Howard Farran: It is an honor to be here today with Scott Weed, an endodontist who is making a name for himself faster than any endodontist I really know. You are crushing it, buddy. And I am really excited about this, because as everyone knows, I am 52, graduated in '87. I graduated May of '87 and October of '87 was Black Monday, the stock market crashed 25%. Everybody thought the sky was falling. Then March of 2000 the Internet bubble stock market crashed. But man, this doozy of 2008, that was the recession of all recessions. Probably a depression, except the 1928 depression, they tried to save the dollar, so they lost one-third of the banks, 25% unemployment from 32% to 36%. This time our federal reserve chairman, who had a PhD in economics from MIT with his thesis on the depression said, 'Okay, we are going to do the opposite, we are going to give up the U.S. dollar," printed some 7.8 trillion dollars in paper, saved the banks, gave up the dollar, but the bottom line is what has happened – the experts, I got my MBA from Arizona State University. All of my economics friends said, "Dude, this is going to set us back a decade." And we are eight years into this thing, and it is starting to tick up, but what is so exciting about endodontics is a lot of dentists have the personality of a scientist, an engineer, a dentist. They are introverts. They are not good sales people. They don't consider themselves a salesperson. But a root canal you don't have to sell. I am in pain. I am not sleeping. I can't eat. I am sensitive to hot and cold. It is $1,000. There is no lab bill, it is just some gutta percha and some sealer and one out of ten needs a rubber dam, right? Is it one out of ten or is it one out of twenty? I am just teasing, that is a joke. So 50% of the dentists that we survey say, "Yeah, I will do a root canal if it is the one canal, canine to canine. Maybe I will do a bicuspid," but half of them aren't going to do a molar. So in this recession, a lot of general dentists are starting to say, "Gosh, I just referred that toothache and I am sitting here twiddling my thumbs, posting on DentalTown and Facebook for two hours." So tell me right out of the gate, can a general dentist learn and become proficient at molar endo?

Scott Weed: Well, I was just that.

Howard Farran: And why are you going to help this guy to a molar endo when you are an endodontist?

Scott Weed: I was the general dentist and I happened to have six endodontists in my area and I got to the point where I was, you know, honestly speaking and even looking back from where I am now, I was doing as good of work and better in some cases as they were. And that was simply because I knew what to look for. You don't get there overnight, but you know, I am not going to try to pad this more than it is, but it was because of DentalTown.

Howard Farran: Awww, thank you buddy.

Scott Weed: I mean, I was over in Okinawa, Japan, as a dentist for the Navy and nobody liked to talk about dentistry. You couldn't talk about dentistry at the parties, after work. People would get on your case, and so it was lonely. So I started hanging out on DentalTown, started seeing what people were doing, started seeing what was possible. And so I started upping my own game, because I knew what the game looked like.

Howard Farran: Well you know, that is what I love about DentalTown, because I firmly believe that at the end of the day four or five dentists, like you say, they go to a dinner party. I quit playing golf because I thought it was fun in '87 when three other dental buddies would say, "Hey, we need a fourth

person. Do you want to come golf with us?" And then when I got there, I started talking about dentistry and they said, "Dude, we are on a golf course. We don't talk about our wives or dentistry, okay? This is our sanctuary. No cell phone, no wives, no dentistry." And I thought, well that is not fun. Tonight I am going to the ASU game with two dentists, Louis and Brad, and they love to talk dentistry and they are also Iron Man dentists. And so the people that go home after work and log on to DentalTown, that is the cream of the crop. So if you don't like what you see on DentalTown, you are looking at the cream buddy. You don't even know. That is the top 20% of the dental bracket. You don't even want to see what the bottom 20% are doing. So you got turned on to dentistry in Okinawa, Japan, via DentalTown.

Scott Weed: Oh yeah, and I will tell you, the thing that was great about the military is they had a postgraduate dental school in Bethesda, Maryland, and I could just send an email to the secretary there and she would mail me a text book and about 1,000 questions, you know, a big packet an inch thick. And I would just read the book, answer the questions, and you would get about 48 hours of CE. And I left that island with 600 hours of continuing ed. It was all free. I took orthodontics, periodontics, prosthodontics, you know, you name it, I have studied it.

Howard Farran: So why do you think guys like us love it? Do you think we were born that way? Is it because your dad was a dentist and you are making your dad proud? I mean, why do some people have a natural curiosity and want to improve everything and other people just don't care?

Scott Weed: Well you know, you see them in every profession though.

Howard Farran: Right, people are people.

Scott Weed: You see the car mechanic, and when you find that guy, you are with him for 20 years because he loves what he does. You almost don't even care what he charges you, because he is so good at what he does. You trust him, you have a good relationship. And what I have found professionally is I tend to find people sort of like myself and we kind of hang out.

Howard Farran: Exactly.

Scott Weed: Because we are attracted to each other. I don't care if he is in North Carolina or in San Diego. You know, I have got friends all over the world who all think like I do.

Howard Farran: And most of these dentist friends all over the world you found on DentalTown?

Scott Weed: Through that and, I will tell you, on DentalTown I was introduced to some really high-caliber endodontists. And through that I got plugged into their community, which is through the digital office software, TDO. And that has been probably professionally…

Howard Farran: James Carr, is that his name?

Scott Weed: Gary Carr.

Howard Farran: Gary Carr.

Scott Weed: Yeah, he is in San Diego and he has the Pacific Endodontic Research Foundation. And I mean, I cut ten years off of my development in my career.

Howard Farran: So do you know why he doesn't like me?

Scott Weed: I don't know.

Howard Farran: Well you know, you are not supposed to lie to yourself, but I admit I did. I tried to go for his course and he says for endodontists only. This was back in '90 I think, something like that. So I just filled out I was an endodontist. So I got into the course and it was a two-day, hands on course. I just freaking loved it. And I was talking to some guy and he overheard me and he was like, "What? You are a general dentist? You are not allowed to be here." And I thought, "Uh oh."

