The Creative Process of Designing Today's Movie Soundtracks

By Randy Thom, Paula Fairfield, and Mark Mangini with Brian Vessa

Edited by John Belton

The following is an edited transcript of an Audio Engineering Society workshop on sound design organized by Brian Vessa, Executive Director of Digital Audio Mastering at Sony Pictures, presented at the SMPTE Annual Technical Conference in Los Angeles, CA, on 20 October 2019.

Abstract

Sound designers Randy Thom, Paula Fairfield, and Mark Mangini talk with Brian Vessa about the importance of integrating discussions of sound design into the production process as early as preproduction, in order to take advantage of what sound can contribute to the realization of the narrative.

Brian Vessa:

The soundtrack allows filmmakers to create their own worlds and to tell stories within those worlds. Often ignored by both the audience and critics, the soundtrack plays a major role in directing the viewer's attention toward key story elements, providing crucial cues to the internal thoughts and experiences of the characters. The following conversation explores the work of a sound designer and provides a window for us into the methods and techniques used to tell stories with sound.

We have three wonderful sound designers, who talk about the creative process of designing today's movie soundtracks (**Fig. 1**). Paula Fairfield is a Canadian sound designer and supervising sound editor based in Los Angeles. She's the sound designer for the television mini-series, *Game of Thrones*, for which she was nominated for five Emmys and won the Emmy in 2015. She was also nominated thrice for the Emmy for her work in the television series, *The River* and *Lost*.

Mark Mangini is a sound designer for the Formosa Group, in Hollywood. He spent his entire 42-year career in Hollywood, imagining and composing altered sonic realities for motion pictures. He founded and managed Weddington Productions for 25 years. He, along with David White, won an Oscar in 2015 for Best Sound Editing for the movie *Mad Max: Fury Road*. He has been nominated for the Best Sound Editing Awards for his work in the movies *Star Trek IV: The Voyage Home*, *Aladdin*, *The Fifth Element*, and *Blade Runner 2049*. He also worked in *Gremlins*, *Raiders of the Lost Ark*, *Black Mass*, and *The Accountant*. He too is a musician, guitarist, and songwriter, like me. He had written songs for *Sex, Lies and Videotape* and *Star Trek IV.* He is a member of the Screen Actors Guild (SAG), SMPTE, and the American Society of Composers, Authors and Publishers (ASCAP). He is also a frequent lecturer in the education field.

Randy Thom is the director of Sound Design at Skywalker Sound. His credits include *Apocalypse Now, Return of the Jedi, Never Cry Wolf, Wild at Heart, Forrest Gump, Harry Potter and the Goblet of Fire, The Thin Blue Line, War of the Worlds, Coraline, How to Train Your Dragon, Ghost in the Shell,* and *Ratatouille*. He has been nominated for 15 Oscars, an Emmy, and a Grammy. He has received two Oscars for Best Sound Editing—one each for *The Right Stuff* and *The Incredibles*. He has worked with a diverse list of directors, including Francis Ford Coppola, Steven Spielberg, George Lucas, Robert Zemeckis, David Lynch, Guillermo del Toro, and John Waters, among others. He was honored with the Cinema Audio Society (CAS) Career Achievement Award in 2010 and the Motion Picture Sound Editors Career Achievement Award in 2014. His essay, "Designing a Movie for Sound," on film sound is used in courses taught in many universities.

The soundtrack in today's movies and TV series provides the sonic signature that identifies the content and

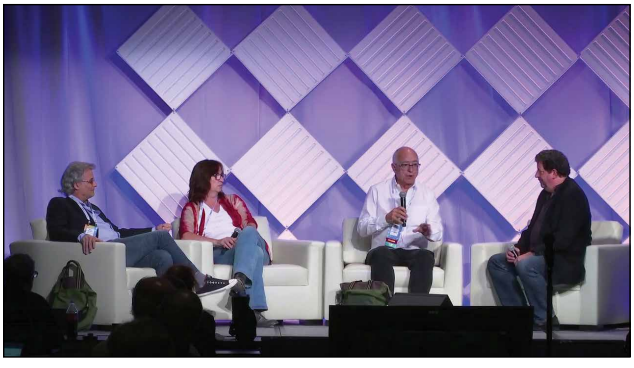

FIGURE 1. (L–R): Mark Mangini, Paula Fairchild, Randy Thom, and Brian Vessa.

