OREGON HEALTH & SCIENCE UNIVERSITY
ORAL HISTORY PROGRAM

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an interview with:

Rodney K. Beals, M.D.

interview conducted on: June 3, 2008

by: Jim Kronenberg

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SUMMARY

In this interview, Professor Emeritus Rodney K. Beals, M.D., talks with Jim Kronenberg about orthopedics at OHSU and throughout the state of Oregon. Beals, an alumnus of the University of Oregon Medical School and its orthopedics residency program, was uniquely positioned to be familiar with every resident who trained before him and each one who has trained since. His tenure on the Medical School faculty from 1961 to 2008, and his thirteen years as chair of the Division of Orthopedics, made him an authority on both the teaching and practice of orthopedics on the West Coast.

After a brief introduction touching on his early years in Oregon and his decision to go into medicine, Beals launches into a wide-ranging discussion of orthopedics past and present, including changes in surgeries for hip and knee joints and the treatment of growth disorders, one of his areas of expertise.

Turning his attention to Oregon medicine, Beals reminisces about some of notable faculty at the Medical School and discusses the growth and development of the state's orthopedics residency programs—the first formalized programs on the West Coast. He describes his annual orthopedics manpower survey and his take on changes in local orthopedics practices.

Beals then widens his gaze again to consider changes and trends in orthopedics over his nearly forty-year career and outlines some of the advantages and disadvantages of increasing subspecialization in medicine and surgery.

In conclusion, Beals looks ahead to the future of orthopedics, predicting advances in bone healing and further discoveries of the genetic bases of bone diseases.

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Interviewed by Jim Kronenberg
June 3, 2008
Site: Oregon Medical Association headquarters

KRONENBERG: This interview with Dr. Rodney K. Beals was conducted on June 3, 2008, at the Oregon Medical Association in Portland, Oregon. This interview was made possible by the Oregon Health & Science University Oral History Program. The interviewer is Jim Kronenberg. This is tape one. Dr. Beals, let's start out with a little early history about where you were born, where you were raised, and where you went to school.

BEALS: Okay. I was born in Portland because my mother had come to Portland to deliver because she was having a caesarean section. We actually lived downstate. Then I lived my early years in Corvallis, then in Grants Pass, then in Salem, where I finished college. Then I came to Portland for medical school.

KRONENBERG: So you moved around a little bit in your early life. Was that to follow your dad's work?

BEALS: My dad was a county agricultural agent in Southern Oregon. My mother was a teacher. And they were in several locations.

KRONENBERG: And you went to grade school in Corvallis?

BEALS: I started grade school in Corvallis. And then I went in Grants Pass. And later in Salem: I finished high school in Salem. And then I went to Willamette University there in Salem, subsequent to that. In between, for a number of years, I lived part-time on my grandparents' farm. So six months at a time, I would often live on a farm.

KRONENBERG: Where was that?

BEALS: Near Canby.

KRONENBERG: Canby. Uh huh. You went to Willamette University. And what year did you graduate?

BEALS: 1952.

KRONENBERG: 1952. And did you begin medical school that year?

BEALS: Yes.

KRONENBERG: Okay. And you graduated from medical school at University of Oregon Medical School in 1961, is that correct?

BEALS: ’56.

KRONENBERG: ’56. Okay. At what point, or was there a point, at what point did you decide you wanted to be a doctor?

BEALS: It was sort of accidental. I went to Willamette majoring in history, thinking I was going to be a teacher or a coach, or both. Somewhere about the middle of college it occurred to me maybe I should go to medical school. So I switched majors and did that. There was no great event that led to that decision. It just happened.

KRONENBERG: And you went to medical school, and then I’m assuming, did you take a residency in orthopedics after that?

BEALS: I started out with the idea I was going to be a family doctor. I graduated from medical school; I interned in Minneapolis at the Minneapolis General Hospital. And then I went to San Bernadino where they had a residency that consisted of one year of medicine and one year of surgery. And in those days, they didn’t have family practice residencies. But I regarded that as very good training. And I was there taking the year of surgery and I was offered an opportunity to come back to Oregon to join the orthopedic residency program. I turned it down the first time it was offered to me, and the second time I decided I would do it. So I returned to Oregon and finished my residency in orthopedics here in 1961.

KRONENBERG: And how long was your residency training?

BEALS: Well, it was a total of four years. So I had three, a little more than three years of orthopedic training, actually.

KRONENBERG: And at the completion of your training, what did you do? Did you go into private practice?

BEALS: No, I didn’t. I finished my residency one day, and the next day I was on the faculty of the Medical School. And I remained there my whole career.

KRONENBERG: And that was in 1961, is that correct?

BEALS: Yes.

KRONENBERG: Right. And you practiced in the department of, then it was the division—

BEALS: Division of Orthopedics, yes.

KRONENBERG: Of orthopedics–

BEALS: And Rehabilitation.

KRONENBERG: And rehabilitation, right. And you were, I don't know if this is the right term, but you were the head or the chief of the division from 1981 to 1994. Is that correct?

BEALS: Yes.

KRONENBERG: Yeah. And at that point you were no doubt a professor.

BEALS: Yes.

KRONENBERG: And you completed your term as head of orthopedic surgery, according to my notes, in 1994. And at that point, what did you do with the rest of your career?

BEALS: Well, I just remained there. What happened was, this happened all over the country that orthopedic programs prosper much better if they're departments. And we reached an impasse that if orthopedics was going to develop, it needed to cease being a division and become a department. So I stepped down. They then had a rather prolonged search to find a new head of the division. And no one would take the job. So the dean then decided to make it a department. And then after another search, we became a department and brought in a new department head. And we've been through three department heads since that time. And we've prospered a lot.

KRONENBERG: You have a particular interest, I understand, in the process of lengthening and shortening bones, which is kind of unusual.

BEALS: Yeah, I do that some. That's not a major thing, but I'm one of the few people that do this technique called Ilizarov technique where we can lengthen bones. So I've done that a fair amount.

KRONENBERG: And just exactly how does that work, the idea of lengthening a bone? How does it work?

BEALS: Well, it's really kind of a simple idea. What you do is you put wires in the bones so you have it stabilized. Then you cut the bone, then you let the bone heal. And as the bone is healing, you just gradually pull it apart. It's kind of like taffy. You just gradually stretch it out during the healing process. And when you're all done, you've lengthened it.

KRONENBERG: What would be the application of this technique?

BEALS: Well usually it's because one leg is shorter than the other one, either because of congenital abnormalities or because of trauma or some other phenomenon that

makes them unequal. And usually we lengthen the short leg. We also can shorten the long leg. And sometimes it's better to do that.

KRONENBERG: And how does that work?

BEALS: When we shorten the long legs, usually we simply cut a section out of the bone and put a rod down inside of it, and then just push it together. So we can do that. It's a little simpler to shorten a bone than it is to lengthen a bone, simpler meaning that it's quicker.

KRONENBERG: That sounds a little bit like some of the techniques and technology that are involved in joint replacement, particularly for hip joint replacements.

BEALS: Yeah, I do total joints. And it's possible to shorten or lengthen a bone to some extent while you're doing an artificial joint. But there are limits as to how much you can do that. And of course that we do on older people. Most of the limb lengthening and shortening we do on children or young people.

KRONENBERG: Is there a special application in terms of dwarfing conditions?

BEALS: Yeah, there often is. I'm very interested in short stature and what they call bone dysplasias, in which the bones don't grow right. And I've written a lot about conditions involving bone dysplasias and have ended up treating a lot of people with bone dysplasias. Sometimes it's a matter of correcting deformities. Sometimes it's a matter of lengthening a limb, or in some way altering it to make it so people can get around better.

KRONENBERG: Let's talk a little bit more about the issue of how medicine can deal with people who are of short stature. Now can you maybe explain to me the difference between dwarfism and what are commonly called midgets?

BEALS: Sure. Dwarfs are disproportionate. In a normal person, there's a normal relationship between how long your legs are and how long your arms are and how long your trunk is. Dwarfs are disproportionate. They either have a short trunk and longer extremities, or they have short extremities and a longer trunk. And sometimes part of the extremity is shorter than others.

For instance, the most common form of dwarfism is achondroplasia. And in achondroplasia, they are what is called rhizomelic. Rhizomelic means that the humerus is shorter than the forearm, proportionately. And the femur is shorter than the tibia, proportionately. And you can characterize a lot of bone dysplasias by whether they're rhizomelic, or what's called mesomelic, where the middle segment is short, and so forth.

Midgets are normally proportioned. Midgets are quite uncommon. Dwarfs are not nearly as uncommon as you might think.

KRONENBERG: Are midgets, do they have medical conditions that characterize that particular status?

BEALS: Not particularly. They're of normal intelligence. They're just very, very small. And it may be endocrine causes are the common cause of that problem.

KRONENBERG: Looking back at your career, not just in orthopedics but in medicine generally, you've been around a fairly long time as a physician and as a surgical specialist. Tell me in your own opinion some of the things that you think both in terms of clinical and scientific, but also social issues that have been most significant to the practice of medicine and the status of health in this country.

BEALS: My. I'm not sure how I'd characterize that. Within orthopedics, there have been tremendous changes. The number of orthopedists used to be pretty small in proportion to the population. And now it's much, much bigger. There's probably one orthopedist for every thirteen thousand, fourteen thousand people in Oregon. And that's because they do a lot of things that they didn't do in the beginning. During my career, we've seen the introduction of arthroscopy, which wasn't done in the beginning. All the total joints, hips, knees, ankles, shoulders, elbows, wrists and so forth, those have all come in, they're all new. And things like the Ilizarov techniques are all new.

