An Interview with Robert L. Skaggs

An Oral History Conducted by Dr. David Emerson

The UNLV @ Fifty Oral History Project

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The following interview is part of a series of interviews conducted under the auspices of the UNLV @ Fifty Oral History Project. Additional transcripts may be found under that series title.

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Preface

Dr. Robert Skaggs grew up around the St. Louis area. His father was a teamster with a milk delivery route, tried his hand at the restaurant business, and during WWII worked for U.S. Cartridge. Several members of Dr. Skaggs's family were teachers, including his grandmother and a couple of aunts.

Robert graduated from Normandy High School and afterwards attended the Missouri School of Mines and majored in metallurgical engineering. He graduated in 1954 and went to work for DuPont for two years. He went to graduate school at Iowa State on an Atomic Energy Commission scholarship, and afterwards was hired by Standard Oil of California. During this time he met and married Anna Pedersen (1961) and moved to Minneapolis to work for Honeywell.

Around 1966, Bob started teaching at the University of Kentucky. After a couple of years, he got wind of teaching opportunities at the Southern Division of the University of Nevada (now UNLV), and interviewed with Herb Wells. He and his family moved to Boulder City (1969) and he began teaching at what is now UNLV. He was involved in the work bringing accreditation to the engineering department, establishing a chapter for Tau Beta Pi, the Engineering Honor Society, and building a master's and a PhD program.

After a heart attack in 1975, Dr. Skaggs took a sabbatical from UNLV and did some team teaching at University of Arizona in Tucson with Ray Sierka. He returned to UNLV on a half time teaching basis, and also worked for the Bureau of Mines. He was again involved in accreditation preparations and stayed to graduate a PhD student in engineering. He looks upon his experiences at UNLV as very positive and delightful.

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May 6, 2006. I have the privilege of interviewing Professor Emeritus Robert L. Skaggs, who was one of the early pioneers in the engineering program at UNLV.

Bob, would you tell us something about your upbringing, your childhood, where you went to school and so forth? *[Interview conducted by Dr. David Emerson]*

Oh, okay. Well, I grew up in the St. Louis area. We started off living in St. Louis proper. My father was a teamster with a milk delivery, usually dairy. I remember sitting on his horse when he would come by and show it off.

I was an only child, and I can remember being very sensitive about that. The lady next door told my mother that your son Robert stuck his tongue out at me. And mom says, "Well, why did he do that?" And she said, "Well, I just asked him if he had any brothers or sisters." I was very sensitive about that.

I came from a family of schoolteachers. My grandmother was a schoolteacher and so were a couple of aunts. I remember I was reading before I went to kindergarten. I remember my mother telling me -- I came home from kindergarten the first day and was really puzzled because they had all these letters strung out that didn't mean anything. She said, "I thought letters were supposed to mean something." And she says, "Well, maybe you need to alphabetize something." And that didn't...

We moved. My father was in the restaurant business and that kind of fizzled. He lost some money. And then when the war came, he worked for --

This is World War II?

World War II. He worked at U.S. Cartridge. They made 50s and 30s in St. Louis.

And we moved out into the county. I attended Normandy High School and graduated there in 1950. I applied for an NROTC scholarship and did pretty well on the written part, but was washed out because I was too short.

A friend of mine got a basketball scholarship and talked me into going to college. I had no plan B. So I chose premed. I liked the chemistry so much that I decided I would be a chem major. I was in love at the time. I thought I would get a BS in chemistry and get married. And the head of the chem department said, "Young man, if you want to get out of school in a hurry, chemistry is not where you want to be looking." So he said, "Why don't you try engineering? A bachelor is a

respectable degree, and you can get a degree and get married and make babies or whatever you want to do."

So I transferred to Missouri School of Mines. Rather than chemical engineering, I took metallurgical engineering. I graduated in 1954 and went to work for DuPont, which had gotten into the titanium production business. They made titanium sponge. I worked a rather short time, I think two years.

I went back to graduate school at Iowa State on an AEC -- that's Atomic Energy Commission – scholarship, and did my master's degree on the purification of titanium tetrachloride by vacuum sublimation. I got a minor in chemical engineering along with my metallurgy, and was hired by Standard Oil of California and worked in their Richmond refinery.

And that's in California?

Richmond, California. It's in the Bay Area. On refinery construction and maintenance. Did a lot of welding work and corrosion work.

About that time, I met my wife, Anna Pedersen. She was teaching in the Bay Area, elementary. We were married in 1961. I left Standard Oil of California, and went to work for Honeywell. Honeywell in Minneapolis had just gotten a guidance and control contract for Apollo, and they were hiring a lot of Californians.

Yeah, the Apollo was the moon shot.

The moon shot. While I was working at Honeywell, I decided that I'd seen enough of the industry that I thought maybe I had something to say. So I got the bug to teach. So I went back to Iowa State and apologized to my major prof -- my master's major professor -- for some of the unkind things that I had said when I left.

It turned out that I was his first graduate student. I went in there with some really unrealistic expectations, and he was green as grass. So I got my master's and left in a huff. Then as I thought about it, I realized that I had really, really done a bad job -- I mean, I had bum-rapped him.

This was almost eight years later. He developed into just an excellent experimentalist, very good. Big, old, raw-boned Swede. That was a delightful time. I loved working for him. At that time there was a lot of interest in the breeder reactor. So there was some need to know the

mechanical properties of titanium carbon alloys. That was the practical end of it. And, also, there was a lot of speculation about the elastic interaction between dissolved interstitial impurities and dislocations. I remember Dave Peterson called this work "A Debunking Expedition."

Any relation to your wife's family?

No, no. Anna was -- let's see. Dave was Swedish, Peterson, P-E-T, S-O-N. Anna was Danish, P-E-D, S-E-N.

Right.

Oh, that was fun. We got a couple papers out of it.

My first teaching job was at the University of Kentucky. I taught there two and a half years. I came into work one day, and I saw a pile of papers with the seal of the state of Nevada sticking out. I was always curious about Nevada, pulled it out. So a gentleman named Herb Wells was looking for some faculty people. So I xeroxed the letter and acted on it.

Was this in Reno or Las Vegas?

Oh, no. Oh, no. This was Las Vegas. So during spring break, I came out for the interview and was offered a job. I really liked the idea of an engineering program embedded in a college of math and science because the two were so much related. The engineering draws on math and the sciences. I think there's much to be gained by coupling the two together. I was intrigued by the idea. Usually, science is housed with the college of sciences and humanities, arts and sciences. And we had all the technical people under one roof. I liked that, and I met some people that I liked.

I was leery about -- I remember telling the dean, I said -- this was Bob Smith -- I said, "I have two small boys and a pregnant wife back in Kentucky, and I really don't think I want to raise my family in Las Vegas." He says, "Well, I've heard that before." So we talked about Boulder City, and that's where we wound up. I wore out several cars going back and forth. But Boulder City was a pretty good place to raise kids.