Scott Weed: Well, if you look at it, endodontics has had to change. And Gary changes like everyone else. And if you look at the direction that they have gone, they have really run their own ship into a sandbar over the last ten years. Just the leadership of the whole speciality, they marginalize themselves in a way that, I mean, if you want to talk a little bit of history, it kind of goes back to before rotary files. It was really hard to do a root canal and to make it look decent on the x-ray. And so these endodontists had all of these special filing skills and they could do their taper and they had the patience to do it. And most general dentists were like, I can't do that. And so the '80s and '90s were really the hay day of endodontics. You know, these guys would put these blinders on and say, "Hey, I am only doing the root. I don't care if there is a cavity on the tooth, I don't care if there is another problem in the mouth. I don't do that. I do root canals." And as technology developed, everybody can do a root canal that looks okay. And so people started saying, "Why do I need that guy? And why would I be a refer-o-dontist?" And I will tell you what, in a lot of cases they are asking the right question. Is their endodontist worth his salt? Can he do a good job? And if he can't, why are you sending him cases? You know, and so that was the environment that I came into where the American Association of Endodontists was wanting to do a public awareness campaign. They were pulling 125 bucks a year out of all of our pockets. In fact, you couldn't up your membership without paying that fee for the public awareness campaign. I don't need the public to know that there is an endodontist. I need dentists to trust me. And, you know, if I am not good enough, then they shouldn't trust me.

Howard Farran: So this lecture, you are talking to general dentists on Dentaltown pretty much, right?

Scott Weed: Yeah.

Howard Farran: So I have got an hour with you. So tell us, you thought you were good, but you went to endo school. Now you only do endo. So as a dentist who does a lot of endo might only do one a day, you are probably doing six or eight a day. Would that be a fair assessment?

Scott Weed: Well, I do most of my visits in two visits.

Howard Farran: Okay.

Scott Weed: So I am doing a lot of treatments per day. If you count completions per day, I am probably only completing three to four a day.

Howard Farran: So why are you going two visits when I thought – so basically, so in the going back to back in the day in '87, early '90s, everybody was like, oh my gosh, we did all of these root canals and we cleaned them out and then a week later or two weeks later we come back and we culture to make sure there are sterile and if it was all sterile we would fill it and then we realized they are always good, so it was a waste of an appointment so then we are going to one step it. And then by 2000 people were saying, well you know, these one appointment endos, they kind of for the most part worked if there was cario-endo toothache, irreversible pulpitis, but if that infection went out the apex and there is a periapical radiolucency, we shouldn't be one-stepping it. We should be doing some intermediate steps, some calcium hydroxide in the canal. So are you doing mostly two appointments because you are an endodontist and by the time you get a referral, there is a periapical radiolucency? Or are you also two-stepping just irreversible pulpitis where there was no periapicals?

Scott Weed: My philosophy, it is part of my business model, that I don't take any insurances. And I started out from day one that way and everyone in town told me I would fail. They said, "You can't do that."

Howard Farran: But you don't have to make money, because you are in Reno, Nevada, and you probably make $1,000 a night on the tables.

Scott Weed: Yeah, that's right. No, there is a reason they build big, fancy buildings. They don't build that up with donations and those kinds of things. But really, when I came to town, there hadn't been a new endodontist in ten years. And so there were some old relationships and with the economy going down, and Nevada was hit especially hard. You know, you talk about the housing crisis and all of that, Florida and Nevada you hear about a lot. I mean, things were pretty down here. It was good for me, because I was looking for some professional office space and I had my pick of the litter at a very good price because there were a lot of vacancies. People were hurting. And the endodontists who were here, they were hurting a little, too. And I had a lot of people personally tell me, "Hey, why are you coming here? We don't have room for you." And then especially showing up and saying, "Oh, I am sorry. I am not taking any insurances." And so if you are going to take that kind of approach, you have got to be different. And so my business philosophy is I don't obturate a tooth that still has symptoms. And so consequently, I have built my business on attracting the high-end dentists in town, people up at Lake Tahoe, people who have just naturally found me because of the quality. And so I can't afford to have any problems. So I don't want somebody calling me back saying, "Hey, this still hurts to tap on." I don't want a dentist saying, "Hey, I am doing the crown prep and it is a little sensitive. What should I do?" So I can't afford that in my practice. But there are, I would say, the vast majority of cases you can one step and be fine. I just don't know which ones they are.

Howard Farran: That is profound. And I just had another conversation with this oral surgeon who said that he uses a surgical guide on 100% of his cases, Jay Reznick, because he says if I am only off 5% of my implants, that means one out of every 20 implants goes back to the general dentist and he says, "Well,

this isn't exactly drawing right." And Jay says, "I don't ever want to get that call." So he does 100% surgical guides. So you are saying 100% of the time, you won't obturate a tooth until it is asymptomatic. So if you were obturating 100%, well first of all, is it still acceptable knowledge that you should never one step a periapical radiolucency?

Scott Weed: No, in fact…

Howard Farran: That is not true?

Scott Weed: I would rather, just from my own perspective, you know, I have got a guy saying, "Hey, I am moving to Nepal tomorrow." Okay, what are you going to do? You know, you have got to do the treatment. And you can't say, "Well, we will do it now and then come back later tonight," you know. And so I would feel better about someone who had a periapical radiolucency or especially a sinus tract than some of these vital cases, because usually the necrotic cases calm down. It is those vital cases that, "Hey, it hurts when I tap it." And those are the ones that drive you nuts.

Howard Farran: So it really doesn't affect the longitudinal studies of one step versus two step on periapical radiolucency or non-periapical radiolucency?

Scott Weed: Those are all statistical things. You know, when you look at success rate of endodontics, it is high.

Howard Farran: Give us numbers.

Scott Weed: Well okay, here is the caveat, is that it can only go down with time, right? I mean, look at the kids who graduated from high school with you. There are less of them today then there were, I graduated high school in 1995. The day after graduation, we lost our first member diving off of a bridge into a canal, hit a piece of concrete. Saddest thing, young kids, whole life ahead of us, gone. Well, same thing with your treatments. Your treatments, the longer you look, the lower it is going to be. And so when you look at most endodontic studies, they consider four years long term. Not my patients. You know, patients, they think you fixed their tooth forever. And the sad news is, you know, when you have got a 20-year-old in the chair with a second molar that needs a root canal, that tooth has only been there for eight years. And all of a sudden they want it to last a lifetime? That kid could live well into his eighties. And so the reality is we can't prognosticate with any certainty really the past ten years. You know, but I would say when I talk to my patients I look at certain cases. If I have got a tooth that is really broken down and there is good bone around it, hey, let's do an implant. But if it has got good bone and it has got a decent amount of tooth structure, you should easily be able to get ten years out of that.