If you made a list of the common operations when I was young in orthopedics, what you find is aside from trauma, we don't do many of the operations that we used to do, or very few. So the technique's changed enormously. And I think, you know, the role of orthopedists has changed to that of enhancing people's function more than it was in the beginning. In the beginning it was a little more like when they break their hip, can we fix that. But we didn't really enhance their lives too many other ways. But now there are a lot of things that are done that are very helpful.

KRONENBERG: I remember in the, I barely remember, but I do remember in the late 1940s that my grandmother fell and broke her hip. And at that time, they put a pin in it.

BEALS: Yes.

KRONENBERG: And obviously you've come a long way in that area. Can you kind of describe how joint replacement, particularly hip replacement, has changed in your career?

BEALS: Sure. If you break your hip today, you still may get a pin in it, and that may be very good treatment. Although in certain instances if you break your hip today you get a total joint instead of a pin. Just because we've demonstrated in certain environments you do better with a total joint.

The total joints were invented by a man by the name of Charnley in England. They've undergone great evolution in that the metals that are used have changed, the

designs have changed, the plastic that's part of the hips has changed. So we've seen all these technological changes with the hip itself. But the concept really hasn't changed too much. And Charnley was a really smart man, and he invented these devices using a very small femoral head. It was 22 millimeters and it was done so there would be no friction, or decrease friction, when the artificial hip moved.

Nowadays we've moved up so we now have very little friction, but we can use much bigger heads. And that enhances the value of the hips, because they stay in place better and they function longer and they're better in that regard. In the early days, total joints were done on people who were age sixty or more. And it just was never done in younger people. Nowadays, lots of younger people have total joints put in. Nowadays sometimes maybe a little too young. But they've changed, the indications have changed a lot.

KRONENBERG: Seeing—that was really a question I was going to ask you about how, I think what most of us are familiar with, as laypeople, are the total hip replacements. Because I assume they've been around about as long as any of the joint replacement surgeries. And it's interesting that early on it seems to me, at least, that this was a procedure that was limited to fairly old people. And I'm assuming the reason for that was an issue of how long the positive aspects of the procedure would last. In other words, how long it would take for the joint to wear out, or for the bones around it to wear out. Can you talk a little bit about that?

BEALS: Sure. In the, well, in the beginning, they didn't know how long they would last. And they used cement to put the parts in the bone. And it was always a question of whether or not the cement would hold up, and how long the plastic would last. So it was quite restricted in how it was used. It was used as a way of controlling pain, and allowing older people to get around. But the idea of running on a total hip was just very foreign. Nobody would do that, or recommend it, in the early days. So it took quite a while to find out how long they would last.

And it turned out that Charnley was either very bright or very lucky, because some of the earliest total hips that he put in lasted twenty-five or thirty years. And no one anticipated it would be that good in the beginning.

KRONENBERG: How have the materials that are used for, not just hip replacements, but other forms of joint replacements, have they changed in terms of their composition or, if you will, the metal of choice?

BEALS: Sure. Well, every major manufacturing company had their own metal. And it was always just a little secret as to exactly what the components were. There were differences in design. Some of the early total hips broke because their design wasn't good. It wasn't strong enough. So we've had big changes in metal. And then we've had big changes in design that made them better. And we've had big changes in the methyl methacrylate, which is the plastic material which is a component of the total hip.

Nowadays has been the introduction more and more of not using methyl methacrylate, but using metal. So they have now metal on metal prostheses, rather than metal on plastic. And in terms of the cement, most hips that are put in today don't use cement in the socket. And many of the total hips that are put in don't use metal, don't use cement for the femoral component. So a lot of the total hips that are now put in don't use the cement at all. Because after, I would think probably you'd say roughly if you put a cemented total hip in, the failure rate, because of the cement, is about one percent per year. So after ten years, ten percent of them may have to be redone. And after twenty years, twenty percent of them might have to be redone. So we've very largely gotten away from using cement.

We use cement now more for revisions. And there are still some people that use cement for primary total joints, but it's not the common thing nowadays.

KRONENBERG: It also seems that not only has the technology changed, but like a lot of other surgical procedures, the recovery time that patients typically experience has shortened very dramatically. How do you account for that?

BEALS: Well, partly it's technique. But largely it's just that we've learned that people recover pretty well without staying in the hospital a long time. They do just as well at home. There have been changes in the surgical approach. They now have these techniques where they make a very short incision and then put the joints in through what they call a mini-incision. And they allege that that allows for quicker recovery. Fact is, it probably doesn't. But there are some people that use that technique. But just in general, we discharge people from the hospital with conventional surgical technique three or four days after the surgery. Whereas, years ago, we used to have them in the hospital for seven to ten days. We just found it's not necessary.

KRONENBERG: Do you feel that this is true with a lot of surgical and medical procedures?

BEALS: That's correct.

KRONENBERG: Or diagnoses. When I was born in the mid '40s, my mother was hospitalized for almost a month before the birth, which seems extraordinary now. Have you seen that change, not just in orthopedics but in other types of surgical and medical procedures? Other than the fact that in many cases you've found it's not necessary, are there other factors that account for the shortened hospital stay, generally?

BEALS: Well, there are a lot of factors that enter into this, one of which is the anesthesia that's used is very common now. For instance, in orthopedics, if you were going to have your ankle fused, they put in a little pain pump. And you can have the surgery done and you can actually leave the hospital within twenty-four hours and then use a pain pump at home, or wherever you go, so that your pain is well controlled and you just don't need to be in the hospital.

And it's a lot safer to be out of a hospital. There are a lot of sick people in a hospital, and it's just not the best environment. So an awful lot of things can be done with very short hospital stays. And I think that's true with general surgery, and for gall bladder surgery, for instance. Very, very short hospitalizations where it used to be long. And just many areas.

KRONENBERG: Speaking of that, from your own experience, arthroscopic surgery for orthopedics has been around for a fair amount of time now. Could you just describe for me how that occurred and what, in your experience, what the effect of this less invasive surgery has been on orthopedics?

BEALS: Yeah. It came in really very gradually. And it was not very good in the beginning. There was a Japanese individual by the name of Watanabe who invented a scope. And I remember in the very early days when we would scope using that device, and afterwards say, "Gee, I didn't see very much," or, "I couldn't tell what was going on," and you'd end up doing open surgery. There was kind of a wave of that went through this country. Then it was discarded as not being good.

And then later, a whole new generation of devices, instrumentation came in that was much, much better. And it was a big learning curve that everybody went through to learn to use scopes effectively. And as it turns out, in the knee, which is the most common joint scoped, it turned out there were a lot of things in the knee you could see much better with a scope than you could see if you opened the knee. It seems paradoxical. But you actually could visualize pathology better with a scope than you could with the joint open.

So there's been this big change in which the techniques and the instrumentation made it possible to do a lot of things that you couldn't do in the beginning.

KRONENBERG: What is the reason that, particularly with respect to knee surgery, which many people are familiar with, what is the reason that you can see things better and do things better than when the knee is fully open?

BEALS: Well, the back of the knee is hard to visualize when you have it open.

KRONENBERG: Right.

BEALS: Because you can't see around the bones. And you don't want to cut the ligaments to make it loose enough to see. So it turns out if you put a scope in, you can go way behind the femoral condyles and look at the back end of the menisci, which are often torn. You can look behind them with a scope. And you can't do that with the joint open.

KRONENBERG: Knee injuries, particularly among weekend runners and amateur was well as professional athletes, seem to be very common. And ultimately there seems to be a reason if you injure your knee sometime in your life, later on the issue of replacing it comes up. And why is that?

BEALS: Injuries to the knee often are to the ligament that guides motion, or they are to the menisci, which help lubricate and keep the cartilage healthy. And once those are injured, sometimes you never get back to square one. You never get back to a normal knee. And so if you have an abnormal knee in which the ligaments are not real tight and don't guide motion well, or the menisci are injured, they don't allow good nutrition to the cartilage, then the knee just gradually deteriorates. And you end up with arthritis, and then subsequently you end up with a total joint.

So there are lots of people that have had, for instance, football injuries, so-called, where they injure both the ligaments and the menisci, who later on have bad arthritis and end up with total joints.

KRONENBERG: Particularly at my age, I've begun to really understand it. But the role of arthritis as we grow older, of course obviously tends to affect the joints. In truth it would seem to me that with orthopedic procedures on the joints, that is maybe an underlying causative factor in many cases. Is that a fair statement?

BEALS: Well, if there's something wrong with your joint that requires surgery, you often don't end up with a perfect joint, although it may work fine for a period of time. But it does often eventually lead to arthritis, which may then lead to total joint replacement or some other procedure.

KRONENBERG: Okay, let's kind of change directions a little bit. In looking over a very brief biography here, I know that you've been involved in a number of regional and national medical organizations, particularly in orthopedics. And it looks to me like you've done a fair, in the course of your career, you've done a fair amount of traveling. I understand that you've spent time in at least Australia and South Africa. Based on that experience, how would you characterize the difference in health care and health care systems around the world, where you've been and had enough time to really observe?

BEALS: The longest time I spent away was in New Zealand where I practiced orthopedics. They arranged for me to be a New Zealand doctor for six months. And I have visited Australia several times, several places, and South Africa and so forth. But New Zealand was where I had the greatest experience. And it was interesting because New Zealand has had socialized medicine since the 1930s.

One of the features of New Zealand medicine is that you don't go to see a specialist as a first choice. You have to go to see your primary care doctor and then be referred to a specialist. And I was very interested to see what the effect of that was. I anticipated that I would see that patients' diagnoses were missed because they were seeing primary care doctors and not specialists. I was anticipating that I might see where they weren't as well cared for.

