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ORAL HISTORY RESEARCH OFFICE

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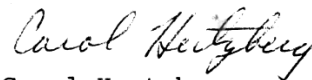
April 3, 1973

Dear Mr. Ehricke:

I am enclosing your copy of the transcript of the oral history interview which you had with Mr. Kenneth Goldstein for the Thomas A. Edison Project. We hope that you will edit yourself lightly, with accuracy alone in mind. We are always anxious to preserve the spontaneity and flavor of conversation and this may be lost if many changes are made.

Mr. Goldstein will be in touch with you regarding a further interview.

Sincerely yours,



Carol Hertzberg
Research Assistant

Mr. Karl Ehricke
c/o Mr. Samuel Reck
Edison National Historic Site
P.O. Box 126
Orange, New Jersey 07051

Enc.

Notes

1 When Thomas A. Edison returned from his work during the first war¹⁹¹⁹, he found at his business in West Orange ^{that} many things needed attention, one of which was the evidence that his hill & dale records on discs had developed a surface noise that, in his opinion, ^{was enough to} reduced their value in providing enjoyment to users when listening to good quality of music, and hence would reduce the salability and acceptability ~~to~~ his favorite invention. Besides, there was serious competition by other record makers to be met.

(INSERT)

2. ^{Realizing} Recognizing that the principal need for attacking the problem would be a method of measuring the surface noise so that some standard could be applied to ~~his processes~~ by employees engaged in various stages of manufacture, and inspection or testing, ^{so as} to get control ^{at} of the source or sources of the noises. He proceeded as follows -

3. He hired a West Orange ^{James Neill (in picture)} man, and trained him personally to analyse the surface noises so as to describe them in ^{definite} certain terms such as Rough, Rough and Crackly, Scratch, Knocks or snaps etc, and then to establish a system

(2.)

of grading as follows:

Very Bad

Bad

Fair

Fair to good

good

Very good

Excellent.

James Neill was required to select from lists of finished records 100 each day and report the gradings of each in a special report to Mr. Edison.

He then designated the first three grades above as "not salable", others could be passed.

This method, he had three other men, to learn from the first. * These he picked from the men who had passed a questionnaire he designed for college graduates he hired for various assignments (The well publicized Edison questionnaire for college men which got him into a controversy with the faculties of many colleges and universities.)

I consider it to have been my good fortune to have Mr. Edison assign me to this problem and to report only to him.

I learned the grading system and at the first opportunity he told me to take charge of a department of ⁴⁵ people testing records in the final pressing operation by playing a sample

rejecting them ^{all} ~~where~~ considered bad. This required that I ^{supervise} ~~examine~~ their results and bring into effect the sound standards or grade Mr Edison had developed and the control needed. This to improve the overall grading record of James Neill.

The testers worked in booths made soundproof by heavy padding which Edison had designed for the purpose (air ventilated).

(Maint

Later Mr Edison asked me to assume management of a department testing records from new records coming from the recording and electroplating departments to find defects in surface which could be caused in those processes. About 10 people & foreman

Finally, he had me include about 10 men who had been trained in salvage operations working under the ~~microscope~~ microscope with special tools designed to repair injuries developed during the high pressure applied in impressing the music into the blank discs prepared in other parts of the process.

INSERT

There were three principal sequential sections in the process of recording and ~~the~~ making the finished records during which surface defects could develop in each.

1. Recording in wax moulds and plating
The Master mold, Female, and running moulds used in final pressing.
2. Printing in steam ^{heated} presses on blanks
using running moulds under high pressure.
3. Materials in record blanks made from wood powder, shellac and varnished
with lakelike to receive the sound recording from running moulds.

to hire some college men. I had sat down in the laboratory and was writing the answers to the questions, which were of all kinds, (It became quite public afterwards in the newspapers) when he walked in. He looked over at me, but he didn't say anything at that time.

The next day I was in New York, and I was sent for by Mr. Edison for an interview. I went over there and met Mr. Meadowcroft, who was his secretary, and Mr. Edison was there and he picked up the questionnaire that I had answered and asked me several questions. I remember one of the questions was "How far is it from New York to Chicago?"

Well, I had estimated it. I didn't guess at it. I had to sort of visualize it in my mind, and I made a bad guess. I think I said 1500 miles and he said, "You're wrong, it's something else."

He also asked a question -- these are ones I remember -- "How many magazines do you read?" I said, "All of them," and he said, "That's impossible, there's 3000 of them."

Well, those are the two questions I remember. There were a lot of other questions, and I think the questionnaire is on file down there. I'd like to get a copy of it some time, because I had left about a third of them blank. I had figured it wouldn't pay me to guess with that man, so I had made fair estimates.

