00:44 Dr. D'Anne Rudden: Richard Feynman, a Nobel Prize winner in Physics once said, “Science is the belief in the ignorance of experts.”

Dr. Feynman was a remarkable educator: his lecture notes are still popular. He foresaw nanotechnology and quantum computing. He is even credited with identifying the cause of the Space Shuttle Challenger disaster.

So, let me put the Feynman’s quote in context: Science alone of all the subjects contains within itself the lesson of the danger of belief in the infallibility of the greatest teachers of the preceding generation.

When someone says, “Science teaches such and such,” he is using the word incorrectly.

Science doesn’t teach anything; experience teaches it.

If someone says to you, “Science has shown such and such,” you might ask, “How does science show it? How did the scientists find out? How? What? Where?”

It should not be “science has shown” but “this experiment, this effect, has shown.”

We live in a somewhat anti-scientific age in which almost all the turbulence of communications - words, books, television, internet information sources, social media, and so on - are unscientific.

It’s also been said that if you want to be an expert in practice rather than in name only, don’t be the person telling everyone what to do. Be the person asking all the questions.

Being an expert isn’t telling other people what you know.

Experts understand what questions to ask, and flexibly applying your knowledge to the specific situation at hand. Being an expert means providing sensible, highly contextual direction.

On the podcast this month, we are throwing questions to two of the professions leading experts in Forensic Audiology - otherwise known as “Expert Witnesses.”

Dr. Dennis Colucci has been in Audiology private practice in Southern California for more than 40 years, spending more than 20 years as a medical-legal expert for the industry and the legal professions. His expertise includes experience in testing and evaluating plaintiffs and defendants, expert reporting, Motions of Summary Judgement writing, depositions, and giving his expert opinions in Court. He has worked with petroleum manufacturing and nuclear power stations in hearing conservation and worker’s compensation determinations.

Dr. Dennis Colucci is a board-certified audiologist with 48 years of experience in clinical, industrial, military, and forensic audiology. He has been a private practice audiologist in Southern California for most of his career. He was the consulting audiologist for Chevron California for 13 years, and the San Onofre Nuclear Generating Station for 15 years, and British Petroleum for 10 years. He is responsible for developing the first fetal noise protection program in the petroleum industry in 2011. As an expert witness for more than 20 years, he worked for Fortune 500 companies, municipalities, government agencies, and legal practices.
Dr. Colucci's areas of specialty include acoustic trauma, blast injuries, noise-induced hearing loss, tinnitus, hyperacusis, CIPD, OSHA, VA disability, motor vehicle, and airplane accidents, ADA discrimination, malpractice, and complications of head and neck injuries. He has been engaged in more than 65 cases in federal and state courts providing independent medical examinations, motions of summary judgment, and testimony for depositions and trials.

His teaching expertise includes providing courses at the university level and guest lecturing at the house ear clinic and other venues including the California Academy of Audiology and AAA. His literary contributions include writing over 50 articles in the hearing journal and his column Hearing Matters, which he shares with Dr. Nina Krauss.

Dr. Robert Trainor is a board-certified audiologist with 46 years of audiology clinical practice ownership and has been a professor of audiology since 1975. Using his patient care experience and the in-depth investigation skills of an academic, he understands the needs of attorneys striving to reach a just settlement for their clients. Dr. Traynor has received specialized training as an expert witness from attorneys who coach experts on report writing, depositions, and trial testimony. To date, he has been involved in 56 cases, seven depositions, two trials, and one workman’s comp hearing involving hearing loss, tinnitus, audiology malpractice, and other audiovestibular issues. He currently has a book titled Forensic Audiology that will soon be published by Plural Publishing.

That is a lot of expertise.

Gentlemen, welcome to The Hearing Journal Podcast. I am looking forward to getting some of my questions answered naturally to spark more discovery for audiologists in this niche area of professional prowess.

Thanks for joining us.

06:00 Dr. Dennis Colucci: Thank you for asking us.

06:02 Dr. Robert Trainor: Yes, thanks for having us. After the introduction, my head has gotten quite a lot larger.

Thank you for that beautiful introduction for us, and we definitely appreciate the amplification of our careers.

06:24 Dr. D'Anne Rudden: Talk to us about what forensic audiology is. Can you give people a working definition of what forensic audiologists do? How does this fit within the realm of what you think audiology should be?

06:41 Dr. Dennis Colucci: Forensic audiology is the application of audio-vestibular science and technology to criminal and civil law. You’re taking all of your knowledge, skills, and abilities, and your background, then funneling these into a specific expert testimony for a specific type of cases.