But the fact is, I didn't find that. It turned out to be a very good system of medicine. And the key to it was the fact that they have extraordinarily well trained primary care doctors. Their primary care doctors have longer and better training than our primary care doctors here do. And I think that was the key as to how it works. So a place like New Zealand, and that would be true of Canada or Australia or England, they have roughly half as many orthopedists per capita as we do. And the reason for that is that an awful lot of the musculoskeletal complaints in those countries are pretty well taken care of by primary care doctors. And then when they're referred to specialists, it's primarily for a surgical procedure. Whereas in this country, orthopedists do a lot of non-surgical care. So it's a contrast in style. And they both seem to work pretty well.

KRONENBERG: Now in New Zealand, you say you spent a fair amount of time. How long were you there?

BEALS: Well I treated patients for six months in a hospital in New Zealand. In addition to that, I've traveled quite a bit in New Zealand.

KRONENBERG: In England, most of us here in the United States have an understanding that primary care physicians or general practitioners, or whatever they're called, depending on the country, are actually based in offices out in the community. And specialists of all sorts are pretty much associated with a hospital practice. Was that your experience?

BEALS: Yes.

KRONENBERG: Right. So you didn't have an office downtown.

BEALS: No, no.

KRONENBERG: Right.

BEALS: No. I "lived" in the hospital.

KRONENBERG: Oh, you did?

BEALS: Well, I mean, I spent all my time there.

KRONENBERG: Oh. How's the food in hospitals in New Zealand?

BEALS: It's okay. [laughs]

KRONENBERG: It's okay. Well, you've had a lot of food in hospitals over your career, I expect.

BEALS: Yes. Yes.

KRONENBERG: One of the interesting things that I'd like to explore a little bit with you is that there's a citation that you're an honorary member of the Little People of America. I think I know what that means, but why don't you tell me a little bit about it?

BEALS: Well, because I'm interested in bone dysplasias, I got acquainted with a lot of people of short stature. And they're organized. There was a movie actor by the name of Billy Barty who organized the Little People of America. And it was a way for short stature people to get together to discuss their common problems and socialize and so forth. In the United States, there are a number of districts. And each district has officers. They have yearly meetings, and then there's one national meeting of the Little People of America somewhere. It's been in Portland three times, which is pretty remarkable, because Portland is not a city that is central. But it's been here three times, in part because there's interest in them here, and in part because some of the short stature people of Oregon are very influential. And once that was organized, they now have Little People of England, and Little People of Australia. There are a lot of people that have organizations. But it all began with Billy Barty, who started it.

But there are a lot of remarkable people who are short statured. They're very effective in promoting their cause.

KRONENBERG: I'm assuming that in orthopedics, the clinical interest that you have in shortening and lengthening bones, it's not unique but it's fairly unusual. Did this lead you to have practice experience at the Medical School that brought patients needing these services from just a larger area than just the Northwest?

BEALS: A little bit. Some people have come for treatment from out of the state. But it's not a huge group. The Ilizarov technique came out of Russia. Ilizarov is the name of the man who developed it. And in my opinion, he should have been given a Nobel Prize. Because he's the one that created the concept that if you take bones and pull them apart, the bones heal. That's counterintuitive. No one would have ever thought that before. But it's distracting the bone that makes bone grow; it just doesn't make sense when you first think about it. But, in fact, it works.

So he developed this technique of healing bones by distraction. And it came out of Russia and was exported to Italy. And then, later, to other countries. And it's come into the United States kind of lately. It's never been real popular in the United States because it takes a long time, and Americans are very impatient people. It is not painless, and Americans don't like pain. And it's not something that orthopedists sort of intuitively want to do because it's very time consuming. And takes such a long time that there are not a lot of people that do these. And so there are centers around the country where they do a lot of these. There are some centers where that's all they do.

And in Russia, they have hospitals that are two and three hundred beds in which that's all they do, is Ilizarov technique.

KRONENBERG: Have you been to Russia to see those?

BEALS: I have not. I have not been to those. I'm sorry I haven't. But there are such places. And I have visited with quite a few doctors who worked in those places. And I go to the meetings where they present the results of all their treatment. And I'm moderately well acquainted with the number of people around the world who do that almost exclusively.

KRONENBERG: It would seem to me that it's probably relatively speaking a pretty small club.

BEALS: Right. I think in the state of Oregon, well, certainly I've done far more Ilizarov than anybody else. But there have only been just a handful of other orthopedists in Oregon that have done it. Because again, it requires quite a bit of training, it's very time consuming, and it's a tricky business.

KRONENBERG: Where did you get your training to do the procedure?

BEALS: Well, I'm kind of self-trained. There was an orthopedist from overseas who had spent eight years with Ilizarov in his hospital who came to Portland and did some research for a year or two. I got well acquainted with him. And he and I scrubbed together on a lot of cases. So I got a lot of sort of personal instruction from somebody who was deep in the heart of that from the beginning. And that was a big impetus to my training.

KRONENBERG: In your orthopedic career, how long have you been doing these procedures that relate to bone lengthening or shortening?

BEALS: Probably twenty years.

KRONENBERG: Twenty years.

BEALS: Something like that.

KRONENBERG: Interesting. So in retrospect it came relatively late in your career.

BEALS: Yes. Yes.

KRONENBERG: And this Dr. Ilizarov, when did he actually begin doing the procedure?

BEALS: Well he, right at the end of World War II was when he really got going. He developed this system all by himself. He was a fascinating man. He was Jewish and went to a medical school in the Crimea. And he was in a medical school that moved several times during his student years because Russia was being invaded and they kept

moving. So when he finally got trained, he was a general surgeon. He was not really trained as an orthopedist.

In Russia, when you finished medical school, you were assigned where you went. And because of his background, he was not offered the choice spot. He was sent to a town in Siberia in Russia, and that's where he developed this whole technique. He took care of an enormous number of people returning from the war who had broken legs and infected legs and deformed legs. And he developed this technique that's remarkably effective. And it could be used in an area where they don't have modern hospitals. They didn't have a lot of antibiotics, for instance, and other techniques. It works in that kind of environment.

And that's why, to this day, in all over Eastern Europe, this is an enormously common technique. And anyway, he developed this technique. And he had a four- or five-hundred bed hospital just devoted to the Ilizarov technique. And people came to him from all over Russia. And they had a famous Russian high jumper who had won a medal in the Olympics, and he had broken his leg. And then he had it infected. And they thought well, he'll never perform again. And Ilizarov treated him and he got well and he won a medal in the next Olympics. And that made him very famous within Russia. That's why people went to him from abroad, to find out what the heck he was doing.

KRONENBERG: You've practiced at what now is Oregon Health & Science University–

BEALS: Right.

KRONENBERG: –School of Medicine for almost fifty years.

BEALS: Yep.

KRONENBERG: Which is a very long time. You've seen some very interesting people–

BEALS: Yes.

KRONENBERG: –come and go at OHSU. Can you talk a little bit about some of your fellow faculty members that particularly stand out in your mind?

BEALS: Sure. Well, I think maybe Ed Osgood in Hematology. He might have been the smartest man that was ever up there. I thought he was a genius. And I think as close to genius as we see. He was quite a remarkable man. When I was a medical student and beyond, I would say Howard Lewis was one of the most admirable people. He was a very special man who taught us all about how to make diagnoses. And I think he was sort of the big proponent in my career of the idea that the most important thing to do is make the diagnosis correct. Then you can always look up and find out what to do. He was not devoted, necessarily, to the idea of treatment. The really important thing was to make the

right diagnosis. And he was superb at it. A real gentleman. A great, great person, I thought.

And in the Department of Surgery, probably Bill Krippaehne was the most remarkable man that I encountered in my years there. A man exceptionally devoted to patient care and very, very skilled. Wonderful guy. And you know, they've had wonderful people in a lot of other areas.

Bob Meechan, I think, is one of the great teachers up there in the history of pediatrics. Very, very special guy. Within orthopedics, there have been several really good people. The first orthopedist up there was Dillehunt, who came very early on, of course. And he came as an anatomy teacher. And then he became assistant dean, and then he became dean. He was very prominent in the Shriners Hospital, where he was the chief surgeon at the Shriners Hospital. He was the chief of orthopedics at the Medical School. He had a private practice downtown. He played a lot of golf. I don't know how one person can do all those things. But he was a single man, and that may have made it easier for him to do all this sort of thing.

And then he started the first orthopedic training program in the West. The first one on the West Coast was started by Dillehunt. And his first resident was Leo Lucas, who was trained in part at the Shriners Hospital and at the old County Hospital. And then he was sent back to Iowa for a year of training.

Leo Lucas then became the head of Orthopedics at the Medical School, and did that for quite a few years. And he was followed by Bill Snell, who sort of did what I did. He was in training at the Medical School, and then became faculty after his training and did that for his career. So he was chief for a time. And after that, I was chief. And then we went into the departmental status, and we've had several chiefs since that time. Present head of the department is Dr. Yoo. Very outstanding man. And the future of our department is very bright. It's very good. We have an excellent program there now.

But some of the great orthopedic teachers in the early years were Lucas and Larry Noall, who was in the Portland Orthopedic Clinic and worked at the Shriners Hospital. And interestingly, he was full time at the Medical School in the early days for some time, because he was recruited by Dillehunt to come out here and be part of a physicians' group that was going to go off to the war. And it never happened. And so Dillehunt assigned him to go to the Medical School for a while to get acquainted with the community. So he went there, and then he was "frozen." In World War II, a lot of people were frozen in their jobs. They were not allowed to change. So he was there for several years. And he was the first person who worked as a full time teacher in the Department of Orthopedics, but he didn't have an academic appointment. And Bill Snell would have been the first one that had a full time academic appointment.