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sets it apart from other similar content. A well-crafted soundtrack brings the viewer into the story and helps tell it viscerally, not just visually. With sound, viewers *feel* the story; they feel the intended emotion and the internal thoughts and experiences of the characters. The soundtrack can tell the story and convey the feeling, all by itself.

The role of a sound designer is to create a soundtrack that does all of this and more. The sound designer figures out how to tell the story with sound and creates the sounds to do it. Sound designers are extremely creative and apply their creativity to each project they take on. Each project has its own unique challenges, and the sound designer figures out what is needed and how to get it done. And of course, with today's shrinking time lines and budgets, the sound designers are expected to do all this within tight constraints, yet deliver something unique. Each and every project is unique and the sound designer needs to figure out how to create a signature sound that sets the content apart.

Randy will now present one of the last movies he worked on, which was *The Revenant*.

Randy Thom:

It's an honor to be here. It's the first time I've ever spoken in front of SMPTE audience, and it's quite an honor to talk about sound design, where it doesn't get talked about that often. For those of us who are fortunate enough to be able to see and hear, vision occupies most of our consciousness. Almost all of us are much better at analyzing visual images than sounds. The vocabulary for describing sounds is dwarfed by the number of words that are available to describe what we see. Nobody knows exactly why evolution has led humans in this direction of being predominately visual by nature, but here we are. And, I think, we have to admit that sound is a second-class citizen in the human consciousness, but sound has a secret weapon—stealth. Sounds sneak into the brain often barely noticed, almost never analyzed, certainly not thoroughly analyzed, and they work their way into our hearts through some form of magic. As any professional magician will tell you, the way to perfect a trick is to have a plan and to practice and keep practicing.

My notion of the future of media sound—the future of trying to figure out how to enhance the status of sound in media story telling—has not so much to do with technological innovation as it has to do with figuring out how to make sound part of that plan, and how to give sound opportunities to experiment. Three of the contemporary directors that I think are leading the charge in that direction are Mexican—Alfonso Cuaron, Guillermo del Toro, and Alejandro Iñárritu. I've worked for the latter two. While Guillermo del Toro was doing rewrites for the film, *Crimson Peak*, he actually asked me to submit sound ideas relevant to the story that he might be able to incorporate into the script.

This would not have happened, just a few years ago.; no director ever would have dreamt of saying, "Hey, maybe you have some ideas that I can incorporate into this script that will open doors to saying something more about who this character is, what this place is, what it feels like to be there, et cetera." So, I'm thrilled, after having been on the soap box for 30 years or so talking about the importance of getting sound involved early, that this stuff is finally happening. When I had an opportunity to work with Alejandro González Iñárritu on *The Revenant*, as soon as I had my first discussion with him, I knew that his approach to making films and sound in film, specifically, was very much akin to Francis Coppola's approach in *Apocalypse Now* and George Lucas' approach in the original *Star Wars* film, by which I mean they see sound as part of the DNA of the film. Sound is not merely a decoration that you add at the end of the project. Here I am, late in my career, really enthused that those kinds of things are happening.

I want to play a clip from *The Revenant*. In this sequence, a character played by Leonardo DiCaprio, encounters a mother bear, deep in the forest, and the mother bear has cubs. We know what often happens when you get too close to cubs when there is a mother bear around, and it very much happens to Mr. DiCaprio's character in spades. When I began working on this sequence, you don't see a bear at all because the bear is completely computer generated. What I saw was a guy dressed in what looked like a blue hazmat outfit with a bear head on, like a Halloween costume bear head, throwing Leo around on a forest floor (**Fig. 2**). And unfortunately for me, even at that point, Alejandro wanted some sense of what the bear was going to sound like. One of the most daunting things I've ever tried to do is to edit these bear sounds in sync with what this person in the blue Halloween costume is doing.