Let's see. And this year was?

1969.

1969. What did you find at this college? Was it called UNLV at that time?

No, I don't think so. I think it was Southern Division of the University of Nevada.

What did they have in the way of facilities?

Well, almost nothing. I told my wife there wasn't even a Coke machine. It was a drink dispenser and it looked filthy. So I was afraid to drink out of it because it was stained.

They had gotten some surplus equipment. The only engineering equipment I saw was a very small tensile machine that worked hydraulic, hand-pumped. But you could break things with it, which was...

That was the object.

Yeah. And I remember we didn't even have a lab to put it in. It was out in the hall. I guess we only had four or five people in the first class of strength and materials. And we were out there breaking things in the hall, and people were making derisive comments as they walked by, wondering what this is. I said, "Well, we're not bothering you. Just leave us alone, you know."

The whole college was housed in one building, which is now the Lilly Fong building.

Geosciences now. Right.

Geosciences, yeah. I got to the point where I could pretty much tell who was coming down the hall by their footsteps. Everything sort of shook. I didn't have an office. I shared an office with Herb. We had a surplus computer, which he had gotten from NASA that was a beast. Physics had it first and it just about bankrupted them. Then they gave it to chemistry, and chemistry gave it to us, and we were too naive to refuse it. I think we were the last people to have it.

Out of curiosity, why did it bankrupt the previous -- did it keep breaking down?

Yes, it kept breaking down. And we had to have a person who attended -- continually he had to be paid. His name was Borasky. He was one of the -- let's see. He was a very free spirit and he lived in there. When we finally gave the computer away and cleaned up the place, we found discarded clothing and sardine tins and all kinds of things.

Sounds like a quintessential nerd.

Oh, he was. But the funny thing is some years later I saw him at a technical meeting and he had gone to work for IBM.

Oh!

And there he was in a three-piece suit and a tie. I went, boy, I've seen it all. But he had

taught this computer to play Nolla (phonetic). So this thing would blare out Nolla from time to time.

I was really happy to teach a broader range of courses than I would have been allowed to teach anyplace.

If I can interrupt for just a second, this is sort of the early stage of the computer age. I'm curious to know what previous exposure, if any, you had to computers in graduate school or Honeywell or DuPont.

Zero. I did my calculations and my Ph.D. dissertation on a Marchant that added, subtracted, multiplied and divided. And if you followed the instructions carefully, it could take square roots. This was one of these electromechanical things. So I had zero, zero computer background. I wished they had had a computer. But my major prof said that you can do everything you need to do graphically. And so we did.

It was rather amazing to me the repetitive nature with which the computers came on. I remember we had an introductory engineering class and we had one of these 12-foot slide rules that you carry in and demonstrate how you can multiply and divide and take square roots. I guess about the second year, somebody had gotten a HP35 for Christmas. It cost $400 or something like that. He held it up and he said, "Why are you teaching us this slide rule thing? This is silly. Here, this will do this."

"Well, the slide rule costs $25, and it's accurate to within two percent. When the calculators get that cheap and that accurate, then we'll stop teaching slide rule." And in about a couple months, Texas Instruments came out with a piece of junk that you could buy for $25. And I said, "Okay, I'm done."

It's always (indiscernible), I guess, too, with slide rules.

Oh, yeah. Yeah. But, in a way, there's a downside to that because usually with slide rules you have to make some kind of an estimate of what the answer ought to be and then all you do is refine it with slide rule whereas if you punch in numbers in a calculator, you're not forced to do that.

I remember on the exam I asked the students to calculate the density of iron on the basis of the atomic weight of iron and the crystal structure. Some guy came up with something times 10 to

the 12th. And I said, "I don't want to be critical, but this approaches the density of a black hole. All I wanted was the density of iron." And he said, "Well, that's what I got." And I said, "Well, do you have to believe everything this machine says?"

Slide rules are not all bad. I think they force you to do some harsh back calculations. But calculators are wonderful.

I wound up teaching all of the courses in the curriculum except circuits, which was Ray's course.

This would be? Ray?

Ray Martinez. And fluid mechanics, which is Herb Wells' class, and engineering economics, which was Dick Wyman's class. I had the rest of them.

So it was a wonderful, exciting experience. I was teaching courses that I had not had as a student. I find that students, the early ones, were remarkably tolerant. I'd come to class and I'd say, "Hey, guys, let me tell you what I learned last night." It was wonderful.

Every time we hired somebody, I would drop out, give them the books that I had accumulated. And I said, "I'm no longer a proven anamnesis. And that was fun and I kind of retreated into my own area of material science, strength and materials, failure analysis, that kind of thing. And finally, later, matter of fact, I look back and I'm just remarkably fortunate to have blown into a situation like that where I could be exposed to so many sub-disciplines of engineering and acquaint myself with them and teach them.

I think engineering students are wonderful people. They work hard and they complain, but they're fun.

Well, there's an old saying in the academic world, the way to learn something is to have to teach it.

Oh, yeah. I can remember --

And I subscribe to this.

-- the first time that I taught strength and materials, I was preparing a lecture on Mohr's Circle, which is a stress analysis. And I said, "I got an A in this course and I didn't know snookum. Boy, am I embarrassed. I really put something over on somebody."

Teaching is wonderful. I enjoyed the excitement of project work in industry. But I think

teaching is more fun. Each semester is different and you've got a different crew to deal with, a different subject. I love the associations. I met some really fine people. I tell you, nothing but good memories about the whole thing.

And the way that it grew is remarkable to me. I mean, we started off with absolutely nothing. Now, wouldn't it be neat if we could get an undergraduate program with disciplines, get them accredited and maybe get a master's program and then a Ph.D. program and a building and a Tau Beta Pi chapter?

What is Tau Beta Pi?

This is The Engineering Honor Society, which inducts the top ten percent of a graduating class. And we got all those things.

I remember the last thing that I wanted to do that I hadn't done was graduate one Ph.D. student. The university came out with a policy that said if you were over 60 and had 25 years with the university, we'll give you a year's salary to retire. This was blanket. I don't think that was wise, but they did it. I said, "No, I want to graduate a Ph.D. student. I've got one in the pipeline, and I'm not going to leave until I graduate." And they said, "Well, how about plan B? If you agree to leave within five years, we'll make you the same offer?" And I said, "Well, that will make me 69 years old. And if he can't graduate in five years, I don't care what happens to him."

So we did that. It was a decent piece of work and got it published. That was a thrill.

Another thrill was getting this Tau Beta Pi chapter. I'm not sure about the date. But it seems to me like it was '95 or '96. We went to Buffalo and presented our credentials and were accepted.