But Larry Noall was a great, great teacher. And then Paul Campbell, who was the head of the Shriners, he was very, very important. And probably the one person outside of Portland that played a big role in the teaching program of the medical school was Don

Slocum in Eugene. Slocum was quite a very remarkable man. He became the world's expert in running, because of his acquaintanceship with Bill Bowerman. And then he later became one of the world's experts in managing knee injuries, and he took care of lots of professional athletes. He was a great student of whatever he was into. One of his colleagues told me one time that if they'd put him in the middle of the Sahara Desert, he'd become the world's expert on sand. He was just very, very good at what he did. And we used to rotate our residents from the Medical School down to Eugene, in order to have contact with him. He was so outstanding.

So we had some really good early teachers. And the first residents that graduated from our training program were the first graduating people in the West Coast. And our first graduating resident was Leo Lucas, who became head of Orthopedics here, and head of the Shriners Hospital. He was a first citizen of Portland, very outstanding guy. And the next one was a gentleman, John Le Cocq, who went to Seattle. And he was kind of the equivalent of Leo Lucas in Seattle. He was head of their children's program up there, very outstanding guy. And then the third guy was a man by the name of Mitchell who became the head of Orthopedics at Henry Ford Hospital in Detroit. And he was president of the American Orthopedic Association. And all these people held great positions of responsibility nationwide. It was a pretty auspicious beginning for orthopedics in Oregon to produce that quality of people.

KRONENBERG: Three other names in orthopedics occur to me, at least in my experience. I know Dr. Slocum because he chose not to operate on my knee in college, which I'm eternally grateful for, although I limp a little. One of his junior colleagues, now a very senior colleague there was Dennis Collis.

BEALS: Yes.

KRONENBERG: And he and Richard Zimmerman here in Portland, I think through their residency training became the first couple of hip replacement sort of sub-specialists in the Northwest, and both had very long and illustrious careers. I think Denny's still operating.

BEALS: Yes.

KRONENBERG: Can you talk a little bit about them?

BEALS: Well, in the beginning, when total joints were brought into the United States, you could only do them if you'd spent some time with Charnley in England. So it was kind of franchised into the country. And there was a select group of people who were allowed to do them in the beginning. And Denny Collis trained in Iowa under people who did those, and did some of the early joints. Denny was recruited by Don Slocum. And I might just say that one of Don Slocum's great attributes was that he was able to recruit just some absolutely outstanding people from around the world. And Denny was one of them. But there were, Bob Larson, who was there. And there were several others. Stan James. Ken Singer. He recruited maybe four or five just world-class people that made

that clinic very special. It was not all Don Slocum. It was because of his skill at recruiting the right people.

Dick Zimmerman trained here at our training program. And he developed an interest early on in doing total joints. And he joined the Portland Orthopedic Clinic which was, at that time, the big orthopedic clinic in Oregon. So lots of total joints were funneled to him. So he did lots and lots of total joints.

KRONENBERG: One of the things that I think you would agree has changed in the practice of orthopedics, at least here in Oregon, is you've mentioned the two, two of the very big groups of orthopedists. The Eugene group that Dr. Slocum started, I don't know, they must have fifteen or eighteen people there now. And then the Portland Orthopedic Clinic, which has gone through several permutations where I think Dr. Zimmerman started. But in my experience in the '60s and '70s, orthopedists, like a lot of other specialists or sub-specialists, generally practice solo practice or maybe with someone else, and at least from my perception, particularly in orthopedics, that's really changed. Can you talk a little bit about that?

BEALS: Sure. I keep track of orthopedists in Oregon. And every year I sit down on the phone and I call all over the state and I talk to people and find out who's new and who's left practice, and what their practice arrangements are. So I've collected data on practice patterns in orthopedics for many, many years. And we had a period of time in which there were several large groups: the Eugene group, the Portland Orthopedic Clinic and Kaiser Hospital were the three biggest groups of orthopedics.

And then we went through a period of time where it sort of imploded. Probably the Portland Orthopedic Clinic could be the best example. I think it's been found, at least by the way people operate now, that people operate better in groups of like three or four. When the groups get bigger than that, they get more complicated. And so we have places like Salem where everybody is part of a big overall group. But the fact is, they function in little groups, little subgroups of three or four people within that. So there's some advantage to having sort of an overall organization. But in terms of how they operate, they seem to like to practice better in groups of one, two, three, four. Not very many solo people these days. And that relates to how do you get coverage for call. But groups of three and four are really common.

[pause, tape change]

KRONENBERG: This interview with Dr. Rodney Beals was conducted on June 3, 2008 at the Oregon Medical Association in Portland, Oregon. This interview was made possible by the Oregon Health & Science University Oral History Program. The interviewer is Jim Kronenberg. This begins tape two.

Dr. Beals, there is one name that I'd like you to react with which, at least in my experience, was the older practicing orthopedist when I began my career. And that was E.G. "Frenchy" Chuinard. Can you talk a little bit about Dr. Chuinard?

BEALS: Yes. I'd love to. Frenchy Chuinard was the first orthopedist to be fully trained in Portland. He had a year of training in the Shriners Hospital, a year of training at Emanuel Hospital, and a year of training at the County Hospital in Portland. And when he finished training, he was the seventh orthopedist in Oregon. That will give you a little perspective that things were, those were pretty early days.

Dr. Chuinard, as we called him, he was born in a farm up near Kelso. He went to University of Puget Sound. He was student body president there. He was always, always had something to say. And he had strong opinions. Sometimes he defied a lot of his colleagues. I always thought that his most important characteristic was his persistence. He never gave up. And I admire that. For example, when Dr. Dillehunt was the head of the Medical School, the library building was built, the outpatient building was built, the tuberculosis hospital was built, the nursing school was built. There were all kinds of things that were developed under Dr. Dillehunt. And yet, when it was all over and done with, there was nothing up there named after Dr. Dillehunt.

Dr. Chuinard was an extremely loyal person to Dr. Dillehunt. And he felt that was an affront to Dr. Dillehunt's memory that they didn't name one of the buildings up there after Dr. Dillehunt. So Dr. Chuinard made it a cause célèbre. And he pursued that year after year after year, and he finally got a building with Dr. Dillehunt's name on it. It's just a nice example of if it were not for his persistence, that never would have happened.

Dr. Chuinard was regarded as a very good teacher. He was chief of the Shriners Hospital for many years. And the residents all had a lot of contact with him. Dr. Chuinard had certain stories that he would tell over and over again to the point that the residents could all tell the stories. And it was a source of a little bit of amusement among the residents that they could replicate his stories.

Dr. Chuinard was a very good leader. He was president of the county medical society and I think the state medical society. And he became the vice president of the American Orthopedic Association which was nationally a rather big deal. His major interests in orthopedics were having to do with dislocated hips in babies. And he wrote a moderate amount about that. And he was a big promoter of certain treatment programs. He was a very important teacher to the residents. Influential within the residency. And was very active politically. And of course his wife was a state legislator. And he was sort of indirectly involved that way as well.

And then he had this interest in the Lewis and Clark expedition. He wrote a book on the medical aspects of it that's quite a good book, called *Only One Man Died.* And it was a story of the medical experience of the trip of Lewis and Clark. I knew Bob, his son, very well, and Beverly, his daughter, I knew just minimally. But I knew that Bob and Beverly spent a lot of summers with their summer vacation taken to visiting all of these places that Lewis and Clark stayed. And they didn't particularly think that was the greatest way to spend a summer. But Frenchy had strong feelings about visiting all these places and learning about it. I know that was a big part of their life.

So Frenchy had pretty strong feelings about it. And he developed great reverence, I think, for Lewis and Clark. And to this day I've found it slightly amusing that in his book, he never acknowledged that Lewis committed suicide. Because that would be not the right thing that he should have done. And I think Frenchy just couldn't bring himself to accept that. And there was question of whether that's really the way Lewis died. So I thought again that was an example of his stubbornness to accept the reality of what the evidence was.

But Frenchy was really a fine person. I liked him a lot. And he was very good for the training program.

KRONENBERG: Let's talk a little bit about the Shriners Hospital, which seems to be a common thread among orthopedists, particularly the senior people. Can you kind of tell us a little bit about where it came from and how it came to be? Its movement from the eastside to the school, and so on?

BEALS: In the beginning, the Shriners were a group of people who had this national meeting and they partied quite a bit. And somewhere along the line they had a meeting in Portland in which they decided they should do something with more substance to it, something a little more serious. And the idea of developing a hospital for crippled children was initiated here in Portland. And that gradually developed. They decided to build a series of hospitals which is now, they have twenty-three hospitals. Some in Canada, some in Mexico, but most of them in the United States.

I believe that Portland was the second one to open, and that was in the 1930s. I don't recall the exact date. Dillehunt became the first chief. So the group of people who practiced with Dillehunt became the staff. And that was Lucas and Chuinard and Begg, Rod Begg, and Larry Noall and Paul Campbell. Those were the first group who staffed that hospital. And they had some other orthopedists come in to some extent. But the majority of the staffing was done by those people. And of course they weren't paid for doing it. And they would take time out for their practice. And they'd come out and they would teach the residents and they would care for the patients. Quite remarkable commitment for a group in private practice.

And then after Dillehunt, Dr. Lucas became chief. And he was a very beloved person out there. He was just highly admired. And he would have teaching rounds every Saturday morning. And everybody went to them. He taught. And then after Dr. Lucas, then Dr. Chuinard became chief. And after Dr. Chuinard, Paul Campbell became chief.

And at some point, the Shriners decided that they wanted to have research as part of their mission. So they wanted not only to have a hospital that took care of kids, but they wanted to have a research theme. And each hospital had a different research theme. And a decision was made to move the Shriners Hospital because they did complicated surgery, and they needed to be next door to a major hospital where they had an intensive care unit and had consultation from all the sub-specialists. They could no longer operate

primarily as just an orthopedic hospital because it took more than orthopedic doctors to run a good show and provide optimal care.