07:03 Dr. Robert Trainor: I think, for me, forensic audiology is your whole career. All the training, all the special expertise, all the certifications, all you're licensing, and everything, are put into a great big funnel, goes right down to focus on a specific problem which is the case at hand. It's like looking at a just settlement, whether you're sitting on the side of the plaintiff, or you're sitting on the side of the defense.

07:38 Dr. D'Anne Rudden: Talk about some typical cases, because it sounds like you've both been involved in different areas of casework. Tell me a little bit about what you might see as a typical case that an audiology expert witness might be needed.
Dr. Dennis Colucci: The typical cases that you're going to see primarily are going to be related to hearing loss, and hearing accidents. There are other cases that are more complex, but airbag deployment and car crashes are a big part of most of the practices. As a result of that, many of them ended up being adjudicated because there are injuries to the ear and the vestibular system.

But those aren't the only cases. You can be involved in an airplane crash, you can be involved in malpractice cases where somebody performed a certain type of task that is beyond the standard of care, and you can be involved in adjudications, for injuries of different kinds, but a lot of times, you are going to be involved in head and neck injuries.

So, you're going to be in that realm where the person had a whiplash injury or hit their head or was pushed. It could be a problem, like an assault, or something like that.

Dr. Robert Trainor: I've had cases of bar fights where people feel like they were injured in this fight. We've had cases of a railroad crossing accident, where the individual in the vehicle actually passed away. What we did was, first, we look at the train horn and measured how loud the train horn was inside the car. Then, we look at how loud the radio inside the car is—I mean, there are a lot of variables that we have to look at, which was fascinating. I've learned so much from a clinic or when doing similar things or learning and working on new and other procedures.

Here, you'll be asked to review a case where you have to know how loud the car is or how loud it is at different speeds. You also have to know how loud a train horn is, and how much it's attenuated from the outside of the vehicle to the inside.

There are a number of cases where both Dennis and I have been involved such as the 3M litigation where the hearing protection devices for soldiers were actually defective that was proven in court.

I just want to make a plug for our distinguished colleague from Mississippi, Chris Bacavich, who was called the general expert or the main one for the 3M cases. He absolutely did a beautiful job of setting up the system for Audiology, and then the rest of us were following through with the things that were outlined by him. Right, Dennis?

Dr. Dennis Colucci: You can end up in a case of wrongful death, as far as being an audiologist and understanding how this works.

The case that I did was a backup alarm that malfunctioned. A truck in a construction zone continued to back up completely and ran over someone. Having to calculate why while knowing that the alarm didn't work, but if it did work, was there a time or a correct amount of sound that would have been generated if the backup alarm worked to alert the person to move out of the way? So, wrongful death cases are still in the bailiwick of what audiologists can do. Using science and calculating the differences, knowing what calculators to use, and what literature to cite.

Bob and I have to frequently include very long bibliographies in our exposé and opinions and being able to recite those in velvet is part of what you do as an expert. So, you better know the science because believe me, both sides will bring that up to you.

Dr. D'Anne Rudden: Right.

Dr. Robert Trainor: The hardest part of the whole process is the cross-examination. It is either in deposition
or in a trial. Most of us can read some things, digest the information, and present what's on the page. You'll learn the right formats, and so on. But the idea is to learn how to look at the issues. Another avenue by which a practitioner can see real benefits is to learn more aside from doing the routine work that you're doing all day.

Dennis, how much did both of us know about cinematography before we started the 3M cases?

We knew that there was some research for this and that, but we didn't know how to apply it to a specific situation. I know D'Anne you've experienced the same thing when people come in with normal hearing, but you don't understand their speech very well, and that's where colleagues need to pull out their high-frequency audiometry and the DPOAE to give detailed reports in those areas. I find it fascinating to learn new ways to explain what I have been listening to for over 40 years in a clinic.

14:04 Dr. Dennis Colucci: Although I had the opportunity to work with Arnie Starr, where I wrote an article in a Journal about Auditory Neuropathy; when it came time to regurgitate that in court and understand that to a much greater degree, listening to Lieberman, and going through research really helped us. So as a clinician, you're always doing research, you're always looking at things, especially if you are doing ABRs and EMGs, and CAPD, then you have really usable skills in the medical-legal arena.

14:42 Dr. D'Anne Rudden: If I'm someone listening to the podcast right now, and I'm sitting in my clinical office thinking to myself, "Gosh, that sounds so interesting, but I don't even know where to start," what would you guys give as advice for people to dip their toes into learning how to be an expert witness?