Howard Farran: Now are you placing your implants, too? I mean, sometimes when someone refers an endo to you and you say, "You know, this would be better for an implant," do you just pull the tooth and place the implant or do you refer them back?

Scott Weed: It all depends, because I place implants, but I am not greedy at all in what I do. I decided years ago that money is going to be something, you know, there are studies that show that after

$60,000 or some number like that, that you are not getting incremental happiness for each extra dollar. But you know, you need a certain amount to keep the creditors off of your back and stuff.

Howard Farran: Right, my only claim to fame on money is when I graduated from dental school, I was making four dollars an hour at Walgreens and then the next year I was a dentist. That was the hugest transition of my life, just that one year and all of the other incremental improvements over the last 27 years, I haven't even felt it.

Scott Weed: Well you know, you talked about the economy in 2008. I was a general dentist in Nevada at the time and we felt a big hit. And I was in a small town outside of Reno that had actually, our housing prices and everything had inflated extra, you know, because people from California were moving out to Nevada for the tax situation and for the housing. People from Reno were moving out into the outskirts. And so you have a small town where houses are just incredibly expensive. And that was right when I decided to go back to school. And so I put my house on the market, I didn't even get any lowballs. And so, you know, I moved to Los Angeles, went to USC. Expensive city to live, expensive school. And I mean, I lost so much money during that transition. Financially, it was the stupidest thing I ever did was to go back to school at that time. In fact, my second year of residency, I lived in a van on the streets of L.A. because I had no money. I completely ran out of money.

Howard Farran: With married and six kids?

Scott Weed: Yeah, well the kids weren't in the van.

Howard Farran: You didn't have kids at that time?

Scott Weed: No, I had the kids. I moved them in with my in-laws. Because like you said, I was looking at the numbers and I am like, "Look, in three months we are going to crash." And so we moved my wife and kids in with her parents and I moved in, it was a big black van, I put a red stripe on the side and painted it like the A-Team. And that was my home for a whole year.

Howard Farran: My God, are you serious? You are hard core.

Scott Weed: And yeah, we made it. We made it. But it was great because the dental school, if you have been to USC, is right next to the gym. And so I would just go to the gym in the morning, work out, shower and then go to school and then fly home about every other weekend. It was exactly every other weekend I flew home for three days. I would take Friday off. I did so much work in my residency, I worked extra hard so that I could get that Friday every other Friday off.

Howard Farran: That is interesting, I know about three or four people that the only reason they have a gym membership is because that is the only place they have to shower. I do. I currently know three or four people like that.

Scott Weed: Well you know, you learn to appreciate it. But as far as with the business, you know, as a general dentist I would send things out to the local endodontists and I would get things back that were slightly symptomatic still. I would send them back and then the endodontist would blow them off and

just say, “Hey, I have already fixed your tooth. Just go get it pulled if it is bugging you that bad.” And so here I am as the general dentist and I am thinking, well I either need to get better at doing endo myself or get good at doing implants, you know? But it was those people that I found and I started seeing John Khademi, Rod Tataryn, seeing this high level of work. And you know, I am a guitar player and if you are musician or something, you know what good music is. You know who the good guitar players are. If you are a guitar player like me, you know Joe Bonamassa is a hot thing right now and that he is one of the best things that you are going to hear out there right now.

Howard Farran: What band is he with?

Scott Weed: Oh, he is solo. He is kind of a blues, rock, classicist. But you know, if he comes within 300 miles of my house, I am going to see him because he is amazing. But that is how it was with endo. I am looking at these guys going, I mean because you do your own endo and it brings an income, but I think most guys with a really good ethical heart, if there was someone right next door to them who was really, really, really good, they would send a lot of these cases to them. The problem is that we don’t live next to those guys. I mean, Gordon Christensen, he says retreatments rarely work. Well, he has never worked around talent. There has never been a talented endodontist in his area.

Howard Farran: And does he even do endo?

Scott Weed: Well, yeah he does a lot of himself.

Howard Farran: He does?

Scott Weed: These days. He always says he did. But you know, you have got to think, someone like him who has got a pretty good global perspective, why would he say retreatments don’t work? That is because he has worked with endodontists who just do these wham bam retreatments and yeah, those don’t work. And so backing up a little bit, why do I treat over two visits? Or I don’t even do two, I call it an end visit. Whatever number it takes. And here in Reno, you know, I get people from Elko, which is four hours away. I have even had people as I am growing and as people know about me, I am getting people from Fresno and other places who are sending people. You know, I get them all up and down the mountains. And those guys, I don’t treat them any different. When they are from Elko, they are four hours away, I say, “Listen, we might be in this for the long haul. My whole goal is to fix your problem. I am not here to sell you a root canal; I am here to fix your problem.” And so my fees are a little higher, but I stand by my work. If I have to retreat a case, which is hardly ever, but I do. I just do it. I fix it for them.

Howard Farran: You know, I am in Phoenix and a lot of people retire here from North and South Dakota, Iowa, Kansas, Nebraska. I can give you, I have been here for 27 years, probably about 25% of my five mile radius is retirees who retired down here. And I could give you the names of 50 patients whose physicians are in Palm Springs because they felt like they were just herded in and out of these physician’s offices. You know, they got five minutes. The doctor is ten minutes late, asks three questions, split. And then they heard from a friend that there is this guy in Palm Springs and then my patients say, “Well, I am retired and it is only a four hour drive to Palm Springs.” So they leave at 8

o'clock in the morning to go have an afternoon appointment and get home at eight that night because that guy actually slows down and listens and talks to them. You know, they don't want to die. They don't want to die, so it is a four hour drive to get a good relationship with a physician when you are 70.