So they had a decision that they were either going to rebuild next to Emanuel Hospital, or at the Medical School. And it was all a big political hoo-haw to decide where they were going to go. And at that time, I was involved to the extent of trying to help them shape what kind of research would be their big program. And I pushed the idea that they should specialize in collagen research, which they did. And it's worked out very nicely. They have a wonderful research program at the Shriners Hospital.

And one of the alleged advantages of having it at the Medical School was that their researchers would have a lot of communication with researchers at the Medical School. So perhaps that justifies a decision to be at the Medical School.

Paul Campbell was the chief of Shriners in the big transition when they moved from 82nd Avenue into the Medical School environment. And Paul did an enormous amount of work to make that happen well. Paul was very skilled at avoiding confrontations. He was able to maneuver around and get everybody on the same page and have everybody feel good about it. Paul made a big contribution to that big transition.

So the Shriners Hospital now is physically connected to the Medical School. And if they do a surgery over there that requires postoperative care in the intensive care unit, they bring them over to the Medical School and then send them back. And if they need sophisticated MRI studies or lab studies or whatever it may be, they do that through the Medical School, and it's worked out very well.

KRONENBERG: You mentioned with regard to Dr. Chuinard that he was the first fully trained orthopedist to be trained here in Oregon.

BEALS: Yes.

KRONENBERG: And that he was the seventh orthopedist.

BEALS: Yeah.

KRONENBERG: And I assume that that includes Dr. Noall and Dr. Lucas and of course Dr. Dillehunt.

BEALS: Yeah. That would have preceded Noall, but it would include Dillehunt and Lucas. Dr. Carlson was one of the other real early people in Oregon. Somewhere I have records of who the earliest ones were, but I don't offhand recall them. But it was a pretty small group in the beginning.

KRONENBERG: If Dr. Chuinard was the first to be trained here, where were his predecessors trained, or how were they trained?

BEALS: Well, some of them were trained in places like New York or Philadelphia or some other big cities where they had training programs. Dr. Carlson was trained by the preceptor method in that he didn't go through a formal training program. He was assigned to work with somebody else. He worked with a Dr. Akin. Dr. Akin was the first orthopedist in Oregon. So it was like an apprenticeship. It's like the way you become a plumber. You work with somebody over a number of years and then you learn the trade. And then you become the specialist. And that was before the day of the modern day residence program.

And then in the early days, after the apprenticeship program finished, and you began to have these training programs like Dr. Chuinard went through, then the people would take a little bit of training in one community, and a little bit of training in another community, and somehow put it together and say, "That's my residency." And that gradually disappeared. And a lot of people who were in the armed forces got credit for their orthopedic work in the armed forces as part of a residency program.

And the first of what you'd call the modern day orthopedic residents in Oregon was Harold Davis, who had a full four-year training program rather than a mishmash of different things. Harold Davis practiced in Portland for many, many years. A great orthopedist. He practiced at Emanuel where our residents trained, so our residents had a lot of contact with him. And I can't tell you the year of that, but it would have been in the '40s sometime.

And then we had another training program in Portland that probably should be mentioned. And that is that Joe Davis practiced at Providence. And he created an orthopedic training program that was based at the Veterans Hospital, which was right next door to the Medical School. They had an orthopedic training program at the Veterans Hospital in which their residents rotated through Providence Hospital, through the Veterans Hospital, through the Spokane Shriners Hospital, and then they had their basic science training with the University of Oregon trainees. I trained in those days, so a lot of our training was with this other small group from the Veterans Hospital. They trained a total, I think, of thirteen residents over the years, one of whom was Howard Cherry, who was pretty prominent in Oregon orthopedics.

But that training program was totally separate. The reason it occurred that way was that there were some people who felt (apparently strongly) that there was something intrinsically wrong with the Veterans Hospital system and that we shouldn't train there. And yet, here was the Veterans Hospital right next to the Medical School, and it needed to be used for training. So Joe Davis created that training program.

One of the features of that training program was that Joe Davis sponsored, if you will, a journal club in which all the residents, including all the Medical School residents and the Veterans residents, would all go over to his house over on the east side of town on Monday evenings. And we would literally sit at his feet and he would teach us orthopedics. It was quite a commitment for him to make, that every Monday night he presented something important about, or at least he thought was important, about

orthopedics to this group. And he was very generous in including all the Medical School residents.

The Veterans residents would learn pathology and anatomy and all the basic science stuff at the Medical School. So that was sort of the tradeoff. And that program went on for a number of years and then it eventually merged with the program at the Medical School.

KRONENBERG: One of the threads, talking about the early orthopedists and your own training, which, relatively speaking, was early, how many residents were there when you started your residency? How many were there in orthopedics?

BEALS: Well, we trained two per year.

KRONENBERG: Two per year.

BEALS: And during my year, my senior year, we trained three. And that's when we changed. They started out with one, then there were two, and during my time, it changed to three. I was the forty-first resident trained at the Medical School. And just because of the circumstances, I knew every orthopedist that preceded me that trained there, and I have known every one since. So I'm kind of unique in having been acquainted with every resident that ever trained there.

KRONENBERG: That's amazing, when you think about it. That's a marvelous accomplishment on its own.

BEALS: Well, it was just an accident of timing. There were a few of the early ones I didn't know personally well, but I knew who every one of them was. I could recognize them on the street. But I wasn't highly well acquainted with them. But most of them practiced in the Northwest, and they would go to meetings of the Western Orthopedic Association or some other meeting where I would run into them. So that's why I was acquainted with so many of them.

KRONENBERG: Talking about your continuity here, about people who've trained at the Medical School in orthopedics, tell me a little bit about your experience in history and how this developed in making presentations on the state of orthopedics in Oregon.

BEALS: Well, I got interested in just knowing who was in practice. Like if you wanted to refer a patient to Medford, you had to know who was in practice in Medford. So that was part of it. It's just a matter of curiosity. You like to know who's around.

Another motivation for me was that we were trying to increase the number of residents we trained. And the reason for that was, here we were training two per year. And the number of new orthopedists coming into Oregon per year were like fifteen. So it was obvious we weren't training anywhere near as many as we needed. And we were

getting a lot of residents that were trained at the Mayo Clinic or someplace in the Midwest. And we thought well this is crazy. Why don't we train more here? We shouldn't have to import so many people from elsewhere.

So I was trying to get data to understand that issue. And then I just was curious about why did they come to Oregon and what were the circumstances and so forth. So I sort of studied the orthopedists in Oregon for many years, and I still do. Every year I keep track of who's new, who's left. Trying to figure out why they left or why they came and where they practice. So every year I get on the phone and I call people I know and I spend days calling people all over Oregon, finding out what's going on. So I produce this little report.

KRONENBERG: And what do you do with the report?

BEALS: Well, I make it available to Oregon orthopedists. I have actually given several presentations nationally. You know, they study manpower. And it's become known that I know a lot about Oregon manpower in orthopedics. So the Academy bulletin has published one or two of my reports. And they have national symposium on orthopedists, and how many we should be training, and so forth. And I've been invited to talk at that group several times. I've enjoyed that funny little aspect of my life.

KRONENBERG: Speaking of manpower in medicine, these days it's appropriate in general to talk about physician workforce. Because, as you're aware, many physicians, and particularly those in training and in medical school—as a matter of fact, something on the order of half are women. You can probably, I know you can correct me if I'm wrong, but I think that orthopedic surgery in Oregon at least has been sort of a male bastion for a long time. I can only think of two, currently two female orthopedists in the state. How close am I?

BEALS: Well, you're well under half. Five percent of our orthopedists are women. There's more than you think. They're well trained, they're good, we like them. One aspect that is known about women orthopedists is that they don't practice as many hours as do male orthopedists. And if you're counting manpower, you have to take that into account. On the other hand, I think they bring some really good things to orthopedics. In general, orthopedics is a physical business. You have to be reasonably strong to do some of the things we do.

Historically women have not been too interested in orthopedics. But now they're a little more than they used to be. We now have three residents per year in our training program. And I would say we always have maybe three women in our training program. So it's increasing.

KRONENBERG: So that would be about a quarter, currently.

BEALS: Yeah. It will vary a little bit year to year, but we're certainly training a lot more women than we used to. And it's good.

KRONENBERG: Well, you've shown my ignorance about the number. Let me see if I'm right about the first one. Who was the first female orthopedist in Oregon?

BEALS: Julie Isaacson. Julie was very special. Her father is an orthopedic surgeon. Her brother is an orthopedic surgeon. She was raised in this family in Los Angeles where the men went into medicine, and the women didn't. And Julie became a teacher, and she was teaching French in school. And one day, according to her, she told me, she said she got up and she said, this is crazy, I want to be an orthopedic surgeon.

So she became one. And she practiced out in Newberg, and had a fine career. She's about ready to retire, I think. But she was very good.

KRONENBERG: Did she train here?

BEALS: Yes.

KRONENBERG: Was she the first?

BEALS: Yes.

KRONENBERG: Interesting. You mentioned you have three residents in each year of your training program now. In relative terms to when you trained and when you went on the faculty, that doesn't seem a significant increase.

BEALS: That's right. We are now training four. University of Washington now trains six per year. University of Utah also trains six per year. And I think it won't be too long and we should get up to six per year. And that would seem more appropriate, because there are so many areas out here that don't have medical schools. And we have a fair number of our residents who trained here who are practicing in Alaska. And there are a number that practice in Idaho, quite a few. And there are a few in Montana, and so forth. There are all these states that don't have medical schools. And the Northwest three schools that train orthopedic surgeons don't train anywhere near as many people as we have practicing. So we should be increasing.

KRONENBERG: Can you talk a little bit about the, if you will, the limiting factors on increasing the size of a residency program in terms of the number of residents that are actually in a program? And I think that probably the same thing is true of other specialties. But speaking specifically of orthopedics, what are the determinates that either limit you or allow you to increase the size of a residency program these days?