15:03 Dr. Robert Trainor: I'd say the first thing you have to do is to take a course from one of the companies that train expert witnesses. I used a company called Speak, but there are three or four other ones that do a good job. These are attorneys that not only teach you the basic things you need to know, but they will take some issues and digest them into how you set up your CV, and how you go about it. There are special courses on how to write reports, how to do depositions, and how to go to trial with the preparation necessary.

When you're sitting on the stand, and the attorney that retained you is presenting the case with a friendly kind of exchange and interaction, but on the other side, it's like an interrogation without being slapped in the face. It's a psychological thing. There is a skill to managing what that attorney is presenting to you. There are some great books out there that go over these things.

16:18 Dr. Dennis Colucci: And going further on that, regardless of which side actually ends up paying you, just remember one thing, you are your own independent expert whether you're being paid by the defense, or you're being paid by the plaintiff side. They are paying for your time; they're not paying for your opinion.

I have done cases where I have been on the defense side, and because of my testimony, they ended up paying hundreds of thousands of dollars, possibly millions of dollars on cases, even though I was on that side. Our job as expert witnesses are to retain that independent opinion, and the opinion must be based on knowledge, skills, abilities, background, and everything that we know. We must follow science because when it comes down to these inner ear cases, or cases of auditory neuropathy, or head injury, believe me, the ENT people in the neurology people are going to want to try to run this. They don't have to because we are our own independent specialists. We are our own doctors.

An important thing to remember is don't be afraid. They are not always right. If you're afraid that you might have conflicts with these people, then what they have presented is not always right. Bob and I will tell you that the information they have presented doesn't apply.
17:35 Dr. Robert Trainor: When presenting the main objective, we have to say, "This is what happened. This led to this, and here's the literature that supports that." You can't take one side or another. You have to remain as objective as possible, which can be a little harder, but it is imperative.

17:55 Dr. Dennis Colucci: For example, an ADA case where a person was treated badly by a company because they have a hearing loss. It's easy to fall into the trap of sympathizing with the individual when in reality, you're really not there to do that. You are there to say, "this is the way it is, these are the things in the variables, and these are the problems created by those variables." They can do whatever they need to do to amplify whatever those issues are.

18:28 Dr. D'Anne Rudden: Well, I can't believe that our time has gone so fast in the first segment.

Gentlemen, I'm so impressed with what you do every day, and I can't wait to dive a little deeper into the Aftershow, so we can pick apart and learn even more about how other audiologists can potentially go down the path that you've gone down. Thanks for being on The Hearing Journal podcast. I really appreciate it.

18:55 Dr. Dennis Colucci and Dr. Robert Trainor: Thanks for having us.

AFTERSHOW

00:44 Dr. D'Anne Rudden: We're back on The Hearing Journal podcast Aftershow with Dr. Dennis Colucci and Dr. Robert Traynor, our expert witnesses and forensic audiologists talking to us all about how we get involved in this. How do we learn from the path that they have already blazed? Help us to understand how this can become a very cool and lucrative area of expertise that you can develop in your professional life. How do I know if I make a good expert witness?

01:38 Dr. Dennis Colucci: You have to go back and look at your background. You're not going to be an expert in all areas, you're not going to have the simulator training, and you don't have to do a lot of ABRs, or maybe you're good at hearing conservation. That's an area that you can start in—that's where I started.

I was working with British Petroleum and Chevron at a nuclear power plant. They came along eventually, and they wanted me to start working with their worker's comp cases. It is where I started. It's a good place to start because it gives you a great background.

The worker's comp cases are different from the civil or criminal cases that we do. As I continued to move forward, there were attorneys who started getting involved. Eventually, they stop giving worker's comp cases and gave you civil cases, instead.

One of my first cases when I finally got to the level was the airbag case. I think Bob and I both agree that these are easier cases to do because you know the volume of space inside the car. The airbag goes off at 160-165 DB. You know the positioning of the person in the car, and which airbag went off first. You'd generally find that there's going to be symmetry in the hearing changes between the two ears when you are consistently more damaged than the other ear. The tinnitus may be on one side than the other.

There are certain things that will help you to get there. If you look at your expertise and your background, you
would say, "Yeah, I actually could do those cases." And I will tell all of you, you can do these cases.

03:29 Dr. Robert Trainor: Also, don't be afraid to ask for more testing. The defense sends out a request for a defense medical evaluation based on what they got from an average clinic which is 250 to 8000-hertz speech to scribbled, then if you're lucky, you may get some admittance and reflexes. Don't be afraid to ask for DPOAEs, don't be afraid to ask for ABRs, and don't be afraid to ask for high-frequency audiometry because that may throw some light on a case that really doesn't have a lot going on for it.