One of the things that amazed me was the annual conference was for chapter presidents and advisors. And I was really surprised to see almost half of the chapter presidents were women. And as an undergraduate, I had voted against accepting women into Tau Beta Pi. My only defense is that I was 21 and I was a product of my times. We all said, "Who do you think they are?"

It turns out that women are a wonderful addition to the engineering profession. They communicate better, they write better, and they organize better than guys could do it, I think. I wish we had more women. I think it's around 15 or 20 percent. But they carry their weight and they do a good job. I told my daughter about the way I had voted, and she goes, "I could scratch

your eyes out."

Well, let's see. If we could go back to those earlier times, you came in 1969. Were there any major changes in the program during the next few years or changes in the university? Somewhere along the line, the names got changed, didn't they?

Well, I'm foggy on that. I do remember that we added an engineer thermodynamics course because neither the thermodynamics in physics nor the chemical thermodynamics in P-chem covered --

P-chem being physical chemistry.

Yeah -- covered things like steam power, cycles, and air conditioners and swamp coolers and things like that, which is a very big jump from either chemical thermodynamics that they've seen in P-chem or in statistical thermodynamics in physics to an air conditioner, a swamp cooler. So we got that changed.

I think the curriculum was pretty much fixed. It was very heavy in math, chemistry and physics. We had a language requirement at that time, which was dropped at some point. I don't know if Herb had a course in materials. I think I added a lab to it. I know we had a lab. I don't know whether I added it or I inherited it.

(End side 1, tape 1.)

-- came in '69 and it was Nevada Southern. When was it UNLV?

I'm not exactly sure. That was well before my time. I guess that's why they call UNLV The Rebels. They didn't want to be under the thumb --

Yeah, yeah.

-- of Reno anymore.

Shortly after the chem building was built, engineering moved over there.

To the chemistry building?

Yes. At that time we were the department of planetary sciences and engineering, planetary sciences being geology and geography. And Herb was the chair. It really wasn't a department. It was a collection of things that were left over after everybody else had departmentalized. So I was very uncomfortable. I didn't feel comfortable about discussing or voting on geology things or geography. And I resented them telling me what to do in engineering.

Shortly after, Herb just resigned. He left a note and said, "I'm sick of doing this." This was between semesters. He left a note that said, "I'm no longer chair. I'm going skiing."

So Bob Smith came over and said, "Well, you've got to get organized and get yourself a new chairman." As we were heading over to the dean's office to vote, Dick Wyman poked me in the ribs and said, "You're the guy." Well, that wasn't my plan. But I said, "Well, okay, we'll do it that way."

I announced that one of my first goals was to split this misbegotten department because it just makes no sense at all. I think Herb felt pretty comfortable with engineering, geology, geography. Someone called it the Herb Wells School of Mines. So every time it came up in the department, even though I was chair, Herb would raise enough cane and make enough noise that it was tabled. A number of department meetings were just terminated. And then one time Herb got sick and couldn't come to work, and that's when we did it.

Oh, sneaky.

I think the geo scientists were glad to be rid of us and we were glad to be rid of them. So Dick Wyman went with engineering and with geosciences. About that time we got an NSF grant and got some serious mechanical testing equipment. And we were able to split the grant and use some of it to get some surplus equipment from the test site. They were doing some work which relates to the nonstructural damping in earthquake and nuclear blasts. These are dividing panels and walls, which are not structural, but don't add to the strength of the structure, but add to the dynamic damping, which I don't believe that up to that time that had been done. So this equipment was shipped down on an NSF grant, and we rented --

Excuse me. NSF doesn't customarily just come to your door and say, "Here's some equipment." Someone has to have written a grant.

Oh, okay. What happened -- Don Baepler --

And who was he?

He was the provost, academic vice president. He was on a committee -- was in a position where he could direct some money to us.

I see.

And I think it was through NSF. And Herb said, "Here's a chance of a lifetime. We've got

to write this proposal." It wasn't huge. It was only $50,000.

Well, that's not hay.

But at that time, that was a lot of money. And the funny thing was it was a Friday night and I was developing a cold and I was planning to go home and spend a weekend in bed and feel sorry for myself. So he said, "We've got to write this thing." So I just stayed there and wrote until it was done. It took me the best part of the weekend. And we had it typed and sent in.

And what was the name of the device or --

Oh, this is a Tinius Olsen testing machine, tensile testing machine.

It replaced the hydraulic jack.

Yeah, yeah. You know, this was one of these very powerful screw-driven things that moved up. The testing had up and down. You could do tensile and compressive testing. You could vary the rate. It was light years ahead of what we had. So we were able to, I guess, get about 25,000, that part. And Baepler was quite helpful in jiggering the grant so that we could use it to get this gift equipment shipped out. It was an awful lot of equipment. So we rented space in the Bureau of Mines.

Which was located where?

In Boulder City. And this was a racking machine that we built gyp board panels.

And gyp is what?

Gypsum board, wallboard. We put them together with steel studs and screwed them in and then put them in this racking machine, which measured force and frequency. I was able to deduce the amount of internal damping that a wall would contribute.

So that then connected to the project you mentioned a few minutes earlier about walls that were not load-bearing, but helped damp --

Yeah, yeah. So this contributed to the nuclear testing out on the test range. You know, they blew things up and --

Oh, yeah.

But this, to my knowledge, was the first consideration of internal damping. And somewhere along the line, I had a heart attack. Ray Martinez finished the work while I was -- and I tip my hat to Mr. Martinez.

What do you attribute the heart attack to? Is it overwork or health habits?

No. I think it was stress. University of Kentucky, at least in my mind, represented the first time that I had really failed. I left Kentucky with my tail between my legs, so I was determined to do it better. This was a second chance. So I really threw myself at it. I remember we were setting up this equipment. It was in July. It was hot. It was pushing a hundred.

And you were setting it up out in Boulder City?

Boulder City, yeah. And at the time I was behind on the timetable and it looked like I was going to be overspent. About that time, a rigger dropped a big beam. It went clang, and I went after him. And I go zonk, you know. I felt bad, but I didn't know why. I had ridden my bike to work, and I was going to get on my bike and go back home. And the guy looked at me and says, "You're gray as slate. You sit down."

Sounds like a close call.

What?

Sounds like a close call.

Yeah, yeah. And the doc said, "You know, from blood pressure and cholesterol and all those things, you shouldn't have had a heart attack, but you had it." And it was classic. So I think it was self-inflicted.

Well, the department chairship is not without its stresses and strains.

Oh, yeah. I don't remember being afraid. But I kept thinking -- my oldest child was in kindergarten, and I thought I don't get to see my kids grow up. And I really felt sorry for myself. But it didn't happen. So I was very grateful there.

Let's see. What happened that was significant?

Okay. So you recovered presumably. This occurred during the summer. Were you able to teach again the next semester?

Oh, yeah. I believe I retained the chair. I resigned the chair in '75. That was also the first year that I was available for sabbatical. So the department had decided that, in a place like Las Vegas or Southern Nevada, water was going to be important here, the treatment or conservation.