BEALS: Well, first of all you have to have a certain number of patients available to be involved in a training program. That's never a problem. Never a problem. We have to have a proper number of faculty to train them well, and that's never a problem. What is, the biggest hazards are, determinates, first of all, your own institution: there's a question of who's going to pay for resident salaries. Residents make enough money that

it's a significant amount of money. Medical schools are given money for training, but it's never enough. For instance, if we wanted to increase our residency number tomorrow, it would come out of the doctors' income. Nobody is going to pay for that. So that's a big drawback.

And then, another big drawback is the residency review committees of the national orthopedic groups. You have to get an okay. And most of those committees are dominated by people from the Midwest and the East. They're a little reluctant to tell training programs that they can increase their size. So that's always a bit of a problem. It takes quite a bit of work and a lot of data collection and so forth to convince the regulating bodies that you ought to have more residents. So I would say those are the two biggest handicaps to increasing the size of the residency program.

And then one other feature is, I think, that our medical school and many medical schools have for a long time taken the attitude that what they want to primarily produce are primary care doctors. They want internists, OB/GYNs, general practitioners, so forth, people in primary care. They don't like to emphasize subspecialties. So I think that has an effect on something like orthopedics increasing size.

KRONENBERG: And yet I perceive in our discussion and what I know about it that it's fair to say that obviously, first of all, in terms of training orthopedists, it's a deficit state in terms of the number of orthopedists who actually practice here. And I also get the sense from you that there probably aren't enough of them as there is.

BEALS: Well, it's paradoxical. When you think about numbers, how many should you have: we have as many as anyplace in the world. We have a lot. And yet, I could produce a list of twelve places that are looking for more orthopedists within the state. So it's in part a matter of perception as to whether you really need more or not.

What's happening in orthopedics today is that lots of orthopedists hire physician assistants who work up patients. Like if you were referred to a specialist, you might not see that specialist the first time you go. You might see a physician's assistant who does a workup. And eventually you'll see the orthopedist. That's a whole new phenomenon. It used to be that the orthopedist saw their patients. And that's true both of preoperative and postoperative things. So it's, when you say how much orthopedic manpower do you have, it gets to be a little tricky when you decide how to count them. Are you going to count the PAs? Are you going to count the other people who do this sort of work within the office? We have enough orthopedists in Oregon now, in my view. But there are other people who would say, well, we could use more. But if you look at us compared to other countries, or other parts of the United States, we are well supplied.

Orthopedists in Oregon don't make as much money as orthopedists in many parts of the country. The reason they're here is lifestyle. There are a lot of people who have said it's not that important to make more money, but I want to live someplace that I can go to the mountains or go to the sea or do whatever it is they want to do.

KRONENBERG: So would it be fair to say that orthopedists like to ski, so there are a lot of them in Bend, for example? [laughs]

BEALS: I think that's one feature of it. Yeah, I think they like a lifestyle of that nature.

KRONENBERG: One of the things that we've kind of touched on in terms of the training of orthopedists, and an institution whose name has come up several times, is Iowa. It seems to me that not just in orthopedics, but for some reason, people who train at Iowa, a lot of them end up here in Oregon. I think that's true with orthopedics as well. Can you kind of comment on why that is?

BEALS: Sure. First of all, in the very early days of orthopedics in the United States, there were two camps, if you will, of orthopedics. There was a group based out of New York, and there was a group based out of Boston. And they had a little different attitudes about how to treat things. And there's a certain genetics, if you will, that were part of this. People that trained in Boston migrated to Iowa.

And then they brought in a man by the name of Arthur Steindler in Iowa who was a German. Very smart man, and a wonderful man. And he accumulated a lot of great orthopedists there. And at one time, when I was young in orthopedics, Iowa had five professors of orthopedics in one institution. Nowhere in the world were there five professors of orthopedics but Iowa. You wouldn't think that Iowa would be the place where that would happen, but it did. And they had this style. And Dr. Steindler was a very influential man, as were his professors. They produced more academic orthopedists than any other institution in the country. So it became known that if you wanted to go someplace to get some really great orthopedic training, Iowa was a really great place to go.

And people from here went to Iowa and trained and came back. And it sort of evolved into the idea where a lot of people that trained in Iowa came here, and there are more, if you just ask all the orthopedists in Oregon where they trained, Oregon is number one, of course. But Iowa is the second most common place they came from. Michael Graham, good example of somebody, no reason to come here, but just did. And Jim Nelson, who just died, same thing. Came from Iowa here. And there are just a lot of them. That's where Denny Collis came from. Anyway, there are more orthopedists in Oregon that trained at Iowa than from any other outside place.

KRONENBERG: That's interesting. In passing you mentioned another senior orthopedist who was an orthopedist of quite some note, but he did a lot of other things. Can you talk a little bit about Howard Cherry?

BEALS: Yes. Howard Cherry was, he was one of the first, he was the first orthopedist to train at the Veterans Hospital residency program. He did a number of interesting things. He became an orthopedist, and was part of the same group that Joe Davis and [Herbert] Thatcher and Freem Fitch and Sam Gill were part of. That was the

big eastside orthopedic group. And he decided that they should expand their horizons a bit. He had a practice in which he would go to Bend to see patients, and he would operate in Bend, and then he'd come back. Sort of an itinerant surgery thing. But he had primary care doctors over there who would take care of the patients. And in those days, there were no orthopedists in Bend.

And as soon as Bill Guyer went to Bend, then Howard Cherry backed off. But that was a common way to serve people in different parts of the state who didn't have orthopedic care.

And Howard used to go to someplace on the coast. I don't know if it was Seaside or where. And other orthopedists have done that over the years, in the early days. You know, today if you said, well that's what I'm going to do, they'd say that's unethical to do that kind of practice. But the fact of the matter is, that was the most practical way to deliver good care to many people who were out of reach of orthopedists.

And if you lived in John Day, the idea of driving to Portland, or even Bend, to get your medical care, was not well received by the people. They preferred to stay home and be cared for there. They trusted their doctors there. And it worked out a lot better to send people there. So that occurred in a lot of places for a while. Not so much anymore. It's kind of unusual now. Anyway, Howard Cherry was a part of that.

And then, Howard Cherry was of course part of the legislature. And he would be in the legislature all week and come home and operate all weekend and see patients and so forth. It was a very rigorous life for him. And I think he was fortunate that he had great partners who took care of things when he was away, because he had a very active career in the legislature.

KRONENBERG: Many of the men that you mentioned played a major role in the development of and the success of the orthopedic training program at the Medical School. But a good number of them were private practitioners–

BEALS: Yes.

KRONENBERG: –who essentially volunteered their time. And the same was true, and I assume still, to a degree, is true at the Shriners Hospital. How has the involvement of, if you will, volunteer faculty in orthopedics changed over the years, and how do you view that?

BEALS: Well, it's changed enormously. In the early years, when I was in training, our clinics were staffed with downtown people. And we were well acquainted with many people in private practice because they would come up and spend an afternoon a week with us in clinic, or they would come up and scrub with us in surgery. And because we didn't have the faculty at the school to do that. And that went on for many, many years. And when I was the head of the program, I used to arrange for orthopedists

to come up and staff clinics. For many, many years we did that. And they were very helpful.

But as time went on, even though we needed help, it became increasingly hard for them to do that because their office overhead was going up every year. So if they were not there supporting their own office overhead, it was costing them money to come up and help us. They were very generous about doing that. But it got to the point where it wasn't really quite fair. They were giving really quite a bit, and there wasn't much we could offer them except our thanks and a clinical appointment.

And so that gradually faded out. And it faded out about the time we began to get a few more full-time faculty. So the transition was okay, but it's a very different style now. And we still have some people who volunteer time at the Veterans Hospital or volunteer time at the Shriners Hospital and at the Medical School. But the number of people who do that has dramatically decreased. In a way it's a shame, but I think the economics are such that it just had to happen that way.

KRONENBERG: Speaking of this particular phenomenon, the issue of the overhead of orthopedists' practice increasing, you've been around for a very long time, and to a lesser degree, the whole issue of professional liability and its effect on, the poster child for this is, of course, obstetrics. But orthopedists are, and consistently have been, among the most difficult to insure, and therefore faced with the largest premium. That has had to do with their increasing overhead. Looking back over your career, and obviously being a pretty astute observer of what's going on around you, talk a little bit about this whole effect of professional liability on high risk specialties, and specifically orthopedics. What changes you've seen in practice style and things that are talked about in the terms of loss prevention, like risk aversion and things like that.

BEALS: I don't know that I'm an expert in this, but I would say the cost of malpractice insurance has been a pretty big issue in the field of orthopedics. The orthopedists have become reluctant to take care of some things that they deep in their heart know they can do just fine, but they want to avoid because of the possibility they might be wrong, and the possibility they might get sued for it.

A good example would be tumors. The majority of tumors in bones are benign. And orthopedists can well take care of an awful lot of them. But nowadays if someone with a tumor walks into an orthopedist's office, they say, off you go to the orthopedic oncologist. Because they find it risky to do that which they're actually well trained to do. But things are sometimes subtle. And there's a possibility you might be wrong. The orthopedist oncologist might be wrong, too. But it's better for the orthopedic oncologist to be wrong than the guy in general practice of orthopedics. So that's a feature to it.

You know, on the other hand, I one time sent a questionnaire out to all the orthopedists in Oregon and had them list, what are your concerns? Is it how much money you make? Or is it how much free time you have? Is it how much you're paying for malpractice, and so forth? And I had a list of about ten things that they would rank. And

then I added all these things up. And interestingly, malpractice didn't come up at the top. It was down a ways. So that it was not the most controlling thing in the minds of orthopedists.