I can tell because Dennis and I collaborated on one case, and we said, "Well, we kind of like throw mud at the wall and hopefully hit the right spot." We had to do everything from pure tone air conduction all the way through ABRs and high-frequency audiometry and DPs, and everything. As it turned out, those were very important measurements for the resolution of the case. It's interesting because we were talking about a particular case, and the next thing we know, the attorney said we are working on the same case. It was pretty bizarre.

The idea is don't be afraid to ask for more testing if it is necessary. I would also say to suggest that it is essential to take an orientation course by the attorneys. There are courses like, How to start, build and run your own forensic practice. Those are absolutely great. They're expensive, but you make that back in the first cases.

05:21 Dr. Dennis Colucci: That's where you go next. As you look at it and start to think of what you charge with these kinds of things. Start by looking at the attorney's fees in your area.

This is no longer Medicare - Medical or any kind of audiology fee. This is a great rejuvenation of your practice by bringing it to a different level from where the public sees audiology. The real deal is we are considering ourselves Doctors of Audiology, and that's what forensic audiology does.

06:04 Dr. D'Anne Rudden: It forces you to not only sit on the expertise that maybe you have today, but it forces you to continue to learn and to develop your skill set.

06:19 Dr. Dennis Colucci: That's really true. As you continue to learn and do literature, you'll develop your own bibliographies, like a bibliography for an airbag case. You'll have a bibliography for a head injury. You can go back and recite the literature and just keep updating it. You're always on top of it, nobody challenges you. If they try to challenge you, there's really nowhere for them to go. Maybe Bob can talk about Daubert for us for a couple of seconds.

06:52 Dr. Robert Trainor: Before I do Daubert. I just want to say that the reason audiologists were not utilized very much in forensic audiology in the past deals with the fact that we were master's degree professionals, and the attorneys would rather have either a PhD or an ENT. The PhDs weren't that plentiful in audiology, that were interested in the legal stuff, so the ENTs took over a lot of the areas where we should be. Now that we have the Doctor of Audiology degree and clinicians, and people that already have political credentials or AUD and a Ph.D. as well. By the time we look at where we are these days with the profession, and where it has been, then now is the time for us to take our rightful place in the legal community, and so on.

In terms of the Daubert rule, it is how your testimony can be disallowed by the judge. The judge is now the gatekeeper in whether or not you can be an expert in a particular case. There are four parameters of the Daubert rule. The first is, you have to have a reliable expert testimony that must be based upon scientific fact and not subjective belief or opinion. It can't be like, "It just went off, and I think it happened, and now they got a hearing loss." You have to know details, be able to put the facts together, and support those details with good literature to be able to do it. It can't just be some sort of subjective idea.
The second one is, the expert must show that the basis for their testimony is objective. You’re not taking one side or the other side. Any attorney ever asked you to say, "Well, you know, I think we need to go this way and it doesn’t seem reasonable." You cannot take that course, you have to be objective, and go with the literature and your experience.

The third component is a valid scientific relationship that must be established between the Science evidence and the issue to be tried. Whatever the issue is, you have to have a valid scientific correlation with the issue to be tried before you’re going to be allowed to present your objective evidence.

And the fourth one is the theory or technique outside the context of litigation. The question is, is this something that really needs to be litigated? It may be something that slapped you in the face and said, "Yes, this is something that’s just more common sense than it is in need of litigation."

So, those are the four parameters of the Daubert rule. They’re almost like the 10 commandments because if we don’t add, or if you make a mistake in any of those four, then your testimony will be disallowed by the judge, and the other side will likely win the case.

10:09 Dr. Dennis Colucci: It’s important because if you’re going to present the science, make sure it’s put in a cohesive manner so that the jury can understand it. And that brings us to another area of developing your report and working with attorneys in other various reports styles.

Generally, if you go to one of the courses, they’ll help you understand what the parameters are. It’s not something you would do in the clinic, as far as a report because they’re quite extensive. Some of our reports are quite lengthy from 40-50 pages, with documents after that. But remember, you’re charging by the hour, so there’s nothing lost here by providing an expert-level record.

10:57 Dr. D’Anne Rudden: What I’m hearing you say is that you’re not only just showing up to court? You’re writing paper, you’re writing your report, and they question you on your report in a deposition, then you might actually get to sit on the stand. That is a lot.