That was all there was to it. He said, "I'll give you \$30 a week," and he turned me over to Mr. Meadowcroft and I went through the process of going through the employment department.

Q: What job had you applied for?

Ehricke: There was no job. He just wanted college men. As an example -- see, I had no training in chemistry or anything like that, except what you

get with a BA degree in science. I had a degree in science at Cornell.

Another man that I knew quite well was hired the same way. When he was engaged Mr. Edison said, "I want you to work in the chem lab."

He said, "Mr. Edison, I don't know anything about chemistry. I took a general (liberal) arts course, at Harvard."

He said, "That's all right, I don't want you to know anything about chemistry. If you did you'd tell me what I can't do, and I want you to do what I want you to do."

That was typical of his attitude in hiring these college men. He didn't want to hire technical training, he wanted to train them himself, and evidently he wanted to pick men, I think he said this, that were observant and generally interested in things and were able to observe things.

Q: Did you know Mr. Anderson? He was hired the same way I believe, I interviewed him some months ago.

Ehricke: Yes.

Q: What did they call this group of men hired this way by the exam?

Ehricke: A Men, Questionnaire Men and A Men. They only hired those that got an A. I don't know how he passed me when I left one-third of them blank, but I was one of the first ones. I think I may have been almost the first one who took the questionnaire, and at that time it had maybe 50 questions. Later on this thing developed to a point, and the questionnaire was changed constantly, to a point where a man was put in charge of interviewing and giving the questionnaire and they had them come in in droves. They had them come in a whole roomful at one time,

a particular answering ~~the~~ questionnaire. Then that would be changed. But I don't think these were the original questions that Mr. Edison had designed. Questions on most anything -- poker hands, physics, questions involved in not too much knowledge of physics, just, "How do you fill a three gallon can from a five and a two?" -- something like that. "What would you do on a desert island?" Things of that sort that got into the newspapers and were kicked around by all the professors.

Well, it came out after the questionnaire was published, he came out and said that college men were dumb. He found that they were dumb. He used that word "dumb," and of course all the college professors got up in arms about it and they got arguments back and forth in the newspapers. I have clippings of all that. The A-Men is what they finally were called because he only passed them if they got an A.

Q: He had a great respect apparently for common sense.

Ehricke: That's right.

Q: Apparently he never had any kind of formal education himself beyond elementary school.

Ehricke: No.

Q: This was 1920. How long out of Cornell were you at that time?

Ehricke: 1918.

Q: Was this your first job?

Ehricke: Oh, I'd had some summer jobs during my four years of college at Cornell. I studied agriculture.

Q: You studied agriculture. When you were--went to work for Mr. Edison, what was the first position you held there? Where did you work?

Ehricke: I was turned over to another men. I think I should say generally, these men that were hired were hired for all kinds of things and many of them were called inspectors. They were generally called inspectors. He turned them loose to roam all over, go into all the divisions, into the divisional department heads, look for anything they could see, anything, no limitation on what it was, and report, back, to him personally, through an assistant of course because there were quite a lot of us. Then he would go back to that department head and have something done about it, if it was possible.

Q: How many inspectors would you say there were?

Ehricke: All told I think he must have hired a hundred or so. The turnover was pretty fast. Some of them got tired of that, didn't get anywhere and they quit. Others were fired.

Q: Actually the job seemed to be acting as his eyes and ears, checking into various departments where he couldn't go himself personally.

Ehricke: But he went personally quite a lot. He turned up in my department every once in a while, after I got a department. This was later on. Checking. He would appear anywhere in the whole office. You never knew when he might turn up.

Q: Did this keep people on the edge of their seats?

Ehricke: Yes. It would, naturally. But I don't think they were afraid of

him necessarily, because he was pretty fair. He was very fair. The only thing that he had no tolerance for was deception, covering up. If anybody working for him was covering up, to cover himself, his mistakes, and he got suspicious, he was generally fired on the spot.

Q: Did that happen, to your knowledge?

Ehricke: Yes. Well, not a deliberate deception that I know of. This was in his mind, I mean, if he thought he was being deceived, or a cover up, he would probably act on it without saying so. I know that I made many mistakes and I was bawled out unmercifully for it, but I wasn't fired.

Q: Was he a very tough man when he bawled you out?

Ehricke: Oh no, he just told me once I had no imagination, before the crowd, and I survived that one. But I can say now that I have it on the best authority in the world that I have no imagination.

Q: Can you tell me just a little bit about your career as you worked for Mr. Edison?