A prescient decision.

Well, yeah. So I had met a guy named Ray Sierka who was head of the -- in civil

engineering they had an environmental option, which was really sewer engineering, but it was wastewater treatment.

How do you spell Sierka, by the way?

S-i-e-r-k-a. So I had met him at a conference on energy and the environment.

Just to put things in perspective, this would have been five years or so after the first Earth Day. So there was a high level of environmental awareness at that time.

Oh, yeah. So I got a sabbatical down there. We taught one course --

Down there?

Oh, yeah, I'm sorry. University of Arizona in Tucson. And Ray and I team taught a course, introduction to environmental engineering for civil engineers, and worked on a project, which at that time the Army was trying to put together a design for a mobile field hospital, which would be --

A M.A.S.H. unit.

Well, except they call it M.U.S.T., mobile utility self-sustaining and transportable. And we were responsible for the self-sustaining part. The idea was to start off with 10,000 gallons of water. It had to be trucked in and recycle everything; that is, they didn't have toilets because it would be foolish to --

Waste.

Yeah. So you could dig a hole and you've got an instant toilet. But all of the other water would be filtered. It was ultrafiltration, ultrasound ozonation and chlorination. We produced some very nice water like that.

That's a big step forward from the old Lister bag.

Yeah, right. And the ozone says, you know, all you need is air and high voltage and you can make ozone. So that was almost as much fun as my Ph.D. work. Ray was a fun guy to work with. Chem-E --

That means chemical engineering.

Chemical engineering. They had a rule in Arizona that a non-civil could never be the chair of civil engineering. So Ray was stuck where he was. He was pretty resigned to his fate. But that was fun. That was '75, '76. So I came back with what I considered to be the equivalent of a

master's. At least I was exposed to a master's program in water treatment. So we started offering wastewater treatment and water supply.

Okay. Can we take a little side trip for a moment?

Sure, yeah. Yeah.

What academic rank did you come here with?

Ah, okay.

What was your initial appointment?

I started at the University of Kentucky as an assistant professor. And I was a little bit rankled by that because I had eight years of industrial experience.

I only had six, but I was appointed to assistant professor.

Oh, okay. I remember the dean drank. He said, "As far as we're concerned, you were born the day you got your Ph.D." I bit my lip and kept my mouth shut. So I had two and a half years of teaching at Kentucky. Then I told Dean Smith, I said, "I think I deserve associate. I won't come for less than that."

But I had an offer from the University of North Dakota and another one from my alma mater, Missouri School of Mines, neither of which Anna liked. She wanted UNLV. So I got it. Whether or not I deserved it or not -- I mean, I'm embarrassed when I think of how easy it was to get rank and tenure at that time.

Well, I don't know. Should you really be embarrassed? I mean, look at the range of courses you had to teach. You didn't have any equipment. You kind of had to invent as you went along.

Yeah. But, I mean, when I think of the hoops that we made people jump through to get --

Yeah. But you're handed every tool in the silver platter, aren't you? I mean, they get start-up money and they've got an office. They've got a computer.

Well, that's true. So it's a whole different thing. But anyway, I felt like this program was just made for me in heaven. I mean, this is what I -- oh, gosh I loved it. The first time I taught heat transfer, that was so much fun. Gee whiz, I should have been a mechanical engineer, not a metallurgist.

And you ended up getting mechanical engineering started.

Yeah, right. There were people who said, "Yeah, well, you ought to start a metallurgic program." And I said, "Not on your life." I don't think that's a -- that's for graduate work. I got mechanical, civil and electrical. Those are the babies and that's where the jobs are.

So I came in as an associate. And I believe two or three years later, I was promoted to full. You know, it was so easy. You know, Dean Smith said, "I'd like to promote Skaggs to a full. Is that okay with you?" I says, "Yeah, that's okay with me." And after a full academic review...

Well, compared to some other people that you knew at the time, do you think that was unreasonable?

Well...

Think of some of the people you knew when you were in college and so forth.

Yeah, I guess I didn't pay that much attention to rank except --

Except there is some money involved.

Well, yeah, there's money. When you've got a performance bump, that stayed with you forever, which I'm not sure that's fair. I mean, it integrates over the next 30 years.

Yeah, because of built-in cost of living, which is not the same as a merit increase. The merit gets you up so that the next cost of living makes --

Yeah. So I guess I didn't spend a lot of time comparing myself to others. I was just delighted to get it.

How was it done? Who considered someone? Did the dean just decide it was time to go, or was it the dean of the college that --

Yeah, yeah. I think it was between the dean and Herb. One thing that did make me nervous -- I was chair for a while before I got tenure -- I had to fire a couple people. Older, wiser people have said, "You should never have to be chair until you have tenure because you can make some enemies --"

If it doesn't work, it doesn't --

"-- who'll get back at you. And some of these people have long memories." But it didn't happen. I had to fire a guy for inappropriate behavior with coeds.

Oh, my.

And that was very painful. That was the first person I had ever fired. I guess I wasn't 40

yet. And his wife called me up and said, "You know, this is a terrible thing that you're doing to my husband." And I thought, well, he'd done some terrible things as far as I could tell. I interviewed a number of secretaries and female students. And as far as I could tell, he had not succeeded with any of them. Of course, I'm sure they wouldn't have been too eager to share that with me. But anyway, he left.

Well, then there was CoCo.

We don't need to mention names.

Well, and the other one, this fellow had got involved in a pyramid scheme, which had gotten some national attention because it had been outlawed in a number of states in the East. This fellow was approaching students. I think the name of the thing was Holiday Magic. He was approaching faculty wives and having Holiday Magic parties. I talked to him. I said, "You know, don't do that. Please don't do that." I even got a guy from the Nevada Attorney General to come down and talk to him about it and explain to him what was involved.

He still stuck with it. So I took it to Dean Smith. I said, "This guy is a gifted teacher and very bright and very versatile and very creative, I think we ought to keep him." What we need to do is -- I had not been able to stop him. I proposed that we get on him and scare the living daylights out of him and make him shape up.

No, he says, this is his personal life. He said, "If you want to take it to the academic vice president, you're free to." And I did. He said, "Well, you know, there's always the tenure review." I said, "I don't understand. That's not what I want to do. I don't want to fire him. I want to keep him."

But I got no support. So it went along until he came up for tenure, and he was denied tenure. He got a court order, which prevented us from filling that position. And it was held open for a couple of years.

At that time it looked as though our engineering program was going to fizzle. We not only had the opposition from Reno, the campus and the college, but now we were short a position and short of money. At this point, I took a half-time leave of absence, which freed up half of my salary. This was used for a P99.

And what is P99?

P99, as I understand it, is money that you pay some person, not faculty person, to teach one course. I don't remember how much it was, but it was slave --

Slave wages.