11:14 Dr. Dennis Colucci: Correct. As a matter of fact, most of the time, these are all finished at the time of the deposition. Very few of them actually end up going to court, although Bob and I will tell you that some of the cases that we’re working on now are going to court. Some of these are like an airplane crash, some are the 3M cases, and some are wrongful death things. Those are going to end up in court because you’re talking about millions of dollars.

In a regular case, when you’re starting out, and if you’re working with your local attorneys, and you’re doing reports that are more simple, if you haven’t had a lot of experience, or if somebody has slipped and falling hits their head, and a labyrinth concussion are more well defined. Just remember, when you come to them all the diagnoses are already in the chart. You’re not making a new diagnosis here because they’ve already been to the ER, they’ve seen the ENTs, they’ve been all around with all the different physicians, and all the other specialists in psychology and psychiatry, and everything. You get to put all those together and tell the story of how that will work into the science to show the nexus between the injury and the outcome.

12:35 Dr. Robert Trainor: In addition to that, you’re only going to be doing fewer criminal cases than civil cases. Criminal cases are for people that commit a crime, and civil cases are issues between people. The issues between people make up 97% of those cases and are going to settle without ever going into a deposition, or ever going to
court for sure.

Now, here's how a civil court case goes. Starts with a complaint that the individual files through their attorney, then someone has to answer that complaint within a certain period of time. From there, you move into the discovery stage where they use us a lot. We may be involved in helping to set up the complaint or answering a complaint, but generally, a discovery is when they find something out, and they send it to us to verify if it's real or imagined or whatever it is.

Discovery is a big component of what we do. In the discovery stage, there are three components called interrogatory where the attorney writes questions to the other side or you answer the questions from the other side. The second component is the deposition, where you go into a room with a court recorder, have you sign up for oath, as well as the attorney for the defense, and the attorney for the plaintiff. One of which may have retained you and it's you. One will be the friendly side, and one will be the cross-examination side. So, that's how the deposition goes, the same way as the trial.

The third component of the discovery stage is writing the report. The report usually comes before the deposition. In the discovery stage, you have interrogatories, reports, and deposition.

The next one is the motion stage which could happen at any time in the process, but after discovery, you find out more stuff. It is where they may produce some other motions.

15:01 Dr. Dennis Colucci: I think, we also have to remember as audiologists that not to be afraid to be attorneys, they're actually wonderful. I've been cross-examined by the U.S. Department of Justice and the state of California. There's really nothing to be afraid of here because you're the expert, they have no idea what you know. As you're running this, and you're there to help everyone regardless of which side it is on, to understand what the facts are about the case, how the Nexus has occurred, what the outcome of that was, what the rehabilitation has to be, the cost and any follow-up care. Your job is still as a clinician, but also as an investigator.

15:50 Dr. Robert Trainor: Any attorney worth our salt will spend a significant amount of time preparing you for a deposition or a trial. After the motion stages, is settled at a mediation, and that is where 97% of civil cases are in. The others might go to trial, which would be the next stage and the appeal after that. So, that is how civil cases go. The criminal cases kind of go similar, but it's just a little bit different.

16:22 Dr. D'Anne Rudden: Well, I think this sounds like an area of audiology that should have shed a lot more light on it because of how interesting it is to be able to take information and provide expertise. It's the reason why we all got into this in the first place. What a cool avenue for a lot of us who haven't given enough thought around.

So, I hope you have inspired a whole new generation of audiologists to jump into the legal arena with you, and that you're there to help mentor them. I think that's the other piece of that puzzle.

17:01 Dr. Dennis Colucci: Bob and I, and a couple of other colleagues are trying to spread the word about this because we see it as a very big area in that audiology should be engaged. As I'm getting older, I'm looking at him saying, "Well, how many more years am I going to do this?" Possibly, into my 80s. There's such a big door of possibilities for Audiology to expand. We're going to be giving classes and courses ongoing from now on.

17:37 Dr. D'Anne Rudden: Awesome!

17:38 Dr. Robert Trainor: We have a proposal for ADA. I don't know if they'll accept it or not, but we have a group
and an attorney that's going to be with us if indeed the proposal is accepted, and we'll see where all that goes.

17:54 Dr. D'Anne Rudden: Well, I look forward to being in the front row.

Thank you so much for coming on, talking about forensic audiology and what it means to be an expert witness, and even how to value ourselves. It's such an important conversation, and I look forward to hearing more from you guys in the future.

18:12 Dr. Dennis Colucci: Thank you.

18:13 Dr. Robert Trainor: Thank you.

18:15 END