Ehricke: That involved making the phonograph records. Mr. Edison, when he came back from working with the government during the war (World War I) found things in pretty bad shape all over. And I think that was one reason he hired these college men to look into it and try to find out quickly where people, where there had to be personnel changes first of all.

One of the places was that he found his disc records, Diamond Disc Records, to him were unsaleable -- according to his standards, were

unsaleable by 50 percent because they allowed surface noise, which was a problem in the hill and dale recording and not a problem in the lateral recording, which was the Victor type. But the hill and dale recording had that one weakness. It developed a loud surface noise.

He started out -- this is where I came into it-- a man had been already trained by him, a man named Neill who was not a questionnaire man. He was hired I don't know how, but he was there and Mr. Edison had trained him in analyzing the surface sound in such a way that it could be described by words. That is, you'd listen to a record and be able to describe the sound, analyze the different sounds, quality of the sound, and grade it. Mr. Edison established grades starting with bad -- very bad. The first was very bad, then bad, fair, fair to good, good, very good and excellent. All those grades, and each grade, when it was graded, the description was given as to what it was, and these were some of the words: "rough, crackly, rough and crackly, snaps, knocks, swish ,
scitty?
and spitty, ".[?]

Q: What did that mean?

Ehrlicke: Well, he associated those -- was able to associate them, after they were graded and looked at with a microscope he could associate the sound, description of the sound, with what he saw, and from that gain some idea as to the cause. So it involved , in order to get -- this is what he did: to get control of his records, which he considered about 50 percent saleable, this would be 50 percent fair or better. He wanted to get that up to perfect if he could, which he eventually did in about three years.

Q: Did he find out where the problems were coming into the records?

Ehricke: Over a period of three years, using this starting point of grading and describing the defects verbally and physically by microscope, we were able to find the sources and control the sound, so from a starting point of 50 percent saleable, fair or better, he got it up to 98 percent very good or excellent. I have a chart, a daily chart on that, showing that period, with notations as to what --

Oh, I have to go back. The man that was there, Mr. Neill, who had learned to grade them, he didn't do microscope work. He just learned to ^ugrade them, describe the sound and grade them. All he did, and he was paid for doing nothing else, but going to the bins where the records were ready to be shipped and pick out 100 at random, sit down in a soundproof booth which was built specially for him, and grade those 100 records according to that standard. That percentage, a daily test, was sent to Mr. Elson and a record was kept of it, and whenever, later on when it got improving, whenever there was any deterioration, why, it had to be explained. Everybody had to hop to it. And there would be conference after conference, trying to find out what the trouble was.

I have a couple of notes.

Q: What was Mr. Neill's first name?

Ehricke: JIM. James Neill. He was a West Orange boy. I don't know what happened to him.

Q: Were you a West Orange boy?

Ehricke: No, I came from Albany. I came down to New York to find a job.

1920. I went to an employment agency and they had the request there and they sent me over here. Here's a sample of the note that we got.

*This note is written to Mr. Polson and to me and it reads as follows:

"Quality of surface dropped from 94 to 87, mostly on old numbers. Why? Edison."

So everybody hopped to it.

Q: He kept track of everything.

Shricke: The two of us, Polson was the production, and of the molds -- I have to describe of course the process. The mold was the thing that came to me. That was after I was put in charge of the department, of three inspection departments. Our job was to test the new molds for surface quality and work back on the producers and test the molds as they got into service and were pressing records by the hundreds. Every day we took two records and played them and if they didn't meet certain standards, so they needed repairing, we yanked them off the press and put them through the salvage department or discarded them. And I had to do that. I had authority to discard molds which were pretty expensive things. Naturally, this was a percentage of the final records on this note, referred to, dropping from 94 to 87. This not only included defects in the molds but defects in the printing, in what they called the blanks. After they got through pressing records, the music was pressed into the blank and there could be defects in the blank itself. So you had to be able to decide by looking at it and by playing whether it was in the mold or in the blank. According to that you'd go one way or the other, you'd go to the production of molds or go to the production

of records, to find the trouble.

I'm getting a little ahead of I think where I started. After I was with Mr. Neill and learned the grading, he asked me, Mr. Edison asked me to go up into the factory and talk to the people who were then engaged in playing records and grading them in production, teach them these standards. Then what happened is, the man in charge of that department resigned and Mr. Edison said, "You go up and take it over." So I took over running mold tests, which was the testing of the molds as they were making records -- after the molds were made and put into service making records. Then when my boss there retired or resigned to take another job, he was also a questionnaire man, or an A-Man, then I took over two other departments, one to test the new molds as they came through and another department which was engaged in repairing the molds, putting them back into service after they got damaged in pressing.

Q: How many people did you have in those three departments?