Well, if you took half my salary and used it for P99, you've got a lot of teaching. I don't remember all of the people. But we got a guy named Gerwig who was one of the best structural --

Jim Gerwig, that name's familiar.

Okay. He was one of the best structural people in town. And he taught strength and materials and structural analysis. You know, I'd have to say that the program was improved by me leaving.

Now, what year was this you're talking about?

This was like '81, '82.

And I know you were half-time off campus when I arrived in 1981.

Yeah. Oh, I think Anna and I had figured how we could live on half a salary. I was able to get a job with the Bureau of Mines specifically directed toward separating zirconium and hafnium. This is important because zirconium and hafnium are almost chemically identical. But zirconium is almost transparent to neutrons, and hafnium has a very large capture cross-section. So I worked, I guess, almost two years --

(End side 2, tape 1.)

-- zirconium-hafnium separation. The problem is that at atmospheric pressure, they both sublime and they're not in liquid form. So it's very difficult to do any kind of fractional distillation until you get them up to high pressure and high temperature. And we built such a device and were able to actually achieve a separation. Hafnium tetrachloride has a slightly higher vapor pressure than zirconium tetrachloride. We achieved a separation, but our product was high in chromium and nickel.

Uh-oh.

See, the problem is almost all these chlorides are hydroscopic, and it's impossible to keep them dry. Once you get any water in there, it's going to convert to hydrochloric. And everybody knows what hydrochloric could do at 600C, you know. So that didn't work.

One of my big griefs is I didn't realize -- I left the Bureau of Mines and they had shut down

the place. I had a revelation on how to do it. So I think it can be done. But it's over.

Yeah. The Bureau of Mines is no more.

Not in Boulder City.

Dick Wyman said it's done away with.

I wouldn't doubt it at all. They had a bigger lab in Reno. The Bureau of Mines became less and less effective and was funded less and less. But, you know, they'd done some good work. They were the ones that did the titanium production, at least the beginning. They modified the Kroll process to bring it up to industrial size.

I thought the sulfur asphalt was pretty neat.

Yeah, yeah. There were a lot of good projects. Well, so --

So when did you come back to UNLV full time?

I guess that must have been '82. Sometime I guess CoCo said that if you will remove those nasty things that bad Dr. Skaggs put in my personnel evaluation, I'll remove the court order. So we made a deal. About that time, you took us over the jump to do the accreditation. And that was --

Yeah, that really was somewhat protracted. You remember particularly the 1983 appropriation was zero -- you know, there was a recession in the early 80s. Interest rates were very high and so forth.

Who was president?

Pat Goodall. He came in 1979. He left halfway through 1984. So, for example, the 1983 appropriation, no salary increase, hiring freeze, zero equipment fund, and a big jump in enrollment, which often occurs when --

Just what you need.

Yeah, exactly.

Oh, you mean, recession, the people can't get jobs, so they go to school?

Apparently, that's at least the conventional wisdom about Las Vegas and so on. It certainly happened to us the fall of 1982 when enrollment went up much more than expected. And the regents had this draconian code change and so on that they were proposing.

That's what had me sniffing around looking for a job.

Yeah. So instead of praising the faculty for its heroic efforts to meet this big enrollment, they were trying to figure out ways to fire them.

What's this? No good deed goes unpunished.

Right. So the faculty was mad. Let's put it that way.

I was. I was mad enough to leave.

They were very upset. No money for raises or anything. But I must say this for the Nevada legislature, good times follow. They do something about trying to help people catch up in salary and all that stuff. I certainly give them credit for that. In the 1985 budget year and we had -- we were trying to get the regents to approve this new engineering program. We had very great help from some outside supporters because we couldn't lobby legislators because we were employees of the university.

Oh, no. That's forbidden, isn't it?

Oh, yes. So we had these outside groups that were supporting us that were retired air force officers. They formed the FORGE Foundation and so on. So we were getting a lot of support from outside, which they knew we needed for this department to twist the right arms and so on to get us appropriation. And I know I met some good folks. The chairman of the House Ways and Means Committee was Marvin Sedway.

Oh, he was a good man, wasn't he?

Yes, he was.

And he died recently.

Yeah. He told me, "Yeah, you need an engineering program, but we need prisons desperately, so you're not going to get it this time around." And I met with the head of the Nevada chapter of professional engineers. He told me the same thing.

I think what these folks didn't realize was that Nevada had become more like California because all these outsiders coming in were unpredictable. There was a certain mind-set that, you know, a lot of the legislators were farmers and ranchers from the North. Nobody understood or cared anything about things that were happening in urban areas and what have you.

I remember going up to Carson City with Bob Maxson, the president that replaced Dr. Goodall. He was concerned because he had these plans to go around and talk to various legislators about could we maybe get this engineering project funded because we needed a lot more stuff than we had, personnel, first of all, and get the right number of faculty members (indiscernible) getting credit for. Then we needed money for everything. We needed a building. Remember, you were in basically a house. That's where the engineering program --

Well, I remember when this group from the Society of Professional Engineers came through. They said, "The ambiance is not what was expected."

Yeah, exactly. So I said, "Well, the paper had published a resume of the legislators. They didn't sound like a bunch of ranchers to me. They sounded like they might understand the kinds of problems that we were facing."

Anyway, the campaign was highly successful. So in the 1985 legislature, the first item of business after the funding of the legislature was the funding of UNLV's engineering program.

What was the response to Reno? I mean, did they -- I remember when -- was it somebody up at Reno sent a letter --

****Yes.**

-- to all the -- who was that?

I don't know. I think there was more than one letter. But one of them was from the chairman of the board of Sierra Pacific who said it was not in the best interest of the state of Nevada for UNLV to develop an engineering program.

There was an extremely crucial regents meeting in December 1983. With the great help of our engineering advisory committee, we had a well-defined plan of developing. The first step involved creating the school of engineering in computer science at UNLV with --

It was a school within the college of --

Right. Clearly defined engineering disciplines in civil engineering, mechanical engineering, electrical engineering --

Computer science.

So the Reno people had prepared quite a bit of ammunition in opposition to this, this letter from the chairman of Sierra Pacific and so on. And they had invited the executive secretary of the mining association to come in and speak. They thought he was going to speak against it.

He got up and he said, "You know, in the mining industry we hire lots of different kinds of engineers, and we can't find anywhere near enough of them in the state of Nevada. I think it should be developed." Like a mighty hiss as the air went out of the --

The great swoosh.

But the battle wasn't over yet. So the regents had a meeting in Las Vegas in January at which time the question of preparing a request for building an engineering program came up. And at the December meeting, essentially we go ahead with the plan (indiscernible). I went to that meeting, and I was exposed to about four single -- a statement from Regent Klaich.

Klaich? Lawyer?

Yes.

UNR graduate.

That, I don't know.

Oh, yeah.