Scott Weed: Everyone has different values. And we can't change their values. You know, if somebody wants to, it is that classic patient who pulls up on his brand new Harley Davidson and he comes in to your practice. I get this as a general dentist. And he needs a crown. "Oh, I can't afford that." It is like, yeah you can. You just choose to spend your money on something that you value more, which is that motorcycle. And we all run into that problem. And so part of what we do is we need to present things in a way that builds some trust. Just like that mechanic. So when the mechanic tells me, "Hey Scott, your minivan, you know, you need the serpentine belt replaced, you need the hoses flooded, you need all of this. It is going to be $2,200." I say, "Okay Mike, take care of it." You know, but if I just going to some random shop and he starts trying to upsell me on this stuff, I am not going to trust him. I am going to say, "Hey, you know what? Let me think about it." And I am gone. So if you can build that trust with a patient, then they are going to say – you know, I will tell you what – I see patients from a local clinic just as a service. And I charge them cash, they all pay cash and I charge them a discounted fee. I treat them no different than my other patients. I don't see too many, but I might see one a week. And these people, you know, after talking with them you can kind of tell, but they are people who have no money. Some of my best patients have been some, you know, migrant workers who pay in 20 dollar bills, but they come in to their appointments on time, they are grateful, they thank you. They bring their kids to translate for them. They always pay. You know, it is like I love working with these guys because they value what I do. You know, versus the doctor who is always busy. He is an ER physician. He has got more than enough money. His wife is a pediatrician. But he will miss appointments here and there and other things. It is just like, that guy doesn't value what I do, even though he could pay double and not even think about it.

Howard Farran: Yeah, I am across the street from the Guadalupe Indian Reservation where there are 5,000 legals and 20,000 illegals with no dentist. I mean, this is so poor the Catholic Church there only has a nun. There is not even a priest there. And they are the nicest sector of my practice. The hooty-tooty rich people are the biggest pain in my butt, and they are the most grateful people. They are the ones who come back the next day with homemade tamales and this and that. And I figured it out of 27 years, the reason the migrant workers are so amazing is because Mexico has 110 million people and the ten million that made it here, that is the most ambitious, cream of the crop from Mexico. We didn't see the ten million laziest people in Mexico, we got the ten million cream of the crop who said, "I want a better world and I am willing to move and work hard and get the American dream." And they are just amazing. So let's switch to clinical endo. So what do you think is the low-hanging fruit? So let's aim this conversation at a dentist that is ten years out of school, he did 15 canals or she did 15 canals of endo in dental school. She probably does a root canal every other day. She has been practicing for ten years. Give her the low-hanging fruit of what she needs to know on endo.

Scott Weed: Well, here is what I did. I was a general dentist. And so I would go on DentalTown and I would find guys that when they would talk, it resonated with me. So someone like Rod Tataryn. He practices up in Spokane. And he actually, as I got to know him over the years and he got to see my posts

and other things, he wrote me a letter of recommendation for my endodontic program. And so being able to develop that, so I would go back and I would read some of his historical stuff and I would get some really good information. You know, I have written a lot of good things on DentalTown and a lot of things for the general dentist, you know, simple things like a simple piece of advice. When you are cleaning out decay, don't even think about the endo. You know, I see these guys. I will get cases referred to me that they couldn't complete. And they tried to do an endo access and just botched it. Yet there is all of this decay on the tooth and if they had only cleaned out the decay first, they didn't have to access the tooth. Mother Nature did it for them. And so you pick up pearls like that. You could read it at lunch on your computer, go to your 1 PM endo appointment and do it. You know, we are not doing these avant-garde brain surgeries that we have never done before. You know, we all do dentistry. And so there are simple things, you know, like you are accessing the lower incisor. You know, hey put a wedge on either side of the tooth so that you can see where the distal and the mesial aspect of the tooth is. And then if you have clamped that tooth, if you drill right for the center of the tines of the clamp and right in between the two wedges, you can't miss. But those things are all over on DentalTown. Those are just little clinical pearls. You know, that is what I do every day.

Howard Farran: I completely agree. I remember when I got out of school, you know, you would have a molar and the working lengths might be like, 25 and 21 and 23. But then when you go in there and change gears and first you would prepare and remove all of the decay, all of the old filling, everything has to come out. Then I prepare for the final restoration. And sometimes at that point you realize this tooth isn't even salvageable. By the time you took out all of the decay and prepared the restoration, if I don't have a 2 millimeter of ferrule all the way around the tooth, then I am thinking it is time for an implant. And then when you prepare the tooth and remove all of the decay and lower those uneven cusps and pits and fissures, then it seems like most of your working lengths are all the same number. Would you agree with that?

Scott Weed: Oh yeah, and I will tell you what…

Howard Farran: Because when you pull the teeth, the roots are all at the end together.

Scott Weed: Yeah, well have you ever used one of those poles to change light bulbs, where you have got to like, you know, a light bulb that is 16 feet up is a lot harder to work on than one that is eight feet up. And so by doing the occlusal reduction first, I will tell you, I would rather work with 19 millimeter lengths than 23 millimeter lengths, you know, or 21 millimeter lengths than 23 or something. So you take off a millimeter of two off of the top and you have shortened your lengths a little bit. You have also given yourself a really nice spot to measure against. You are not sitting there going, well, it is right where it kind of meets this angle and I am going to measure it right to there. And then you bring it back next visit and it says mesiobuccal cusp and you are going, "Uh, where on the cusp?" You know?

Howard Farran: Yeah. Let me ask you a question. They have measuring lengths lasered in on the files. You know the threads are going to stop at about 16 millimeters, then we have got an 18, 19, 20, a 22, a 24. I see dentists using the little rubber stopper. And I always think, well when you are filing, that could

get bumped and moved. Do you use a rubber stopper than could get bumped and moved or are you looking at the laser guided marks on the file?

Scott Weed: If you look at me, when I am doing, I use a rubber stopper for when I am taking my lengths obviously, because I use a K file for that.

Howard Farran: Explain to the viewers, and we also have viewers around the world. These are downloaded in every country, there are 220 countries on earth where these are downloaded. Explain what a K file is. And why do you use it for working lengths?

Scott Weed: So it is just standard. They are cheap. It is just standard twisted stainless steel O2 tapered file. K, it was patented. I am giving a lecture to the International Academy of Endodontics in January. It is a really high-end lecture. And I am researching all of the patents on endodontic files, because there is some litigation ongoing right now, everyone probably knows about EdgeEndo.

Howard Farran: Is that out of Albuquerque?

Scott Weed: That is where, I don't know where their corporate headquarters are, but yes, Dr. Goodis who had developed the guidance system. And his guidance company won, he won a huge lawsuit against Tulsa, which is part of Dentsply, because they had kind of systematically tried to bad mouth his business by, their reps were telling people they weren't taking orders anymore, that they had closed down. And he was able to prove that and I think he ended up with a 40 million settlement. Pretty good payday.