Ehrlicke: I had at one time over 60. There were 40 women and about 20 men. The women mostly were -- when the mold was put in the presses and we were running hundreds of records each, we took two prints twice a day. We took two prints of each mold, and I had ⁴⁰ far women, with foreladies, doing that. We played two records from each mold, and they marked the defects that they found with a pencil. They'd stop the machine and mark it. They'd mark the two records. The records were compared and if the mark was in the same place in both, that was the mold, and off came the mold out of production to be repaired or discarded. ^{They} ~~we~~ would get damaged in many ways. There would be hard spots in the material that

would make an injury and that would make a knock. The defects -- roughness was also not only due to the mold but to the material of the record and of course you would not call the mold off for that purpose. You'd only call the mold off for repairs if it was damaged.

Q: Apart from losing some records because of defects, approximately what was your record production in your departments per day?

Ehricke: Well, I wasn't in the production department. I don't know what the overall production was.

Q: Was your department just checking the molds?

Ehricke: Just checking the molds.

Q: How many molds did you check a day?

Ehricke: I think I may have production records by employees, by days, -- I did have. I know I had, because one of the notes I found here-- this might, if you want to stop that --....

Q: Were we talking about how many molds you were checking, which you have in your notes.

Ehricke: This was in the running mold test. I found notes which indicated there were between five and six thousand a week --tests.

Q: At a cost of approximately five cents a test?

Ehricke: Well, the labor cost at that time was running around five cents each.

Q: You mentioned a note that you wrote to Mr. Edison asking him --

Ehricke: After I had worked on reducing the cost, I saw a reduction of something like \$80 saved a week, which in those days was quite a lot of money, and I asked for a raise to \$50. He was paying me \$40 and I had charge at that time of 40 women. I didn't have the other two departments.

Q: What was his answer?

Ehricke: He said, "Ehricke, wait till biz picks up."

Q: How was "biz" at that time?

Ehricke: 1922, it was getting kind of poor. 1921 was a bad year.

Q: What records were you turning out at that time? You remember the names of any of the records, or recording artists of concert nature?

Ehricke: Well, there were lyric songs, by operatic singers and concert singers.

Q: Who was the chief competitor to Mr. Edison's records at that time?

Ehricke: Victor and Columbia. That's about all.

Q: Was the quality on their records comparable to the quality of Edison's?

Ehricke: Well, the quality of music, Edison had much better quality of music, much more faithful reproduction of the music. But the problem with the Edison records, as I described, was the surface sound, which was inherent in the method of recording and production.

Q: You call that the hill and dale?

Ehricke: Hill and dale recording. Hill and dale. It was the vertical vibration of the recording needle.

Q: Making impressions either higher or lower in the wax.

Ehricke: So that the music was impressed on the bottom of the groove and anything that settled in there, any kind of extraneous material or anything that would cause roughness in the bottom of the groove would immediately be picked up and come out as surface sound. In that case, on occasion it could be as loud as the music.

Q: Was there a better method of doing it?

^k
Ehricke: Well, Victor and Columbia records were laterally recorded. That is the needle vibrated laterally, and it stayed in the bottom of the groove. The bottom of the groove, no matter how rough it got, did not pick up -- it only picked up the lateral sound which is the music. Anything which would cause surface sound went to the bottom of the groove and it was not picked up by the needle, didn't record.

Q: Why did Mr. Edison use the hill and dale then?

Ehricke: Because of the better quality of music. The music was of better quality.

Q: But you ran into the problem of having defects though.

Ehricke: Yes. That's right. And that was the thing that he had to solve. A good bit of it was in the process of making the molds and a lot of it was in the material of which the records were made and the way they were made, using this man's grading, he was able to trace improvements by

the sampling of 100 a day, and one thing after another -- we eliminated -- till finally we got the grading up to almost perfect, 98 percent.

Q: Was this about the time that you became in charge of three departments?

Ehricke: No, I took over the three departments I think about 1924, 1923. Because I had charts which were my personal charts that I used in running the department, of costs and -- I have a record there of all of the various molds that we had to call out of production and what was the matter with them, various defects that were definable, and why. I remember one time a defect was developed that we never heard before. It was a swishing sound, a loud swishing sound. Under the microscope we saw a lot of little dents, fine dents, We gave it a name. We called it "series of dents." It got so bad that the production was hampered. I had to just yank them off as fast as I could and discard them. They couldn't be repaired. Naturally it cut back -- it interfered with the filling of orders and the production department was up in arms, and the plating department couldn't seem to find out -- if? it was their problem. So a conference was called, and Mr. Edison had us over there with some of these molds. We couldn't decide where the trouble was.