But he was from Reno. And he, perhaps with some aid from certain persons associated with UNR engineering, had prepared probably a four-page single-spaced screed -- but they didn't call it that -- attacking our plans, attacking me personally because I wasn't an engineer. This is --

Oh, I see.

Which he read into the record. And it's there for anyone to read, if you want to. Pick up the January 1984 regents' minutes, and there it is.

I remember Klaich.

Daniel Klaich.

He was very active in student politics when he was an undergraduate. Charming guy.

Oh, yeah. Probably a very nice fellow. But he didn't apparently think very well of

me, and I didn't think very well of him at that very moment.

Right. Well, your positions pretty well defined your --

So I just had to sit there and take it -- stand there and take it. They were talking about 80,000 square feet in the building before lunch. They adjourned for lunch. And when they came back, they approved on 101,000 square feet. I don't think it --

They had martinis for lunch or something?

Something happened. A little reality entered the scene. So they approved everything on a seven-to-two vote.

A what?

A seven-to-two vote.

Seven to two. Who voted against it?

Klaich and somebody else.

All this time Southern Nevada, aka Las Vegas, is getting more and more clout with the regents because they're elected regents.

Yeah. So I guess you could say the rest is history that the school got formed and lasted for, oh, two and a half years, something like that. The building mentioned at the appropriation in 1985 was the second major item once the funding for the engineering program, including the building and including $1.38 million for equipment in the College of Science, Math and Engineering, 700-some-odd thousand earmarked specifically for engineering in a bachelor of science. That passed unanimously through both houses of the legislature. Governor Bryan signed it into law right away so that an architect could be hired to plan the engineering building. So then you guys were on the way.

Yeah.

So the next order of business was to hire the requisite number of faculty. And the appropriation included money for new faculty.

So who was brought in at that time?

Okay. Doug Reynolds came in earlier. He was probably CoCo's replacement, I would guess.

I think so.

Doug was a mechanical engineer. He did a lot helping us shape the --

You bet.

-- the documents that the advisory committee prepared for --

Yeah. I think he probably deserves more credit than he got. At least some people felt that he took better care of himself.

Well, yeah. But his service was certainly --

Oh, yeah.

-- crucial at that point. So he certainly is going to be one of the people I interview.

Oh, yeah.

So then (indiscernible) people (indiscernible).

When did Culprits come in?

Culbreth came in at nearly the same time. Ladkany came in during this time. And Cardle came in during this same time.

Okay. That's when I stopped teaching thermodynamics heat transfer, the structural analysis and water supply.

Right. Georg Mauer came in pretty close to that time.

Machine design and dynamics.

So that brought us up to the faculty levels. Then there was a whole lot of curriculum work. You know more about that than I would, that the various disciplines had been clearly designated in the coursework and requirements and so forth.

Yeah. And they were fitted according to the ABET guidelines.

Right. Yeah, Gene Nordby came in as a consultant to tell us what was needed.

Yeah. And that's when we lost a chemistry class and a physics class. But I don't know what could have been done about that.

That's a tough one.

It really is. Well, Shirley said engineering is a five-year course. What more can you say?

Well, one of our big problems, as you very well know, is that a great many of our engineering students came in -- maybe still are coming in -- with not having -- some of them not even having had a high school chemistry course. So they have to take 103 and then

general chemistry. Not ready to take calculus.

And not up to English 101.

And not up to English 101. And if you came in with all of those things completed and you were good enough in English composition to take Comp II, it might fit. But it depends so heavily on how good the high school preparation is. And it's not that good practically --

Oh, no. That's why I raise so much cane about the governor's --

Millennium scholarship?

Yeah. I said, "Half of them are going to come in on remedial courses."

Yeah. It's now running I think somewhere close to 30 percent in this end of the state. You have to take the remedial work.

My proposal was to give scholarships to everybody that got a B in English.

The director of admissions at Michigan Tech told me that the single best predictor of success at Michigan Tech was getting an A in high school Latin.

How many -- come on.

That's what he told me.

How many high schools teach Latin?

Not many. But, anyway, that's --

I had two years of Latin in high school.

I did, too.

I just adored it. I just thought it was the neatest thing.

Yeah. I'm not sure I was that fond of it. But it's been worth it, I think.

Well, I guess I really got excited in the second year with reading Caesar's Gallic Wars. This woman said, "You got a letter from this German." And this German says, "I've got an army that hasn't slept under a roof in six years." You know, I've got some tough studs here. Just keep them on your side of the Rhine since Hitler couldn't -- I mean, Caesar could not endure his arrogance. Anyway, it was fun.

Okay. So do you remember what part you played in the development of all the things that had to be done to get the ABET accreditation?

I remember there was a lot of effort involved in collecting samples of A, B, C, D work.

That took an enormous amount of work. The way I approached it was requiring each student to prepare a notebook, which contained everything, all the tests, all the homework, all the notes. For this I gave a small amount of credit. I said, "You know, this isn't just for me. It's for you, too. You want to get this stuff organized. You may throw it away, but I'm going to make you organize it first."

So that took a lot of work. Then I had to get the syllabus in shape. I remember when we had that table full of exhibits for these guys to look at. I remember a really major effort and a time of pretty high stress. We didn't know which way the ball was going to bounce.

What did the faculty do in terms of talking to the students about the importance of accreditation and what they needed to contribute?

Well, I remember we probably made it clear that it was important. But I didn't want them to feel like they were being manipulated. I remember one of these guys came in and said, "Is your name Skaggs?" I said, "Yeah." He said, "Would you please step out in the hall while I talk to the students?" Agh.

This is one of the ABET accreditors?

Yeah. So I think if you talk to the students too much about the importance, you're trying to coach them to say, yeah, it's a wonderful program, I love it. But I think that the students were well aware of how important it was. They saw that they had something at stake.

There was even a question of the students that were in transition as to who got credit from graduating from an accredited program. I don't remember the details. You know, whether you're a junior or a senior? Did you go four years of an accredited program or three or two or one? But I think we all worked quite hard at it and got a real sense of accomplishment when we got it.

Let's see. Dick Wyman was chair at that time.

Of civil and mechanical.

Yeah, okay. John Tryon was electrical.

Computer science, yeah. Although for the next accreditation, they required that we split and have individual departments. But we got accreditation with that kind of a setup where there were two departments, two departments.

The requirement was that you had to have at least one graduate from the program in

order to be accredited. And Doug Reynolds identified a student who was going to complete a mechanical engineering major in December of 19 --

I think he offered machine design to get him out the door.

I don't know the details of it. But the guy did graduate. And the inspectors came in October of 1986. Then the accreditation board met in July. (Indiscernible.) The visitors make a recommendation, but they don't make the decision.

Yeah. That's not the final say. Right.

So electrical went in next. And at that time computer science had not yet figured out what their accreditation requirements would be.

There were none. I mean, nationally.