Howard Farran: I thought Tulsa Dental, which is part Dentsply, I thought owned all of the patents for rotary.

Scott Weed: Not all of them. So what they have recently done, they have recently secured a patent I think in May of this year on heat treatment, which people have been doing for years. And so I am not a patent attorney, and so I don't know how that world works. But they are using that now to sue Edge. Now why they are not suing SS White, who makes the V-Taper, or any of these other companies who are heat treating files or other things, I don't know. So there is some current ligation there.

Howard Farran: But when you are doing endo, are you using the rubber stopper or are you looking at the laser guided marks?

Scott Weed: So when I am doing my final shape with my rotary, I usually do not have the stopper on there.

Howard Farran: Is that because you can bump it and move it?

Scott Weed: Yeah, and I measured to the quarter millimeter. And so I will have like a 20 and a quarter as my length and I know where that is.

Howard Farran: And where is your length? Are you an apical barbarian who likes to make sure they get to the end and like a puff of sealer out the apex or are you a pulp lover where you like to stop a half millimeter short and keep all of that sealer inside the tooth?

Scott Weed: I don't think sealer in the periapical tissues helps your case. You know, they always say gutta percha won't hurt you and that is fine. But therapeutically, the bone outside the tooth doesn't need sealer. You know, it is not a, hey give me sealer. So in my cases you are not going to see huge sealer puffs and things, simply because I don't pour buckets of sealer into the canals. And I make sure I spend a lot of time fitting my cones. And I think if your cones fit really well, there is not going to be much sealer. But anyway, no, I use this Root ZX, just you know any apex will do it.

Howard Farran: By J. Morita out of Japan.

Scott Weed: Yeah.

Howard Farran: Did you visit them while you were in Okinawa?

Scott Weed: No, I didn't. But I went up to Tokyo. I won a poster contest up there, that was kind of one of my claims to fame in the Navy.

Howard Farran: What kind of poster contest?

Scott Weed: It was on doing temporaries for veneers, actually.

Howard Farran: Wow. Yeah, I think J. Morita is in Tokyo, along with GC, General Chemical.

Scott Weed: I will tell you, I use…

Howard Farran: So do you ever see the Root ZX, which I explain to the patient, it is like underwater submarine sonar.

Scott Weed: Yeah.

Howard Farran: Do you ever see where the J. Morita Root ZX says this is the length and you do it to the length, but then when you take that two dimensional radiograph it looks like it is short?

Scott Weed: Yeah, sometimes. You know, I have really come to trust that thing. I hardly take radiographs to even check it anymore. But I have developed a sense, like okay, just yesterday I am treating a case, mesial root lower molar, one of the canals is 20 and a half, the other canal is 18 and a half. And the distal canal is a 20 and everything looks like it is right, but I am thinking, that 18 and a half seems a little funny. So I clean everything out with my rotaries then I go back in a remeasure it, 20. So I went with the 20. But you know, there will be times when something is wrong.

Howard Farran: And that is my red flag. If you do the final preparation first and you have got a molar with three or four canals, you know, if one of them is two millimeters different, that is a red flag.

Scott Weed: Yeah, and you know, another kind of piece of advice, something I learned early on in my career is that you have to deprogram your mind from the way we were indoctrinated in school. You know, ever since kindergarten we learned that there is this right answer that we have to get. And so we somehow want to get the right answer. And so when you are fitting your cones or whatever, you know the length is 20 and it is going to 19, but you are kind of like, well if I push it a little more it will go to 20. That is cheating. That is cheating, and you know what, you are going to take your final x-ray and it is going to look short. And so that is where you say, "You know what? I am going to stop. I am going to re-clean it again, flush it out again and I am going to fit my cone again until it is at 20. I am not going to fool myself into thinking that it might be there or it is almost there. I am going to make it be there."

Howard Farran: So Scott, tell me this. We hear all kinds of things. I want you to tell me the top three reasons a root canal fails and I want to ask you, is the top reason you missed a canal? And does that mean you should be looking at going from 2-D radiographs to 3-D, CBCT cones beam, what is it?

Scott Weed: Yeah, cone beam CT, yeah.

Howard Farran: And are you using 3-D?

Scott Weed: Every day.

Howard Farran: Every day. And which one are you using?

Scott Weed: I have got the Kodak 9000 or Carestream 9000.

Howard Farran: That is what I have got.

Scott Weed: So it is a focused field, 76 micron voxel size. For what I do, great machine.

Howard Farran: Now I sure wish you would make us an online CE course for DentalTown or even a series on that. Would you ever?

Scott Weed: I would do it. I will tell you, I practiced for over a year with John Khademi, and if you have been on DentalTown or been on EndoFiles, you see his pin threads. John is on the bleeding edge of thinking in endodontics and in dentistry in general. But he is a bonafide expert in that. And working with him, we spent a lot of time studying, lecturing on, discussing this technology. And I think we understand it in a way and yeah, we need to get some stuff together.

Howard Farran: Would you do a course or curriculum on this?

Scott Weed: Yeah, let's do it.

Howard Farran: So tell me, so is missed canal the number one cause of root canal failure?

Scott Weed: I don't think so.

Howard Farran: And with CBCT, where is the low-hanging fruit? I mean, there is MB2, would the next be the distal canal of a second molar having two?

Scott Weed: You know, people argue. When cone beam first came out, a lot of endodontists argued with it. It was the same thing, whenever new technology comes out you are going to have people who fight it. You know, when the microscope came out, people said, "Listen, we have been doing root canals for decades without a microscope. I don't need that." You know, "We have been driving cars forever without power steering. I don't need that." Same thing. So with cone beam, it was like I can find MB2s without the cone beam. That is right. But I can't tell you how much more conservative it makes me, because it I know exactly where it is, if I know it is 3 millimeters and between the palatal MB canal, if it is off by 40 degrees and it is 3 millimeters this way, I can find it fast. I can find it accurately without any carnage. And I can find it confidently and I am not sitting there going, "I wonder if there is anything else in here." You know, the worst thing you can do is drill around looking for something. That would, I think, be the number one reason for endo failure is structural failure of the tooth.

Howard Farran: So too aggressive of an endo access. What would you say the most common _____ **37:51** taper is, 0.04 or 0.06? What would you say?