This is typical of what he could do. The department or division was struggling with this problem for I guess weeks and it was getting worse. So finally he got us over there with some of the molds and sat down with the microscope. We were there till 3 AM or thereabouts before finally he said, "Well, I think I know what's the matter."

He put one of the molds in a bath-- this was one of the things-- the mold was made with a -- it's a bi-metal thing. The plating was made with

nickel first, on the groove side. This was the mold, not the male, it was made from the female which had the music, and the first application of metal in the plating department was nickel and it was backed with copper. The copper came on pretty rough, had to be trimmed down so it would fit in the holder and go to work.

He looked at this defect we called series of dents and finally decided he thought he knew what was the matter. He put the whole mold in a bath of weak acid, and the weak acid, after overnight, the next morning he had it -- after taking the nickel off. That stripped all the nickel off and exposed the copper. He said, "Those are bubbles. They're air bubbles between the copper and the nickel. The reason I suspected that was that when you look at those dents, if it was impressed by being damaged by hard spots in the record material, they would show little craters. There were no craters. It was giving way underneath, the nickel was being broken down and the reason it was being broken down was because in applying the copper on back of the nickel, there were air bubbles formed and the bubbles were just plated over and of course they became weak, the nickel."

He ordered the nickel to be doubled in strength and that was the end of it. That did it. After we put on the double thickness of nickel it stopped it. Afterwards I think they had to go to work and eliminate the bubble formation in the plating bath. That was Kasakove's department.

Q: You stayed with the inspection department for how long?

Ehrlicke: Well, the record business began to go downhill pretty fast in the late twenties. I was there till they folded up, till they went out of business in 1928, when they went out of the record business -- that's when Edison folded up the record company, you know.

Q: What did you do then?

Ehrlicke: What did I do? Well, I had to get a job in another division. I went ^{to} ~~through~~ what was the general manufacturing division as an assistant to the division manager, doing special work. Mostly statistical in nature. I'd gotten interested in statistics and how they were used in business control. Before they folded up -- I'm not telling you about Mr. Edison, I'm talking about myself --

Q: -- that's all right, Mr. Edison's story and yours are side by side.

Ehrlicke: Well, my contact with Mr. Edison lasted while I worked for him for about three years directly and then afterwards for all the period, until when he began to -- when he had licked this problem I didn't see much of him any more. So my personal contacts really only lasted till about 1926.

Q: Then you were put into the position of --

Ehrlicke: Yes, they asked me to the music department, that was Mr. Henderson at that time. They had a thing -- see, they made their records according to the orders they received from the dealers. They would come in in dribs and drabs, and every time they got an order we'd have to go and fill it, whether it was 10 or 100. We'd have to get the mold out of stock, put it in a holder, and process it through to the presses, even to make ten records.

Q: This is after you'd formally gone out of the business?

Ehrlicke: No, this was before. This was an attempt to kind of make it more profitable. We were losing money by that time. I guess we did most

of the time. The idea was, instead of filling dribs and drabs of orders on and off the presses, which meant assembling and disassembling, perhaps even making molds for them, for small orders, that we make ~~and~~ editions like they do books. They run off an edition, close the presses, discard the equipment and if they need another edition they make up a whole new set of equipment. This is supposed to be more economical. If they got a little order for one that's out of print they wouldn't fill it. And they would use up stock that they had made until it looked like certain ones had to have another edition.. Then they would run off another lot. It was an economic lot idea, rather than run 10 and lose money on it they would only make so many, where they knew they'd make money on it.

So they asked me, they knew I'd been dabbling with statistical methods, which I got interested in somehow, I went over to Columbia for that --

Q: Columbia University?

Ehrlicke: Yes.

Q: Did you take courses at the Engineering School or some other place?

Ehrlicke: Uptown, it's in the main college-- I was trying to think of the name of the professor. It was business statistics. I did a lot of statistical work in connection with my job, and I became interested in the possible application of methods. As a matter of fact, there was an interesting sideline, one thing that I proved out by using statistical methods really. Not really statistical methods but it involved the compiling of figures to prove something. And this was not in my department

I finally found where it was. Trying to get it as simple as possible. The mold had to be perfectly flat or otherwise they would trap air and there would be a spot on the record with no music. These things plagued us no end. There were thousands of records discarded. They'd come in spells, it was not all the time, but this developed. They'd have to be discarded, and the mold couldn't be repaired. Nobody said it was the mold, everybody said it was in the material. I ^{W.C.} worked on the material. I ^{W.C.} made all kinds of changes in the composition of the material of the record itself, on the theory that the record wasn't taking the print. And I began to notice, I could tell by feeling the record, that it was lower, there was a low spot, and I began to suspect the mold.