Yeah, that's right. They were aware that they probably should have, but they (indiscernible).

There were even some people that argued that computer science is evolving too rapidly, so rapidly that they shouldn't be tied down to a fixed thing because it could be different. And that made a little sense to me.

Because, you know, there was quite a split between business-oriented computing science --

COBAL.

-- COBAL and so on and scientific engineering, Fortran.

Yeah.

And later on whatever the other computer languages --

"C."

"C," right. But accreditation does tie your hands.

Oh, yeah.

That's the thing that nobody had explained to Regent Klaich so that he thought our program was pedestrian like all the others. He didn't realize that you had to be in order to get the accreditation.

Yeah, yeah.

Or if he did, he didn't (indiscernible).

You know Vern Mattson?

Yeah.

Yeah. You know, when I was going through this, wringing my hands and, you know, what are we going to do, he looks at me and says, "Boy, I wish we had something like that in history because over in humanities people do just whatever they jolly well please, and they really need somebody to hold their feet to the fire."

So on the balance, I think accreditation is worth it. But I've got some problems. I mean, the way that it forced us into dropping chemistry and physics still sticks in my craw. You know, some people, it didn't bother them at all. But that Physics II on fields, that is the best review of vector calculus that you could possibly -- oh, it's elegant. And I said, "We're throwing it away."

(End side 1, tape 2.)

Just to refresh both of our memories, very shortly after the meeting in 1988, President Maxson decided it was time to split the engineering and science into separate colleges.

That was his decision?

Yeah.

Okay. And the ABET people had nothing to say about that?

No. They just wanted to know that we were building something satisfactory to house engineering. And that was never their concern.

We moved into the new building, I believe, early in 1988. Can you tell us anything about what that was like?

Well, let's see. We had a full year, I believe, to say what we wanted and what we expected in the new building. By and large, I think the architects honored it pretty well. I did the work on the materials lab, strength and materials, and the water lab. And I must say I thought they did a pretty good job for us. Of course, compared to where we had come from, anything would have seemed luxurious. I certainly wouldn't have complained. No. That building was -- we literally couldn't believe our eyes.

I can imagine after the condition you lived in for so long.

I remember I'd come home and say -- you know, when we were over in the LDS center, I'd

look out the window at this 17,000-seat basketball palace and then go teach strength and materials in a closet. You know, I mean, these students were just belly to belly. I'm not kidding you. And they had no place to put their coats, you know. Our labs were in this old AEC building.

So-called tech building.

Tech building, the one where the roof leaked. But, again, we were glad for the space. We were pushing anything. So, yeah, the building was great.

As I recall, the computer security didn't work out the way they thought it would. I mean, there was some way that -- it was proposed that there was only one way to get to the computers upstairs. And that didn't work out. But I don't know if it was a glitch.

But, anyway, it seems to me that then the enrollment started coming up. And that's just my impression. They had high school students come over and look and were impressed. It seemed to me that we were no longer a joke. I don't know if this is true. But I know there's a lot of high school teachers that had some bitterness toward UNLV. And I think that that was probably the ed college. But more than one student told me that, you know, my advisor told me to stay away from UNLV.

Well, I remember one occasion where a number of people were invited to come to the library, I think it was, for a meeting. I don't remember. It included, I think, some high school counselors. Bill Wells was on the campus by then. Some of them had gone to UNLV in times past. They were truly amazed at how things had changed.

Oh, yeah. Yeah.

And on the other occasion, (indiscernible) and counselors were invited in and had lunch.

I think I was there at that lunch.

So I offered to take some people on a tour of the campus before the meeting began. And, again, many of them had taken courses at UNLV in the past and so forth. They were dumbfounded by the changes.

So, you know, if you look at the buildings that were built in the early 70s, some of them are pretty cheesy construction, the late 60s and early 70s. And the quality of what we're getting now is -- and the engineering building was a radically new departure

(indiscernible). The State Public Works Board was instructed specifically to direct the architects to work for the people who were going to use the building. Ooh, new idea.

Yeah, right. I understand that the arts people got a new building and were really disappointed.

I think the Public Works Board went back to its old ways.

I think they chopped the budget.

Yeah, that happens, too.

So I saw a lot of the architects. And I'm sure you guys did, too.

Oh, yeah. Yeah.

Richard King of the plan department was assigned specifically to work on this project. He set up computer files for every single room in the building and he and I would go over down to wastebaskets and --

Oh, really?

-- everything else that went into it. The architects were most accommodating.

I think the design of our big lab was very successful. We got this huge space where we can do things over in the corner or we can spread out. The emphasis was on flexibility.

Well, the architects were two principals from two different firms. Two firms decided they would join forces for this project. Bill Snyder and George Garlock were the principals on it. I went on trips with them to study engineering buildings. We wanted to find out what people thought of their building, what worked and, especially, what didn't work.

Surprisingly, we learned the most going to Carnegie Mellon and going to the civil engineering building that was built in 1911. We walked in there in the summertime. And this big hulking guy came out and said, "Yes, what do you want?" We introduced ourselves. And he said," oh. I'm the manager of this building." There are students running around everywhere. He said, "During the summer I hire a crew of students and we remodel the building."

Remodel?

Tell us some more, you know. In 1911, that was about the time Carnegie Institute was founded. The big thing was coal mining, steel industry, big stuff, you know.

Yeah, yeah.

So we knew perfectly well that engineering was going to change. We didn't really have some revelation about how it was going to be 50 years down the pike and so on.

But you know it will change.

So we stressed flexibility. And the architects came up with a plan so that in all the laboratories, for example, the utilities were accessible from an area that a person could stand up in and walk around in. If you wanted to put in pipes or wires or whatever, you just punch through some wallboard to get into the lab. Probably the, you know, the B building was all first floor and then the second floor. And in between, there's one about --

Right, right.

Enough space in there if someone were to -- so they paid very close attention. And if people didn't like the way something they wanted turned out, it was their own fault because they didn't tell the architects specifically. So it speaks well for you, sir, that your lab -- what you got was what you wanted.

Yeah. It wasn't perfect, but it was pretty good, pretty darn good.

I was thinking about the second accreditation visit, which was pretty scary.

I was not in on that, so please tell.

Oh, okay. Well, we heard that one of the guys on the visiting team went to the Admiral Hyman Rickover --

Charm.

-- "School of Charm." So that made us a little bit nervous. The second accreditation visit, here is this guy from one of -- colleagues, I guess. They ripped us up pretty badly. First of all, they didn't see enough engineering design in the curriculum. They said the homework should be more open-ended, more design-like rather than calculating. And that requires some work. But I think we accepted that as valid.

They didn't like the organizational structure where we had two departments under one chair. They said you've got to have independent departments, independent chairs. They didn't like the advising thing. One man is doing 90 percent of the advising.

And that was Herb Wells?