Scott Weed: It is changing. You know, and for me personally, the taper is less important than the maximum diameter of the file. So you take a certain file like a ProTaper file, which hey we can bash that file because it doesn't even have a patent anymore. Henry Schein is making it, they have a knock off ProTaper that is identical. I don't know why you wouldn't buy that one simply because it is cheaper. If you like the file, and it is a great file, I used it for years. But it goes to 1.2 millimeters thick at its fattest point.

Howard Farran: Now watch it, I am 5'7" and 211 and a half. So watch the fat boy jokes.

Scott Weed: Yeah, exactly.

Howard Farran: So you are saying I am shaped like a ProTaper, that is what I am hearing.

Scott Weed: Well the ProTaper, I wish that they made that file that stopped at 0.8 millimeters. And we have told them for years, we have said, "Make a ProTaper light. Make one that is the exact same file, but then stops getting fatter." Because it is an aggressive file, so endodontists like it because it is faster.

Howard Farran: Why, I have always wondered, I own dentisttown.com. But I went with DentalTown, because I always thought, you know, I can do amazing dentistry, because there are 1,000 companies making digital x-rays and Root ZX and CBCTs and I want to have these conversations with them. But they just don't seem to engage. I mean, it seems like when you tell a dental company, "Look, your product is red and everyone wants it blue." They are like, "Well, we are selling red."

Scott Weed: That is right. You know what, we found something different. And you know, I am not getting paid or anything to say this, but SS White picked up Guidance Endodontics. They picked up that file.

Howard Farran: SS White picked up Guidance Endodontics? Now they are out of Denver, Colorado, right?

Scott Weed: No, Guidance is same as Edge. It is Chuck Goodis down in Albuquerque, New Mexico.

Howard Farran: Okay, Chuck Goodis. So G-O-O-D-I-S.

Scott Weed: So he made the V Taper. So with the law suit and everything, they kind of went defunct for a while. And then SS White picked that file up and is now manufacturing it. And so SS White, everyone knows them for their burs, you know, the Piranha.

Howard Farran: They are out of Denver?

Scott Weed: Lakewood, New Jersey, is SS White.

Howard Farran: SS White is Lakewood, New Jersey?

Scott Weed: Yeah.

Howard Farran: Okay.

Scott Weed: Yeah, so their website used to be SS White Burs, and they have recently changed to SS White Dental, simply because they have branched into more things now. So they started making, you know, they were making some fissurotomy burs for Dr. David Clark up in Tacoma, Washington. And David is really big on the conservative movement and biometrics and what is the term, bio_____. And so he and John Khademi got together and said, "What if we could take these tiny little fissurotomy tips and put them on a long shake and use them for troughing open MB2 canals, opening calcified canals, anterior access." So they went to SS White and SS White is like, "Sure, what do you want us to make?" And so they have recruited about, I don't know, ten or twelve of us. We are on a key opinion leaders panel for SS White for their endodontic arm. And, you know, we tell them stuff and they make it. We say, "Hey, do you know what? Can you take these V Taper files and can you heat treat them?" And so I get a package in the mail a couple of weeks later with V Tapers that are all sooty and black. It is like they put them in the fire. And they are a prototype, so here try these out. They are amazing. And we are like, "Hey, can you make us a 22 instead of a 20? You know, there are 20, 20. Can you make us a 22?" They make a 22. And so they have always been message first, product second. And they actually listen to us.

Howard Farran: So all of your 300 rpm _____ files are from SS White?

Scott Weed: Yeah. Well, I have a couple others, but yeah it is pretty much. That is my bread and butter.

Howard Farran: And that is the Guidance or the V Taper?

Scott Weed: It is called V Taper.

Howard Farran: Okay, that is the V Taper. What was the Guidance?

Scott Weed: Guidance was the company.

Howard Farran: Guidance was the company with Chuck Goodis out of Albuquerque and then during his lawsuit, he got SS White to make V Tapers? And you like that brand?

Scott Weed: _____ hand over the baton, but SS White, you know some people out there are inside and they could tell you.

Howard Farran: So you like the V Taper because what I am hearing you say is that the number one cause of endodontic failure is too aggressive of tooth preparation and reduction. So we have a structural, mechanical engineering collapse and you like the V Taper because it stops at a 0.8 millimeter width.

Scott Weed: That is right, the 20-06. It is the 20V06, it has got a variable taper on it, so it kind of tapers more than tapers back, like a missile or something. So it gives you some, you know, people talk about deep shape. It gives you a little bit of deep shape out there without hogging out the top of the root. Because when you think about it, the only reason they hogged out the top of the root in older times is because they had carbon steel files. They weren't flexible. And so if you wanted to avoid apical perforations and other mishaps, you did coronal enlargement. And then when they came out with the first rotary files, they were like, "Hey, why don't we just build the shape that we have been doing with hand files?" It is the perfect example of a legacy concept. Legacy technology, you know, in today's world. And if you study business, business is replete with successful companies making very bad moves because they couldn't separate themselves from these old concepts.

Howard Farran: Well, you know if you look at the list of the Fortune 500 traded on the New York Stock Exchange in 1900, only one company was still there in 2000. That was GE. So the other 499 died. But let me ask you another question about that taper, because another big debate of lengths on our listener's mind is some people want to post on every tooth. You know, you can't, you have got to put a final post. Some people put one or two posts. If you have a 2 millimeter ferrule, meaning your margin for the final restoration is at least 2 millimeters in tooth structure all the way around, tell me about a post. When I say a post, what does your amazing mind start thinking?

Scott Weed: So I was just looking at the catalogue this morning. I am off work today, but I had to come in to take care of a few things. And I had to make and check over an order and I am looking at the post section. And I just cringe when I see most of these posts. You see some of these big auger screw posts, the ones that are split down the middle. I mean, when you think about that one, as it closes, now you have got an oval and as you twist it, it is just going to split the root. So you look at all of these concepts and if you can place a post passively that fits the hold that is already there, then what is the downside? What is the downside? I mean, people say, "Oh, I can't retreat the case." I can drill right through a post. I have got instruments in the accuracy, I can drill down 13 millimeters and just drill that thing out. And so I don't care about retreating a case, or you can do a surgery. But, you know, if you are going to drill the hole bigger to make it stronger, that is a little iffy. And if you are going to rely only on the post because you have no ferrule, it better be in a case that is a poor implant site. You know, the worse the implant site, the more aggressive you have got to be. Or you know you have one of these old ladies who has got osteoporosis, she has been on bisphosphonates for ten years, you know, you pull a tooth on her

and it takes a year to heal. Yeah, I might be a little more aggressive on her, because I don't know if I want to do an implant on her. So there are some cases where you kind of have to.