So I began to collect figures on the molds. I took those molds off the presses that were throwing these blank spots, and kept track of them, and I found out that they were making repeats, same place. That gave me a clue. So I got a caliper, micrometer, and I began to measure the thickness of the molds in the holders. They were put in heavy steel holders about half an inch thick. And I measured them from the center out, wherever blank spots occurred, and I found there was a thin place--oh, a matter of two or three thousandths of an inch., only.

I got enough evidence by just collecting those statistics from the molds to interest the management in trying an experiment.

go directly to
Q: Did you show the records to Mr. Edison?

Ehrlicke: No, in that case I was working under Mr. Buchanan, who was a Scotsman who was a very good manager, and by that time, Mr. Edison wasn't needed. I mean, he really was running the division and we didn't have to go over his head, you might say, to do a lot of things. But

up to that time, Mr. Edison wanted us to go over -- there was a manager there but we were just going over his head on all of these problems. He asked for it, and he would send for us. The manager was very rarely in those meetings, until Mr. Buchanan took over. Then, well, we just did it the other way and it was much better. The only problem then was costs. Economics.

Q: Was Mr. Edison directly in charge of the company at that time or was his son Charles or Theodore?

Ehrlicke: No, he was in charge.

Q: When did Charles and Theodore take a more active part in running the business?

Ehrlicke: Well, Theodore never took much active part in it, though he was on the board of directors. Later on I was under the treasurer, for 18 years I finished up under the treasurer.

Q: You went from statistics to the treasurer?

Ehrlicke: It was a statistical job. I was the statistician then.

Q: You finished your career in the treasury department.

Ehrlicke: Yes, as a budget analyst, and doing anything he wanted in the way of analyzing financial matters. I was his assistant.

Q: Theodore never took --

Ehrlicke: Theodore was on the board and I used to appear before the board

to make reports of a statistical nature in connection with budgets. He always?
never was on the board -- I think he was always a member but I don't think he worked at it. For some reason. He--

Q: How about Charles?

Ehricke: He took over the management, after he was governor, came back and took it over and I had a lot to do with him. I did a lot of things for him. Of a -- in connection with budget, and also in connection with problems of a financial nature.

Q: What was the main business of the Edison Co. when you first started working for them? What was the biggest item?

Ehricke: The biggest item was I think the storage battery.

Q: Did it remain that way after the records were phased out?

Ehricke: Yes. They used to produce ^{electric} steam irons at one time, I understand, and coffee makers -- and I was into that in between. From records I went into the general manufacturing division which made those appliances, toasters, coffee makers, and irons, flatirons, principally, and they manufactured them. There was a division, not a division, what they call -- not a vertical organization, a horizontal organization, one organization that made them and another organization that sold them, and I was in between. I don't know how, they got me into the middle of a scrap right in between the selling and the manufacturing. Both men nominated me to be the mix person that they would trust to settle arguments about quality, quality of production, because they had a

lot of trouble with their toasters. After they got about 30,000 of them out in the field, they began to come back pretty fast.

Q What was the problem?

Ehricke: Well, it turned out to be a simple problem of connecting the burned out with the wire, heating element wire that was connected under a screw. It had burned off right there and they --

Q: -- they eventually found that and correct it.

Ehricke: Yes, and his son, Thomas Jr., --

Q: Was Thomas Jr. working for the company then also ?

Ehricke: I think -- he had a little laboratory there. Just what his connection was, I don't know, but he took some of these toasters and fooled around with them and all he did was put a washer on it. Just a washer.

Q: About those years in the mid to late twenties, the record business was going out, the storage battery business was firm -- what was happening to the phonograph business of Edison at that time? Were they running into competition from the electric phonographs?

Ehricke: Yes. I think we were hit first by the Victor Orthophonic, I think they called it, Orthophonic which was a new -- I think it was electrical recording, and it would pick up a wider range of frequencies, sound frequencies. It would pick up much more of the lower frequencies, the bass. Up to that time nobody had a good bass.

Q: And the Edison was a mechanical phonograph.

Ehricke: Yes. The recording did eventually come -- they came to electrical recording.

Q: When did they change over to electrical? Was it after Mr. Edison died?

Ehricke: No. I think they did that before.

Q: About that time radio was introduced also.

Ehricke: Radio was hitting us very hard too.

Q: Was there any thought of putting the company into radio receivers?

Ehricke: Yes, we had a radio division. We had a radio division for -- I think -- we took over the *Splitdorf* Co. who made spark plugs, and I think they had a radio division, I'm not sure. Any~~way~~~~the~~~~world~~~~was~~~~really~~ --

Q: -- Anyway, around that time the business world was really changing. From your place as an insider, what could you tell about the way the Edison Co. was going? Was it following the trend? Was it doing as well as it should have been doing at that time?

