kind of my background there.

20:11 Developing Leadership and Motivation in the Steel Industry

Mackinnon:

George, what was your first professional job in the industry?

Jedenoff:

Well, I worked every summer because I needed the money, number one. Number two was that I was trying to find out what I wanted to do in life, and, by working in the mines, in the oil field, in the petroleum refinery, I had at least a glance at what life was like [in those industries]. One of my jobs was to work for US Steel in the steel mill. I enjoyed that job more than anything because I could see there was a place for my technical education, but also it involved working with people, and I decided that is what I really wanted to do. Throughout my life, I have really enjoyed the challenge of getting people to enjoy their work and to improve productivity. That was the thing that, professionally, I enjoyed the most. Having worked in blue-collar jobs and working up through the steel industry as a foreman, I was able to eventually become president of a steel company. The challenge there for me always was working with the people. What used to bother me was somebody who would say, "Oh, I don't know, I just work here. I just work for the money."

There was no job satisfaction, no pleasure. How do you get people to enjoy what they are doing? That was what motivated me, and I had some wonderful experience developing the leadership and the motivation. A lot of it was just the attitude involved in managing. I actually had my first experience in the Navy. I was in charge of a group of about 120 sailors, and how we could get maximum performance out of them was the challenge. You could say, "I'm an officer, so, therefore, I order you to do this." The performance you get to your face is something, but to get maximum performance takes leadership.

That is what really interests me.

24:05 My Most Telling and Important Experience – Managing the Geneva Steel Plant in Utah

My greatest satisfaction came when I was in my second stint at managing a steel plant. I went from a small plant in Pittsburg, California, to a larger plant in Utah called Geneva Steel. There, I had an opportunity to try out my theories and what was involved. The [experience at Geneva Steel] was probably the most important experience I have ever had. It did not start out that way. It started out with a steel plant that was in trouble. It was a war baby built 800 miles from the coast so that it would not be bombed by enemy submarines. There were raw materials there but not the best.

It takes coal, iron ore, and limestone. Those are the three things you need to make steel. Utah had those but not to a great extent. So, the [United States] Defense Corporation, when we were still in the National Defense Program, authorized the [Geneva Steel] plant. Then, as the war started, there was a shortage of people, there was all the recruitment to the military and then the expansion of other war facilities. The

[Geneva Steel] plant was started by hiring experienced people as supervisors, but a lot of them were ones that had no leadership experience. They just knew the operations and the way they ran. [Geneva Steel] was in a rural area, in the farm area. They had very little employment opportunities. So, there were people who graduated from BYU University, University of Utah, that would take jobs in this new mill, even though they were non-professional jobs.

But, a lot of their supervisors were brought in from other plants that were available, again, because they knew the operation but not how to manage. So, in many cases, the employees had a lot more education than the supervisors. There was a lot of friction, but, because of the war, there was still some patriotic reason. But, after the war ended, and US Steel was managing this plant for the United States Defense Corporation, they were going to walk away because they did not need the big plates and structures that were there for shipbuilding. They did not need any more ships, but Geneva became the single biggest industry in Utah and the political pressure was tremendous for US Steel to buy the facilities so they could continue to operate in Utah in spite of the problems.

The conversion was difficult, and there were some bad labor influences that realized that there was a shortage of steel for domestic purposes and took advantage of the situation. The plant developed a terrible reputation for work stoppages, even though the labor agreement did not permit unauthorized work stoppages. The plant averaged about eight of these a year for about ten years. Geneva was supplying material for my plant, and I was general superintendent of the Pittsburg plant, but it was terrible material. So, I, in a scientific way, marked down all the problems that we had and documented all of that stuff. I went to my boss and showed how our performance was adversely affected.

Finally, one day my boss called me and said, "You know, we have a solution to your problem." And I said, "Well, what is that?" He said, "We're going to send you to Utah to be in charge of that plant?" I thought, "Oh boy, that's what happens when you complain too much!" I went over there, and I thought I was being sent to Siberia because no one really knew that area well. As it turned out, I was there for six years, and I really loved the place. [Utah] is where, at age 43, I took up skiing for the first time. [Skiing] became a lifetime activity, including this year. I have gone 54 years without missing a single year of skiing. But, anyway, that is the story.

31:21 Converting A Troubled Plant into an Efficient One – Improving Leadership and Communication

Jedenoff:

I really built my life and strengthened my beliefs in that [Geneva Steel] plant, in converting it to a very efficient plant from a very troubled plant. [Geneva Steel] is where I developed this theory of shared competitive responsibility where employees share the responsibility for their own success, let alone improvement in the performance. I had a lot of trouble with organized labor. I had trouble internally because a lot of our supervisors just were not adequately trained. My first effort was to do our own job right – to do our own housekeeping, improve the leadership, improve the knowledge, and it all got around communications. You've got to understand what is involved and what is at risk. So, we started with that, by sending supervisors through six weeks of organized training, about 12 supervisors at a time, and that training approach became very important.

In the meantime, we communicated with the employees. The union put out their regular newspaper. At one point, they charged me with negligence and industrial immorality in headlines. But, gradually, as we solved the problems and improved our leadership and improved communications, there was an election of the union officers. Two guys ran against the incumbent, who had been there to the point where they even called the union hall, the Wilford A. Biggs Hall. These two guys ran against him, and Mr. Biggs came out

third of the three on the ballot. The theory there was that you got to do your own job right, and if you do your job right, then you can be as strict as necessary.