And if you make a list of orthopedists who left practice in orthopedics in Oregon and went someplace else, and if you ask them why they left, malpractice is not the biggest issue. Probably because malpractice wasn't that much different where they were going. But it's a moderately important thing, but it doesn't stop people from practice. It would be rare for that to happen.

People stop practice more because of overhead, because they've found they can't slow down. In order to make the system work economically, you have to go pretty full bore, unless you're in a special environment. And if you say well I'm going to slow down and do a little less work and make a little less money and so forth, you find that it doesn't pencil out, oftentimes. So we see people who decide they're going to stop practice or at least stop surgery rather than slow down. That's a fairly common phenomenon.

KRONENBERG: Speaking of this whole issue of what seems to be an every ten or fifteen year phenomenon with some sort of a crisis in terms of not only the cost of the insurance but its availability at all for practitioners of all sorts, and particularly those in the high risk specialties, is this an area that, or, more accurately, how does a contemporary training program like the one at OHSU address the issue of risk management and the like?

BEALS: Well, in contrast to training years ago where you went through your residency program to learn how to diagnose and treat orthopedic conditions, our curriculum now includes a number of things that simply were ignored and left for people to learn once they entered practice. We have lectures on malpractice and professional behavior. And a lot of things that we never had any training in before. It's hard to know how effective that all is.

A good example is we have John Tongue and his group come in, they've been in twice now, teaching orthopedists how to communicate with patients. That's one of John's big interests at this point. And if you were making a list of important people in the history of orthopedics in Oregon, John Tongue would have to be right up there. Because John Tongue, as you know, is a person that promoted the idea of using seat belts, and was extremely effective nationwide. John Tongue has probably saved more lives than any other orthopedist around, by virtue of this great education program he's been part of. And now he's moved into the area of teaching doctors how to communicate with patients. And he has a very effective program.

And it's just one more example of how if you're going to be an effective doctor nowadays, you have to learn a lot of social skills, a lot of economic issues and a lot of other things besides just being a doctor. Doctors in the olden days were, I think, often a little brusque with patients, and maybe a little crude. Even though they were good, people

didn't question them so much. But nowadays, you're expected to be very skilled in many areas.

KRONENBERG: Is Dr. Tongue's program that you mention, who sponsors that?

BEALS: Well, he created it.

KRONENBERG: Okay.

BEALS: He has some people that are very supportive of it. He has a cadre of like forty doctors who teach this program. And they will go all over the United States now, teaching the program. And he'll be branching out of orthopedics soon, I'm sure.

KRONENBERG: I'm sure, too. He's a fairly remarkable individual in his own right.

BEALS: He is. For a man who's in private practice by himself to be able to do what he's done is truly remarkable.

KRONENBERG: His wife is a heck of a painter, by the way.

BEALS: Yes.

KRONENBERG: Everybody seems to know that. He is an interesting person from an organizational standpoint as well. I think, as you probably know, he was the Oregon Medical Association's Doctor Citizen of the Year a number of years back. And his experience as a member of the state traffic safety commission I think at least was the genesis for his interest in seatbelts and drunk driving laws and keeping the speed limit set at a regular level. And you're not the first orthopedic surgeon who has said what you just said. Which I find a remarkable thing that I'd like you to expand on a little bit in terms of this orthopedist may have saved more lives than any other orthopedist in history. Can you talk a little bit about that and why that is?

BEALS: Well, seatbelts save lives. It's that simple. I think everybody has intuitively known that, but no one could figure out a way to get people to use them. And John somehow mounted a campaign that convinced people what the facts were. And he's gone to a lot of trouble to collect the right data, and he's very effective in presenting it to any group. He's fearless: I don't think he finds the legislators intimidating, as most orthopedists would. John's father was a lawyer, I think his grandfather was a lawyer, his brother's a lawyer. And he grew up with this feeling that he could be effective in that arena. And he is remarkably good at it.

KRONENBERG: You mentioned another orthopedist from an earlier era who you characterized as being very effective and, well, for lack of a better term, stubborn about the things that he believed in, and that was Dr. Chuinard.

BEALS: Yeah.

KRONENBERG: Do you see some parallels between Dr. Chuinard and Dr. Tongue in terms of personality types?

BEALS: No I don't. I think they're very different. As much as I loved him, I think Dr. Chuinard was very wrong sometimes. But because he was so persistent, he sometimes carried the day. And he was kind of stubborn in some ways. I don't find John Tongue that way. I think John is extremely good at communication. And he doesn't find himself, I think, boxed up so that he persuades people of what's right. And I think Dr. Chuinard sometimes intimidated people into whatever it was he was pushing.

[pause, tape change]

KRONENBERG: This interview with Dr. Rodney Beals was conducted on June 3, 2008, at the Oregon Medical Association in Portland, Oregon. This interview was made possible by the Oregon Health & Science University Oral History Program. The interviewer is Jim Kronenberg. This is tape three of three. Okay.

I'm not sure just how to frame this, but let's talk about in your long career and your experience, not just in terms of the residency program and the training of physicians, but of orthopedics as a specialty within medicine. What do you regard, as a rather distinguished member of academia in this particular specialty, what do you regard as some of the major changes and accomplishments? And also if you could identify some of the areas where, for lack of a better word, there may have been missed opportunities for the profession?

BEALS: In the early days, orthopedics was based on non-operative care. When orthopedics first developed—the word "orthopedics" means "straight child." And this was back in the days when they used braces and things like that to try to alter the shape and function of the limbs. And then surgery began to come in. And some of the early surgery were things like surgery for clubfoot, so a person's foot could get flat on the floor, and so forth. So it gradually became a surgical specialty from a non-surgical specialty.

As it developed into a surgical specialty, the early surgeons who did orthopedics were general surgeons, because there were no orthopedists. So there was this evolution where first it was general surgery. Then there were people who said, I trained as a general surgeon, but I'm just going to do orthopedics. And Dr. Dillehunt is an example of that. He originally was a general surgeon.

So it evolved that way. And because of that, orthopedics was part of the [University of Oregon Medical School] Department of General Surgery. We were divisions. Surgeons have a tendency to think that all surgical specialties were part of general surgery. And it's like there's a tree with many branches. And OB/GYN might be one, and ENT might be one branch, and so forth. Those of us in orthopedics have a

tendency to think that surgical specialists are more like a forest. There are different kinds of trees in the forest.

And there's been, I think, a philosophic difference for a long time in that concept. And the great departments of orthopedics have almost always been the ones that are separate departments, not those who are divisions of general surgery. There are a few exceptions to that. And in my career at the Medical School, I knew five people who were head of the department of surgery that I worked under. And with a single exception, I liked all of them, and they all treated orthopedics well. And they were very respectful of orthopedics.

But you reach a point where that just isn't happening. And that's why we went through this big change to become a department. And that happened all over the United States. And in every instance, there was a small cataclysm where something had to happen in order for the change to occur. I always thought that was a shame to do that, because it kept orthopedics tromped down, and it just couldn't develop very well. And you know, the beautiful example is what's happening in orthopedics in our medical school now. It's just blossomed and doing very, very well. So that's been one of the big changes that didn't have to be that way.

Another interesting phenomenon that's happened is in rehabilitation. Back in the beginning, rehabilitation was a part of orthopedics. And in World War II was when rehabilitation developed. It developed because the orthopedists were too busy taking care of broken legs and stuff, and they simply ignored all the aspects of rehabilitation. And there then developed a group of people who said, well, we're going to take care of these things that the orthopedists are ignoring, like getting people back on their feet. Someone had to take care of the paraplegics. Someone had to take care of the people who'd had a stroke and get them rehabilitated, and on and on, and so forth. And if you, from my viewpoint, at least, if you look at rehabilitation, every skill that's part of rehabilitation, there's something that somebody in another specialty already does. You know, they do EMGs and that sort of thing. But there are neurologists who do that. And there are people who take care of amputees who are orthopedists. But not many of them do.

So rehabilitation developed because of poor behavior on the part of orthopedists. We did not accept our responsibility to take care of these people. Well, the way it's worked out is pretty darn good. Rehabilitation is very important, and they do really good things. It could have been a part of general orthopedics, but it just didn't happen. So now we have a Department of Orthopedics and Rehabilitation. We have two people who are specialists in rehabilitation in our department. They're wonderful people and they do a really good job. But it's always intrigued me that it came about because orthopedists simply were not doing their job. But it's ultimately worked out well.

KRONENBERG: There's another phenomenon that is certainly not unique to orthopedics, and you've touched on it a couple of times. But talk a little bit about from your long perspective the development of, in effect, orthopedic subspecialties. It seems there are people who do nothing but knees.

BEALS: Yep.

KRONENBERG: There are people that do nothing but oncology and so on. How in your experience has this developed and is it good? Is it healthy for the specialty of medicine?

BEALS: Well, that's become a point of major concern within orthopedics. Just as a generation ago, general surgeons had the idea that all surgery belonged, fundamentally, to general surgery, orthopedists have a tendency to think that all subspecialties of orthopedics really ought to be part of orthopedics. And yet there are groups who just want to do one little part. To the degree that we can remain together, it's better, for sure. A lot of the training, you get so subspecialized that one person can't do it all. And you know, I think the day, the day of the complete orthopedist who can do it all is gone. I think I knew a few people who belonged to the group who could do it all. But there are precious few. So now we have to have subspecialists, if we're going to provide the best care. And yet, we all have in common an awful lot of things. Bones still heal like bones. It doesn't matter what sub specialty you're in. So we have a struggle in keeping everybody together.

I think the biggest example of a separation of a subspecialty is in hands, because general surgeons do hands, plastic surgery does hands, and orthopedics does hands. So you have three different specialties doing hands. And so then the question is, how does that relate to orthopedics? And in fact, orthopedics trains the majority of hand people. And if you look at the research that has developed hand surgery, an awful lot of it comes from orthopedics. So orthopedics is wonderful background training if you're going to go into hands. But they do need to be in some way set aside. So now they have certificate of adequate qualifications in hands. You can take a test and qualify to be different. But even though they're different in that regard, we tend to hope that they will remain part of orthopedics.