[The clip is screened]

The main thing that Iñárritu wanted the audience to feel about this sequence was that it was real. He wanted it to feel like a documentary. That's one of the reasons that there is no music in the sequence because even the most subtly and well done film music still, on some level, reminds you that you are watching a movie

IMAGE SCREENSHOT FROM CLIP.

FIGURE 2. *The Revenant* bear attack.

and that you are experiencing fiction, and so Alejandro thought that it would play better without any musical score, and I didn't argue with him. More specifically he wanted the bear, of course, to sound real. Luckily, I had a lot of recordings of bears available with me and so we used a lot of that material. We also made new recordings. The funny thing is that he was as interested in the sound of the bear walking around on the forest floor, the footsteps, as he was in the vocalizations because, as far as Alejandro was concerned, that was absolutely key to convincing you that this is real. He didn't want it to sound like Foley, which, in the way he used the term, meant sound artificial or contrived. Obviously, there is good Foley and bad Foley. Some Foley is amazing and totally convincing. Some is not so good and reminds you that you're watching a movie.

Brian Vessa:
Did you make changes to the sounds as you started to see the visual effects and how the bear was actually going to look?

Randy Thom:
It changed quite a bit after the "actual" bear started appearing on the screen. The timings of all the vocalizations had to change. The breaths are very important when you do creature's vocalizations in a film, whether it's for a dragon, a bear, or a horse. Most people think that all you do is the voice. But, in fact, it's the creature's breathing that often helps to sell it as being real, in some ways even more than the voice, and so the timing of the breaths and how the breaths segue into and then out of vocalizations into breaths was crucial and we had to keep adjusting that over time.

Paula Fairfield:
Having had to shepherd three badly behaved dragons for eight years [in *Game of Thrones*], I think this is a really important point. It's often not the voice, it's the body, it's the way it moves. As sound designers, one of the things that we look for is every opportunity for something sonic to tie sound to the picture, to tie it into it being real. We work in the space between the suspension of disbelief and the threshold of believability, which is where we now, as sound designers, need to take sequences like this, with bears or the dragons or whatever, to make you feel that you believe, because once you believe, then you forget that you are looking at something that's not real, and once you forget all that, then you're in the movie or in the series; you're into the physicality of a creature; in the case of the dragons [in *GoT*] (**Fig. 3**), it was the body, the scales, the wings. I spent more time on the wings than I spent on the vocals and that's what pulls you in and makes you believe. Because if you've got a really bitchin' vocal, but it's floating around and not anchored, it's not going to be as convincing as if you set up the whole environment.


IMAGE SCREENSHOT FROM CLIP.

FIGURE 3. *Games of Thrones* dragon.

... Basically, that bear literally came up and gave you a big hug and sucked you right into the film because of all the other stuff that was around it that you believe in.

Randy Thom:
Now might be a good time to make the point that, I think, most people who don't work in movies assume—that the director or the writer has a grand vision of what's going to happen—and they usually do. But they also assume that the director somehow, going in, knows all the specifics in advance and they never do. So, our job, analogous to the cinematographer's and the production designer's job, is to help the director and the editor of the film figure out what the movie should sound like, and it's always a process of discovery.

You make a few assumptions going in—sometimes those turn out to be BS and you have to abandon them—but it's absolutely a process of discovery. You never know what a creature is going to sound like when you begin working on the creature or what an environment is going to sound like when you begin the work.

Brian Vessa:
I completely agree. Let's take a quick step back and start with Mark. What got you into this business?

Mark Mangini:
I am of 100% Italian heritage and I know there is a little Geppetto in me, if you know the Pinocchio story. The art and the craft of sound is what satisfies me and drives me to the studio every day. I love making beautiful things and putting them up on the shelf. My shelf is a movie theater and having people pay to admire or own them and enjoy them, and that's about as simple a goal as I have in life—make beautiful things, do the best work I can do, and maybe the world responds to that.

Brian Vessa:
That's great. Paula, how about you?