Howard Farran: And go into a little more detail on that, because a lot of dentists are missing that on health histories and there are some dentists getting into some trouble. This is a drug that is being sold by, what is it, Sally Fields, Boniva?

Scott Weed: Which one, the bisphosphonate drugs?

Howard Farran: Boniva, isn't that the drug you are talking about, Boniva?

Scott Weed: There are a whole class of them and every clinician, it would be well worth their while to research the issues. The oral surgeons have some policy statements, if you go to their website and you look at some of their statements on it. You know, some of these cases where they get the osteonecrosis where they will pull a tooth and it will just spread and they just can't get a grip on it, those are nasty cases, but they are not the most common. The most common is you will pull a tooth and it just doesn't heal. I have got a lady, check this out, I put a rubber dam clamp on her lower canine. The only reason I did endo was because it looked a little funny, but it didn't look that bad and it didn't respond to cold, all of the other teeth did. I couldn't figure out what was going on with it and she was sent for endo. And I put the rubber dam clamp on it and the whole tooth came out. And I thought, "Woah, what am I to do?" And I look at it, it really looks fine. So I put it back in and I splinted it. I opened it up and filled it with calcium hydroxide. Well, she kind of develops this little infection down here and it just won't go away. I have her on antibiotics, I am doing everything I can, kitchen sink. I ended up finally just pulling the tooth. That was about six months ago. I just pulled a chunk of bone out of there yesterday. And she is only now that I am starting to feel good about her case. But she has got a defect here that, you know. And so she is a patient that I am going to think twice about putting an implant in, because we biopsied it, I sent it off to OUP to the lab, you know, osteomyelitis with some bacterial colonies present. So as we are living longer, people get sicker. We are living with disease and we don't heal as well.

Howard Farran: Okay, so number one cause of root canal failure is structural problems over preparation and not enough tooth. What would say number two is?

Scott Weed: Probably, yeah, inadequate treatment, you know, where you get these failures where you missed a lingual canal on a lower incisor.

Howard Farran: So that would be solved by going to 3-D radiographs? So you are saying number two is missed canal?

Scott Weed: Yeah, and missed anatomy can be fixed. You know, I can't unhog a tooth. I can't put dentin back. But I can go back in a find a canal. So from a sin standpoint, it is a greater sin to weaken a tooth than it is to miss a canal.

Howard Farran: Yeah, and what percent, I know that there is no answer for this, but there are 2 million dentists around the world. Let's just talk about the 150,000 in the United States, because you would know that sample better. What percent of root canals done would you say missed a canal?

Scott Weed: I would say, well let's just talk MB2 canals. I bet you that they are missed at least half of the time. Probably a little more than that, probably 60% of the time.

Howard Farran: So half of the MB2s are missed. What would be the most likely next missed canal?

Scott Weed: Distal buccal canals on the lower molars, those are missed all of the time.

Howard Farran: Distal buccal canals, because the distal root of mandibular molars have two canals, sometimes one canal.

Scott Weed: And as you go back in the jaw, the teeth flare a little bit. And dentists have, and I spoke at a Townie meeting a couple of years ago and I showed a picture of gravitropism, of how a plant will grow opposite gravity. And then there was a little video and then they tipped the plant and then it corrected itself. And I have always maintained that dentists have an uncanny ability to drill toward gravity. And so when you have a tooth that is tipped a little bit like this, they are going to drill down and they are going to find the lingual canal and they are going to miss that buccal canal.

Howard Farran: So what percent of mandibular buccal canals would you say? You said 50% MB2s.

Scott Weed: Of those, I would say 30% of those get missed.

Howard Farran: Okay, and what would be the third? Would it be the lingual mandibular incisors?

Scott Weed: Those are missed a lot. I bet you those are missed…

Howard Farran: Did I put that seed in your head or was that number three?

Scott Weed: No, those are missed. The thing is though, you don't see a lot of lower incisor endo.

Howard Farran: And why is that, just because you don't see a lot of incisor decay?

Scott Weed: As a specialist, that stuff gets… Everyone thinks that premolars in the head are easy. And so, you know, I get a lot of second molars. And so we get really good at doing those. But with the anterior stuff, and so the prevalence of when you look at people with partials, they usually have all of their lower centrals. You know, so the other ones they had problems with. So you don't see those as much. But I would say those are missed almost all of the time. And it has to do with doing the lingual access and then having to get back into a lingual canal. So you are going to get the access, find the chamber, get in the facial canal, be done when there is a split going back in there. So if you upright the access, come through the incisal, and that is what that EG Bur, the EndoGuide bur that SS White makes, that is ideal for that. It is a tiny little skinny bur. You can go straight down through the top or maybe just lingual to the top, preserve the facial enamel for aesthetics, because it is enamel. You can bond really well to it. You can repair it. You know, so if you just go right through the lingual straight down, then you can take that fork in the road a lot easier.

Howard Farran: So your mandibular incisor endo access is through the facial?

Scott Weed: Incisal.

Howard Farran: Through the incisal.

Scott Weed: Yeah, so usually I will go right through, especially if there is attrition and you have a nice little table of tooth up there. Boom, I am right through the middle.

Howard Farran: That is amazing. Okay, so we talked about number one structural, number two missed canals. What would number three be?

Scott Weed: Three is, well leakage. And that might even be two.

Howard Farran: From the final restoration?

Scott Weed: Yeah, because you know, you want to do is easier. When you talk about continuing education, if I give a course on how to do some nuance better and it is going to be really difficult, I am going to have only a handful of people show up to that. But if I give a class on how to make a million dollars, how to do crowns easier, everyone wants to hear that. And so consequently you have got people doing buildups, which are basically like taking a glass hammer and squirting it in the hole and saying, "Alright, we are done," with a bunch of schmutz all over the side. All of my retreats, my assistants, they are under the microscope with me on a side arm. They always laugh when we get into the chamber, because all of that bonded resin, it is not bonded. It all just flakes away. There is gutta percha on the sides. There are sealers, you know, and it is just a mess. And so taking the time to clean up the chamber when you are done and bond something in there with a proper technique I think is going to…

Howard Farran: So yeah, there is sealer. So you recommend you have got to get all of that sealer out before you are going to bond, right?