But, what was happening is that the management was not always that careful on what they did. So, they would have the strikes, and then top management could not defend them. So, that became an incentive for people to, even if they knew what they were doing was wrong, always to follow the union rule. I was not anti-union; I was anti-irresponsible union. Well, my theory here was that every person in the organization must have a viable job. If he has a job that is not important, get rid of it. Even though the union will buckle you for it, but you have got to get rid of it.

Every job that is viable has to be important. If it is important, it is just like in a football team. The ball carrier makes a lot of the yards, but there is somebody blocking for him who does not get much credit for it. But, if he does not block, the ball carrier cannot make those yards. So, we tried to build a same-team concept where everybody understands his role and why it is important and that any mistake he makes is not a mistake against management or one he can get away with. He is hurting his own teammates in their performance in trying to compete. We try to get that feeling of responsibility and the importance and the personal satisfaction that you get from doing your job right. Even if your job is menial, if it is important, it must be done, and mistakes made hurts the team.

37:05 Error Zero and the Theory of Shared Competitive Responsibility – Incentivizing Job Performance

Jedenoff:

This is how we started this [Error Zero] program. We finally got to the point where we also had to have a tremendous amount of communications throughout this to understand what our situation was, whether we were competitive. We had a plant that was no longer in a place where there was a market. So, we had to compete with the West Coast, 800 miles away. You have got transportation charges; you have got materials, some which are not as high grade. We have to overcome all those things in order to be competitive. We could not afford mistakes. We call this Error Zero. I started this program where we are relying on everyone to do his job better. We had incentives for better performance.

We would talk to our employees; a foreman would call in guys and say, "Look, we got this problem. What can we do to solve it?" So, now he is asking them for help. Now, they become involved in doing this, and they get the personal satisfaction of being on the winning team. That is what we would build-up, and it took time. It took several years; it took training. It took a lot of personal change in attitude. Once they could see results, and they could share in the success of it, then the wrong performance improved. They felt better. They felt they were going to work to do a job, not just to get paid and not to just go through the motions. This is what took years to do. We converted this plant to the highest dollars per ton produced profit of any plant in the US Steel Corporation.

Not total profit but profit per ton because we were not as big as some other plants. The [Geneva Steel] plant gained quite a bit of success. In the West Coast, we got hit by foreign competition right away. The rest of the country did not really feel it, but some ten years later competition, foreign competition, was affecting the whole country not just in steel but in all products. There was a lot of concern of what is the matter with American productivity. Congressman Charles Gubser was on the foreign relations committee of Congress. He called for an all-day meeting and got ahold of all the top business people, corporate leaders in all industries to come to this conference.

The Chairman of US Steel was invited, but he called me in and said, "You know, you should go in there, George, and represent us". So, that was quite an honor. I spoke to Congress on what we did. Again, it was

shared competitive responsibility, and it was very well received by the Defense Department and by NASA. They were all very complimentary with what they heard. So, that was really an important experience in my life.

42:23 Work Duty, Personal Satisfaction, and the Importance of Listening – Outcomes of Error Zero

MacKinnon:

What are some of the results of the Error Zero program?

Jedenoff:

Yes, there were some very interesting results. There are the typical ones that certain operations where work was done better. Here is an example, there is an operation called stopper-making. A worker performs manual labor in installing the stopper that fits in the ladle that the steel is poured in. The problem is workmanship, and sometimes you develop leakers, which leaks some of the molten steel. So, it is a very skilled operation but manual. It is interesting how the ladle stopper-makers took the program and would keep score of the number of consecutive ladles that they fixed without a leaker. Some of them were able to double the performance that they had before. Of course, they had to be very proud of it, and it became competitive among the employees. This performance improvement resulted in big dollar savings.

Another example, in my office and at the steel plant in Geneva, my assistant, Carl Forkum, and I each had an office, and then there was an office in between which his secretary and my secretary shared. One time, I came in, and there they were reading to each other. I said, "What's going on?" And, they said, "Well, you know, we've been typing out these letters to employees and others about error-free work. We just decided that, by gosh, there was not going to be a single letter going out of this office that had a mistake in it. So, we were checking on each other to see." I thought, gosh, here is something they took on all by themselves.

Another unusual example is in our work duty, where occasionally we have employees who get injured, and they no longer can perform their assigned job. So, we try to provide other employment for them. This is a case of a rigger, which is a pretty high-priced guy, who fell and injured himself. He was no longer able to perform his job. So, he got a job as a custodian in the men's change room. That is kind of a menial job, but this rigger got the message, and his job now was a custodian not a rigger. He thought, "We got all this talk about workmanship and neatness and whatnot, and these change rooms are messy. Sometimes the toilets are not flushed and the papers on the ground. So, I decided that I was going to make this change room as neat as could be so that when employees come to work, they see right away a clean place, and it encourages them to do better work." And, he just did this on his own. Then, he felt so much better that he was now really contributing to the program, even if it was not a skilled job. There were hundreds of these kinds of examples that occurred that not only improve the performance but gave personal satisfaction to the employee involved.

Let's see, there was one more thing. One thing I have learned over the years is that you have to learn how to listen. Now that has taken a little effort on my part. If you are trying to understand a person, what he is doing and try to help, you got to also listen to what is involved. You may disagree with him, but unless you hear what his story is, you can never come to solution. So, listening is very important, and staying positive and communications are so important. That is what brings about understanding. So many problems could be solved if people tried to listen to what the other person's viewpoint is. You may not want to accept it but at least understand why. That takes a certain amount of maturity on your part and discipline to do that, and I think that is very important.