Ehricke: I hesitate to evaluate it. I don't know enough. There was a radio division. I don't know just how we got into that -- I think it was ? *Splitdorf Radio*.

Q: You say you lost contact with Mr. Edison about 1926 when you were promoted to the statistics section.

Ehrlicke: I was also running what was left of the inspection department.

Q: During your tenure at the inspection department, you had fairly close contact with Mr. Edison.

Ehrlicke: For several years, until we licked this surface problem.

Q: What was he like at that time? Can you describe him physically and some of his habits?

Ehrlicke: Well, he was very active. He would turn up. I remember, he turned up one day in my department. We had soundproof booths for the women to do their testing in. H_e built them, he designed them himself, had them made. They were padded on the inside and ventilated, and he directed that the doors had to be kept closed in order to enforce that.

Q: Why was that?

Ehrlicke: Well, he wanted them kept closed so no outside noise would interfere with the testing. And I enforced it. I had to fire one girl because she insisted on having the door open. I said, "If you want to rest you just come out, go to the ladies room or whatever," and she wouldn't do it so I said "I'll have to ask you to go," in order to keep the others in line.

So one day I was -- I had my own booth. I had a large booth of my own. When they raised a question, I had to settle it, whether it was OK. And I organized it in such a way that I would get a few records every day that were filtered down to me that had to be decided, and would keep us on the right course, as to application of those standards.

One day I was in there playing one of those records that had been sent to me to decide on, and here's the Old Man -- we called him the Old Man. He appeared at the door. I had the door open. He says, "Hey, you're testing with the door open!"

I said, "Yes, I am." So he went on. He didn't say any more. But you never knew. He went all around and he checked all the others and I was the only one who had the door open.

Q: And you were the boss.

Ehricke: Yes. So I got away with it. I remember that time that he appeared without warning.

There were times when there were problems with the presses. And he had a bed sent up there, and he slept there. He was there day and night until he decided what to do about it.

Q: He must have been in his mid-seventies about that time.

Ehricke: He was about 74 when I first knew him. I remember the bunch of us, the questionnaire men formed an organization afterwards that met for a few years, to keep in touch, those that were left, you know. We all went over, those who were there went over to see him on his birthday, and he was quite jolly about it. He'd get up, we'd hold something up, he'd try to kick it, you know. It was a lot of fun. He was a lot of fun at times. What I've gathered from him is that he would not tolerate any kind of laziness. He wouldn't have anything to do with it. If you worked hard you were in good to start with, even though you made mistakes. He would tolerate many mistakes as long as you didn't try to cover them up,

mistakes, rather than something else. He would not tolerate any cover-up, deception or lack of interest .

Q: How did he get along with the general run of workers?

I understand he knew a lot of them by their first names, that he had hired a lot of them personally in the beginning.

Ehrlicke: In his own -- in the laboratory?

Q: Yes.

Ehrlicke: Pioneers, some of the pioneers. I never remember him using first names much.. ~~There were stories about, sometimes he'd feel he had too many people~~

Q: There were stories about sometimes he'd feel he had too many people and walk up and down the production lines saying you're fired, every other one or something.

Ehrlicke: I heard that too.

Q: Then ^Whe would hire ^{Some of} them back the next day.

Ehrlicke: They'd be hired back, yes. I suppose he thought that if he went down there and just took every third one, he wanted to reduce one-third, even though he got the good ones, that they'd be hired back by the management again, and he would get rid of some of the loafers, some that he didn't need.

Q: That was his form of statistics.

Ehrlicke: Yes. Right. I remember another time, before I took over the

department, he asked me to -- he had a man testing records for export, and the records were still bad, but there were many complaints from abroad that when they got the records over in Australia or somewhere they were no good. They couldn't sell them.. So he said, "You have to stop sending anything that isn't saleable."

So everything for export had to be tested. We had a man doing that. You'd get an order for one record and we'd test 10, we'd test 20, test 30, test 50 -- first thing you know -- and we'd have several of those at one time -- we wouldn't get much done, and there was complain. They weren't getting the records to ship.

The old man got into it and the export manager, and we were hauled up on the carpet, and I had to explain what we were doing. I said we couldn't find this one record, or two records, to ship, and we went through 50 of them.

"Oh," he said, "you have no imagination.." That's when he told me I had no imagination. "You test ten of them. If you don't get it, the heck with it, go to the next one, and then you'll find over a period of time you'll get many more records out for export."

That was before I was promoted to a job that was sort of a statistical angle.