Scott Weed: Yeah, I even got one of those Danville microetchers.

Howard Farran: That is what I use and my assistants always get mad because it makes a mess. I am like, I sandblast it out.

Scott Weed: You know what you do, I have got two high speeds. So put two of them in there, or high volume suctions.

Howard Farran: So we are talking about we are both in love with the Danville microetcher, it is a little low cost thing. It hooks up on an air deal. It throws out aluminum silicate or aluminum?

Scott Weed: Aluminum oxide.

Howard Farran: Aluminum oxide and it just frosts it clean so you are not bonding to a bunch of sealer.

Scott Weed: Yeah, so I get done with my endo and, you know, your assistant gets trained. As soon as I am done with searing off my gutta percha on the canals, I put my hand open and I get a little micro scrubby with a bunch of alcohol on it. I scrub it out. I might even scrub it a couple of times. Then I

scrub it with some etch and it is getting pretty clean. And then once it is really clean, I will hit it with that microetcher and just blast the last bit off of there.

Howard Farran: Okay, what is a better seal though, bonding of done correctly, get all of the sealer out, microetch it out, bonding done or just amalgam? Some people believe the amalgam oxidizes and expands and is a better seal.

Scott Weed: Yeah, and that is not even a matter of belief. Amalgam is the most studied material in dentistry. And when you look at all of the things out there, and I just get a kick out of people who say, "Well, I would rather use the white stuff. It is safer." And I am like, alright, you want to use some bisphenol A and all of these chemicals. I mean, it is all chemical.

Howard Farran: And a barrel of sealer, a barrel of something like ClearFill SE or Optibond is about a million dollars.

Scott Weed: Oh yeah.

Howard Farran: And a barrel of amalgam would be about ten grand.

Scott Weed: Yeah, amalgam, I use amalgam all of the time. All of the time. And here is how I look at it, if you look at bonding, if you want to really study it, what you are going to find out is all of these resin tags, the resin tags only contribute about 15% to that bond strength. You know, you are bonding the collagen and other things. And I am sorry, but collagen is a protein and proteins aren't indefinitely, you know, they are not forever materials. It is not a diamond, you know? So those bonds end up breaking down and end up leaking. And another thing, bond strength does not mean no leakage. Think about Legos have pretty strong shear strength. But if you build a bowl out of Legos, you are not going to eat your cereal out of it. So resins do leak over time. You are working in a hole with an impossible C factor. It is going to shrink, it is going to pull away. With amalgam though, over time, you do get the oxidation, even with high copper. And so I think amalgam improves with time while resin could possibly degrade with time.

Howard Farran: I absolutely agree. So tell me this, there is a Cerac revolution, probably 10%, 15%, I see numbers 8%, 12%, 15% are doing Ceracs. As an endodontist, if we do 100 PFMs on a maxillary first molar, five years later, how many of those are going to be dead and need a root canal? And is there any difference in what you are seeing with the Ceracs? Are they causing them to die more or less? Some people say they die less because now in one appointment you don't have a leaking temporary for two weeks with the bacteria inflammatory changes.

Scott Weed: That is just all people talking. If you really want a real answer, what you have got to do is you have got to do a randomized study for a long period of time on a lot of people, and no one is going to do that study. You know, and you can't look back at your cases either, because it is just like they look at root canals. They say are large shapes better than small shapes or overfills versus underfills? Sometimes there are features of a case that lend to an overfill. No one tries to overfill. No one tries to over prep a tooth, but it happens. And it happens more with a more aggressive prep technique than

with a less aggressive prep technique. You know, the classic gold, gold onlay, I have got a few Tucker guys, some USC grads, some older guys. Their gold work has been in their mouth since the 60s on these patients that I see. And cemented with zinc phosphate. You know, we don't see stuff today that lasts like that.

Howard Farran: I have seven restorations in my mouth. They are all gold. And I just had one small occlusal on a bicuspid and I chose amalgam.

Scott Weed: Yeah, I have got amalgam. I had four resins placed in 1996. And there is one of them left and one has been replaced twice. And I haven't had any new decay since then.

Howard Farran: And when you tell a dentist, they will say, "My overhead is high." I will say, "Well, how about just on the nonvisible molars you go back to a restoration like amalgam that lasts 38 years and it is a tenth of the cost," and they look at you like you are crazy. Just crazy.

Scott Weed: It really is an amazing material. I will tell you, _____ has an article, it is a classic from the early '90s and it was reprinted in like, 2005, where he talked about it, beautifully written. It is one of my favorite articles. But you know, he talks about a restoration. He says when you just slap a material in the hole with no contour, you are not restoring what was lost. He says you are just filling a hole. He says a true restoration is going to restore the contour, it is going to restore the function and all of this. That is a dying art. But I think if dentists focused more on some of those things, they would enjoy their job a lot better, because I do. You know, I do a lot of big buildups. I am replacing cusps and other things. And I take my time and I carve that amalgam really nice and I take a picture of it. It is kind of my trademark, you know?

Howard Farran: Well, that was the fastest hour interview I have ever done on a podcast. You have an amazing mind. Thank you Scott, so much for giving us an hour of your time.

Scott Weed: Thank you, Howard.

Howard Farran: I would love if you, thanks for lecturing at Townie, I hope you do it again. I hope you create some online CEs. Everybody needs to listen to you more and more and more. And I also want to tell you that I was in four continents last month.

Scott Weed: Wow.

Howard Farran: And in 29 days I was in four continents and I cannot tell you how many dental schools I have been into where their textbooks are 10 to 30 years old and the entire dental school is based off DentalTown. It is just amazing. A lot of these places, they don't even speak English, but they all read English on DentalTown and they say, "Well, I am not going to use a 10 or 20 year old textbook when this endo case by people like you was posted yesterday." And they just thank me all day long because it is free, and I say, "Don't thank me," it is guys like you who are sharing. You are educating dentists in cities you couldn't find on a map in countries you have probably never even heard of. And for that Scott, I thank you so much from the bottom of my heart.

Scott Weed: Thanks, Howard.

Howard Farran: Thank you for an hour and if you ever want to do this again, call me back.

Scott Weed: Alright.

Howard Farran: Alright, buddy. Have a great day.