Herb Wells, yeah. So they came up with a show cause. Let's see. I don't know who was -- either Unrue or Bill Wells was out of the country on this occasion. There were several long distance phone calls and much hand wringing. So we said, you know, we'll do all these things that you want. Please don't revoke our accreditation. There was some sweating in high places. We were worried and mad and embarrassed, all.

Do you remember what year this was?

Well, it was three years after the first accreditation.

So that would have been 1990, about.

Was the first one '87?

Yeah. That's when it was approved.

Okay. When it was first approved, then we got a three-year. So we did that. We switched the structure, hired Bob Boehm as chair of mechanical, and brought in this traffic guy.

I know whom you mean.

Smallish guy, kind of dapper.

But I can't think of his name right now.

Gosh. Then who came in from -- they brought in an electrical engineer. Computer science, who was the chair?

Probably Tom Nartker by then.

Yeah, okay. My son was going through computer science about that time. And he was --

Which son?

James. He was really impressed with the computer science. They had some good people, Yfantis, Nartker, a guy that just died.

Oh, John Werth.

Yeah.

Hadn't he already jumped ship and gone to University of Texas at Austin? Well, I don't know.

I don't know when he left. But whatever it was, James really was -- I think he was highest on Werth. And we added some design to the curriculum and changed the advisement. I believe that was about the time that we -- maybe we did it earlier -- but we set up kind of a matrix so that a

student, if he was really on the ball, could advise himself. But still we had advisement. The advisement load was spread out more equitably. I think there was recognition that not everybody liked advisement or thought it was important. So it wasn't level, but it was certainly different than Herb doing it all.

And, also, there were occasions when I got the definite impression that Herb really thought that prerequisites were quite a bother. He put a couple of people in my material science class that were not ready. And I said, "I'm going to kick you out of class, and I want you to go down to Herb Wells' office and raise hell."

Anyway, we used their -- I guess they got off the hook. Wells and Unrue and everybody did jumped through enough hoops and got it so we got accreditation. But it was another three years. And they came back and, boy, we were ready for them. We took their critical report and said, "Look, you said this. We did this. You said this. We did this." You know, right down the line. That's when we got a six-year.

At that time Boehm came in. And I guess before Boehm came in, Civil Engineering wanted a Ph.D. program. They said, "Well, some people in mechanical want a Ph.D. program." Not everybody thought so. I was one of them. I was probably still smarting from my experience at Kentucky. So in mechanical we didn't go for it, and in civil they did go for it. That's when Bill Culbreth left the department.

To do what?

He went to civil.

Ah, okay.

Which was very strange because he was nuclear. So he was teaching the same classes, but he was in the civil engineering. And I said, "Darn it, Bill, I don't care who you drink beer with and I don't care whether you like me or not, but you can't be in the civil engineering department and teach mechanical engineering courses. Don't you see that?"

It really got nasty. About this time Boehm came onboard, and he talked to Culbreth. They were really at loggerheads. I guess about this time Culbreth lost his child.

Oh, yeah.

You know, and I felt like I'm disgusted with him, but now is not the time to kick him, you

know. And I guess Boehm said that he wouldn't come in the chair unless they had at least some idea of a doctorate. Well, with Boehm and people we added, it looked doable. So then we put a -- I guess they were talking about a doctorate in engineering, whether the whole college would have one doctorate. But we were behind civil. Civil went first.

If I may interrupt you just a moment.

Yeah.

This Boehm you're talking about is spelled B-o-e-h-m, not to be confused with our benefactor, Tom, for whom the building is named.

Correct. Robert Boehm had come from University of Utah. I was the chair of the search committee. He came very highly recommended. We were, I think, quite fortunate to get him. And subsequent history showed that it was. The college of engineering had passed then a bylaw limiting a chair's tenure to six years. I supported this because of some experience I had seen in the math department previously. No names.

Right, no names.

And so about this time, we got Pepper.

Darrell Pepper, right?

He was a finite elements guy and a heavy-hitter with some really important national connections. So I felt pretty comfortable about a Ph.D. in that program at that time. And it went through.

The next thing that I was involved in was the Tau Beta Pi chapter. We were required to form a local chapter of Tau Beta Lambda with these same requirements. Everything was Tau Beta Pi. Then we made our pitch and went to the national level. We were approved. Three schools were under consideration at that time. One was Gonzaga, and one was a school down south of us. Gonzaga's presentation was made by the dean of engineering. And the school down south was made by the president of their chapter, and it was kind of flip.

Wendy Zonizer was our chairman and president. She says, "Are you going to do it?" And I said, "You're going to do it." And Wendy got up there as serious as death and just wowed them. I mean, it was beautiful. We all stood out in the hall for a half and hour. Then they opened up the doors and we came in and all these people were standing up on the tables. I was really touched.

I can imagine.

When I was married, when I got capped, and when I got quitted and when I had children and that -- I was about to tear up. Boy, this is what I dreamed about because, you know, there are organizations and then there are organizations, but Tau Beta Pi is something special, I think. So that was neat.

Then O'toole came. That was a big plus. He was ideal. I mean, he's a good teacher, a good researcher. In spite of his easy-does-it persona, he's very deeply respected by students.

And Bingmei Fu came. She started the biomedical. She applied chemical engineering principles to biological systems. And here the biologists are sitting over there on a mountain of data that they can't really evaluate. It was a beautiful fit. And who was the guy who was studying transports? Anyway, they had the data and she had the tools.

And I saw some of her papers. Very, very sophisticated. I've only seen hyperbolic functions in one place and that's heat fin radiation. But her papers were full of them. So she's solid, really good.

I understand she followed her boyfriend to New York. Professionally, I don't think it was a good move and she knew it. But she's a woman. But she was neat. She put together a first-class lab for somebody to inherit. Trabia said that they had some very good candidates to fill her spot.

Then Lang, the guy that replaced me, was from Harbin. He was manufacturing. My impression of him, he was quite good, everything I heard about him. He's energetic and personable.

So I believe the only department I've really kept tabs on has been mechanical. My impression is that they're healthy and productive. I'm not sure that's true for everybody. I understand there is some fighting going on in civil. There's always some fighting going on in computer science. And I don't know about electrical. And I don't know what the faculty -- they had 75 when I retired. How many is it now?

I don't know.

Well, as I say, I just look back on the whole experience as just very, very positive. I was delighted to be a part of it.

Well, you were mentioning earlier that when you interviewed you were kind of

shocked to see how little was here. And Herb Wells said, "Are you able to dream a bit?"

Yeah.

And Herb would say (indiscernible).

Yeah, that's right. Everything that I thought. Finally, when I accepted the job, I said, you know, this could happen, and I want to do everything that I can to see that it happens. But I'm just amazed that it did happen and I'm delighted. So it was a wonderful experience for me. I guess that's about all I've got to --

(End side 2, tape 2.)