Q: Was he known as a practical joker as well around the company or was that something he reserved strictly for his home life? I know his daughter talked a bit about practical jokes.

Ehricke: You mean, his oldest daughter?

Q: Mrs. Sloane.

Ehrlicke: The one in the record business was highly seasonal. It just went way up and down. Of course, I used that, I had to organize for it and train people, every time we had to add -- I assigned a man to training the new people to using these standards. Then we'd have to lay off again.

Q: Was ^Uthere some reaction to the layoffs?

Ehrlicke: I think there was some. But when he died, I think the line that followed his casket was around half a mile or more.

passed by
Q: He lived in Llewellyn Park at Glenmont. Was he seen much around West Orange at that time? In his later years?

Ehrlicke: I don't think so. In public, you mean? I don't think he did get out where he could be seen much.

Q: How about Mrs. Edison? Was she?

Ehrlicke: She went to affairs, public affairs, meetings.

Q: Mrs. Edison?

Ehrlicke: Never saw her. I never got out to the house. So I never knew Mrs. Edison. I met of course Charles and Theodore. I play chess with Theodore now. He's a whale of a player. I've never been able to beat him.

Q: I was up to see him three months ago. He's been very busy sense. He remembers so much. He's still very active in a lot of things.

Ehrlicke: He's interested in conservation.

Q: Round the late twenties just before Mr. Edison died , Theodore decided to become a consulting engineer and I think he formed his own company.

Ehrlicke: Yes, Calibron Products. He had the top floor there in the office building.

Q:Theodore also wasthe one I think who turned back a large amount of money to the Edison workers at one time, when Mr. Edison Sr. died,--

Ehrlicke: When Mr. Edison, Sr., died, Theodore gave, I don't know how much (crosstalk) -- yes, it was given to an association which was formed for the benefit of employees. Scholarships, direct aid, people who needed help to set up a store, --

Q: We have talked a lot about Mr. Edison as an inventor and as an employer. As a person, did he seem to have developed in his life all the things he wanted to develop? Did you have the feeling that he really had more things to contribute when he died?

Ehrlicke: I can't say. I don't know what he was working on, other than the rubber thing, new that was pioneering.

Q: He was largely an unschooled man. Do you think today he would have had as much of a chance of success, if he had to go to work for one of the big companies? The small inventor isn't really given much of a chance today.

Ehrlicke: I don't think he was much of a mathematician, like Theodore. Theodore of course is a whizz, he's top level. But I remember seeing Mr. Edison sit down and laboriously work out simple multiplications by longhand. He didn't like slide rules, he called them "guess sticks." Of course I never showed my slide rule. Most of the college men could work a slide rule if they'd had any engineering at all. I picked it up and I used it a lot, especially later on in the financial part, the budget. But I never let Mr. Edison see a slide rule around.

Q: He did a lot of his own research and reading. Did he use his library extensively for that?

Ehrlicke: I don't know. I doubt it. Excuse me a minute. ...

Q: Continuing the interview -- what were some of your favorite stories about Mr. Edison?

Ehrlicke: Well, I think one that's interesting -- of course, he was quite deaf, and in order to speak to him you had to get pretty close to him, and would cup his ear, and you'd have to get within about six inches of his ear and tell your story. You had to get it off pretty good, otherwise the foot would come ^{down}. He'd misunderstand it or something and then you were done. We were down there one time back of his desk. He was sitting at his desk. You had to get around in back of him. And for some reason, I don't remember why, there were about four or five of us there, department heads, discussing something we wanted to do, that we wanted him to agree to. And I remember, after talking about it a while, one of the fellows had just gotten down back of him into his ear and was talking,

trying to convince him of the necessity for doing something, and the Old Man didn't respond. And this fellow, I don't remember who it was, he swung around back -- we were in back of him -- he swung around and said, "The darned old fool won't do it." Under his breath.

And with that Mr. Edison swung around in his swivel chair and said, "I'm not a darned old fool!"

Deaf as he was, he heard that one.

Q: He could hear things when he really should be hearing, surprising --

Ehrlicke: I never had too much trouble getting him to hear, when I was able to get close to him. But we mostly wrote notes, and he would write notes. I would write a note to him at night and put it into his mail and get it back in the morning with his writing on top of it. Some of them I saved. I don't remember anything else, except ones I did mention. We'd have to have every once in a while a conference all around, to make a decision. There were several like that that I remember.

Q: Well, I think we'll just conclude for a while. Then I'll come back again. I'd love to speak with you some more if I can ask you again. This is end of side 1, end of interview with Mr. Ehrlicke, March 13, 1973. West Orange, N.J.