There's a push to have spine surgeons separate out in a similar manner, and there's a push to separate out so-called sports medicine people. And I think the scientific basis for separating those out is much less valid than with hands. I think hands kind of is a case in itself and is justifiable. I'm not enthusiastic about the others.

KRONENBERG: One subspecialty, if you will, that you mentioned about orthopedics, and there are certainly others in other disciplines. But it comes sort of in direct conflict with another surgical specialty, is this issue of spine surgery with neurosurgery and orthopedists. And I've been watching now for almost forty years, and I don't see any resolution there. How does the specialty, and the academic component of the specialty of orthopedics view that? Is this a good thing? Bad thing?

BEALS: Well, I don't know that I can say it's good or bad. I think that orthopedic spine surgeons and neurosurgical spine surgeons tend to coexist pretty well. I don't see a lot of warfare or major, major issues between them. In the beginning, I think

orthopedists knew a lot more about spine surgery than neurosurgeons because orthopedists understood fixation of bones, screws and plates and all that stuff. We grew up with that, and we were very good at that. And the neurosurgeons didn't do it. And there was a time when a neurosurgeon would decompress a spine and then have the orthopedist come in and fuse it. So that was sort of a transitional period. And then the neurosurgeon said well I can learn how to fuse it. Now orthopedists do the whole thing. And I think they share their science, share their knowledge. I'm just not aware of any big reasons that they each shouldn't do spine surgery and exist happily.

KRONENBERG: Given the dichotomy that exists in neurosurgery for a lot of factors, but between those neurosurgeons who really have limited themselves to spinal and peripheral neurosurgery as opposed to the traditional neurosurgeon whose real forte was surgery of the brain.

BEALS: Yes.

KRONENBERG: And the like. And the fact that there is a recognized subspecialty of orthopedics. As an educator, do you see an opportunity or a challenge or perhaps a danger that the two spine disciplines, if you will, will become one and essentially form a new specialty?

BEALS: Well, I know that there's an interest in that. And I don't see a need for it. You know, at our medical school, we have a spine service. And if you have a spine trauma and you come in on Monday, you were taken care of by a neurosurgeon. If you come in on Tuesday, it's going to be an orthopedist. And the patients are getting comparable care. We have conferences every week on spine, and they're attended by the neurosurgeons and by the orthopedists. The clinics where patients are seen is sort of a combined clinic. There's a spine center, and you might be seen by one or the other. And sometimes they trade experiences back and forth. And if there's some surgeon that's really good at something, doesn't matter whether they're a neurosurgeon or an orthopedist, they may end up taking care of that problem. So at least in this environment, I think things have been worked out very well. I don't see any, from my viewpoint, any special reason that they ought to split off.

KRONENBERG: Interesting. You mentioned earlier on, and again, this is not limited to orthopedic surgery. But the increasing use of paraprofessionals in what traditionally has been a patient-physician relationship. And specifically for surgery you mentioned where physicians assistants and other paraprofessionals are involved in pre- and post-operative care to a higher level. And I think most people are familiar with that in not only orthopedics but other specialties.

What about, it's my sense that this phenomenon is becoming more common in inter-operative care, where the non-physician takes a larger role. In many cases, it's the first assistant, where historically the other person in that specialty with regard to orthopedics, a general surgeon, might be the first assistant. What about this phenomenon?

BEALS: Well, I'm not, I've never been a part of that. I think one issue is if you have more surgeons than you have residents, in our environment, it may be necessary to have a physician's assistant scrub with somebody. Because you don't have anybody else. And there are insurance restrictions that you can't have another orthopedist assist an orthopedist in certain kinds of cases. They don't approve of that. So there are external phenomena like that that play a role. I've just never lived in an environment where that happened too much. So I'm probably not the one to ask that question. But I think in general that it's a mistake for an orthopedic surgeon to turn over care of his patients, for someone else to make a diagnosis. And I think it's wrong not to see your patients post-operatively. And most people I know do those things. And there's some who don't. And in some ways I feel a little sorry for the people who use too much of the physician's assistant. Because to me, the greatest joy in orthopedics is to make the right diagnosis, and to make the complete diagnosis, and to figure out what to do. I mean, that gives you more satisfaction than anything else you can do. And to turn that over to somebody else who's not nearly as well-trained as you are seems crazy to me. But that's the attitude of somebody who's old, I guess.

Now I have a son who's an orthopedic surgeon who is in a university, in a training program. And I'm interested in watching him. He never lets a P.A. see his patients first. He makes the diagnosis. And they may help with some of the post-op stuff, but he's always there. I think he's doing it right. I think there's ways to do it right and use some help. And I think there's ways when you do it wrong.

KRONENBERG: In your career, who is the most interesting, amazing, perhaps the most inspiring physician in terms of your own life?

BEALS: Well, I think when you're young you need heroes. And in my life, I've had two people I think that I consider my great heroes. And the first is Leo Lucas, whom we've talked about. And Leo Lucas was a man who didn't say an awful lot. If he said something, it was important. But he lived by example. He was, you knew when you were around him that he really cared about the patients. And he did everything he could to make everything first rate. But he didn't talk about it much. And I don't think you have to say an awful lot to have a big influence on people. He was just a person who lived by example what I thought was a way to be a great orthopedist. And I admired him a lot.

And the other person that I consider a hero was Ross Nicholson, who was an orthopedist in New Zealand that I worked with. I went to New Zealand in 1970 as what was called an ABC [American, British, and Canadian] Traveling Fellow. They selected people who were thought to be promising orthopedists. And I was fortunate to be one of two in the country who were sent on this trip around the world visiting orthopedic centers. And when we were in Auckland, New Zealand, I met Ross Nicholson. And I thought he was an absolutely remarkable guy. And then when I finished the tour, I thought about it for a couple of years, and I decided I wanted to go work with him. So I went to New Zealand and worked for six months with Ross Nicholson. And he was truly a man for all seasons. He could do every part of orthopedics. He did spine surgery, hand surgery, total joints, you name it, he did it, and he did it really well. I spent six months

working with him, and I loved it. And I just thought he was really inspirational. And I've kept in close touch with him ever since. So those were the two people that have influenced me probably the most.

KRONENBERG: Is there anything that we haven't talked about that you think the record should include when we think back about Rodney K. Beals?

BEALS: Well, I think I would like to mention Freem Fitch because we haven't. And we've talked about teachers quite a bit. Freem Fitch just died recently. And he practiced with Joe Davis and that particular group with Howard Hatcher and Howard Cherry, Sam Gill, Chuck Begg, and so forth. But when Joe stepped down from running the VA orthopedic program, Freem Fitch volunteered to be the teacher to run the Monday night conferences at his home for the whole training program. And for years, he did that. People would go over to his house and be fed and be educated. This went on year after year, and he did all of that for no real recognition, he just did it.

And in my life, Freem was just enough older than I was that I acknowledged the fact that he had more experience than I did. And I would frequently call him up and ask him to see a patient for me or to do something. And he always did. He was very gracious about it. And he played a big part in educating our residents over the years. And he's probably the only educator we haven't talked about. And I'd be remiss not to mention him, because he was very important.

KRONENBERG: Very nice man, too.

BEALS: Yes.

KRONENBERG: Yes.

SIMEK: If you can, now that you've talked about history, put on your prognosticating hat and give some thoughts, if you would, to what orthopedics might look like in the years ahead or as far as you think you can look.

BEALS: I haven't thought about the future too much. But I will say that I think it will not be too long before we have much better ways of healing bone than we have now. I think we're going to be using a variety of chemicals. And we're going to heal bones faster and quicker. We're going to heal connective tissue faster, tendons and ligaments. I think that's going to be real. I think that's going to happen. I think orthopedists are just now beginning to catch on to the issues of bone health that they have ignored for years and years and years. And we're going to be making a lot of diagnoses of neuro-endocrine problems with bone. You know, orthopedists until recently have ignored osteoporosis, one of the most common bone diseases around. And I think the future of orthopedics, orthopedists are going to be screening people when they hit their office for bone density. It should be done there in the orthopedist's office. There are obstacles to doing that now. But that's going to disappear. And we're going to know a lot more about how to keep

bone healthy in the future. And we're going to know a lot more about healing in the future.

I think in the realm of genetics, where I have interests, I have seen, it's interesting, I one time described a clinical condition that had never been described before. So we described a disease. And then years go by and we see more people with it, and we learn more about the disease, and we learn something about how to treat it. And then in our own Shriners Hospital, somebody figured out what the molecular abnormality is. So we've gone from there being no described disease, to having a described disease, to now you know exactly what molecule is abnormal. And we're going to do that for more and more diseases. And every once in a while, one of those is going to be something that we can treat. Some things we learn a lot about but can't really change. But there's some that we will change. So I think in the area of genetics, you're going to see some changes. They'll be very dramatic. They'll probably affect small numbers of patients, but it's going to be real important to them. We're going to see quite a bit of that as time goes on.

I would guess those are the things that I would identify as where I'm relatively certain we're going to make big changes.

KRONENBERG: This question addresses not only orthopedics but a number of other specialties as well as other scientific disciplines. What about regeneration of spinal cords?

BEALS: The stuff you read in the paper sounds pretty exciting. I don't know how real that is. But it would be terribly dramatic if it could occur. I don't know. Why not? Why shouldn't we learn how to do that? You know, I think it's possible. I'm just not familiar enough to know how soon or how effective it might be.

KRONENBERG: Thank you, Dr. Beals.

BEALS: You're welcome. Pleasure.

[End of interview.]

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