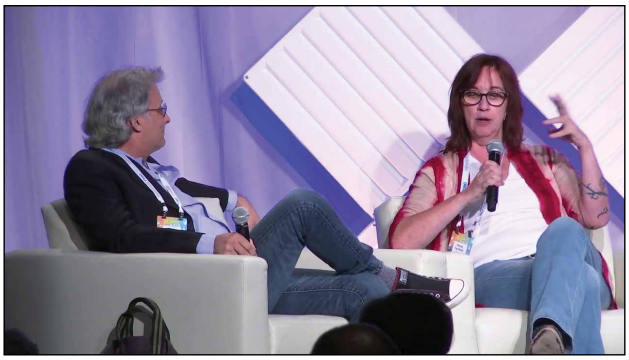

FIGURE 4. Mark Mangini and Paula Fairchild.

Paula Fairfield:

I came from an art background. I was introduced to the work of Robert Normandeau, who is a Canadian electro-acoustic music composer and who specializes in acousmatics, which he spoke about as "cinema for the ear." I had no film background, no sound background, a very radical arts school background, and I was making art that had more and more of a sound component. Something happened when I heard Robert's work and his concept of cinema for the ear. That you could tell a story that way was so amazing to me that I set off on this now 25-plus-year journey of learning cinematic sound (**Fig. 4**). Interesting enough, I've just circled back to my roots and have started making acousmatic works because I feel that I finally have some skills to possibly start doing that. But what's really weird about it is that after 25 years of working off picture and getting a vibe off the picture, it blew my mind, when I realize how difficult it was to remove the picture and be responsible for all the structure, all of everything. It's been great because it's stretching me and pushing me to new places.

I so badly wanted to make that kind of sound that I voyaged into cinematic sound and my love now is that. If I can convince you that dragons are real or something else, what a beautiful dream we get to enjoy together. And in this world that sucks right now, it's a horrible, horrible world of nasty bad things going on. We were talking a little while ago that fantasy genre is at an all-time high, right now. Why? Because we want to escape from this world and dream of other beautiful places together. I sometimes think it's not enough of a contribution to this world, but I do realize that it's a big contribution at times to allow a space for people to escape to and to get away from what we have to deal with on a daily basis.

Brian Vessa:

And Randy, how about you?

Randy Thom:

In school, I thought I wanted to be a physicist but I wasn't good enough at math to be a good physicist, so I dropped out of school and started … this in the late 1960s … roaming around the country basically being a hippie. I wandered into a radio station, a public radio station, and started volunteering and worked in several public radio stations. In the mid-1970s, I made a lucky phone call to Walter Murch who hired me to work on *Apocalypse Now*; that was my first film.

I worked on it for about a year and a half. That was my film school, and I couldn't have chosen a better film school than being on that film. I've just worked on one film after another since then and this is my 40th year at Skywalker Sound.

Brian Vessa:

Let's talk for a minute about the workflow of a film—pre-production, production, and post-production, and when you start to have discussions about what the content is going to be and what role sound is going to play. Hopefully, the sound designers are in on the workflow process from the beginning so that they can help move that along. I know that traditionally sound has been something that's like, "Oh yeah, we'll bring those guys in toward the end. The whole thing is all about the picture, so once the picture is all pretty much there, we'll bring the sound guys in and let them figure out if they can do anything with it." But now, the good, smart directors and producers are bringing the sound designers in early to help them with the overall vision of the film.

Mark Mangini:

You, kind of, said it all. Maybe the take away from that is this. We are old enough to have been brought into a sound community where the way this worked was prescribed. A film is written, directed and shot, edited, and then sound is applied at the very end. What Brian has described and what Randy, Paula and I all preach, is that we need to shift that paradigm because there are such incredible benefits in how sound can tell a story when it is considered as an integral part of the entire storytelling process from as early as the screenwriting phase. Like Randy, I've worked with three directors who would include me at an early stage, call me, and say, "I'm working on a scene, I'm having trouble getting from A to B, how might sound expedite that or tell this part of the story better than with exposition?" And I've had some beautiful little victories where ideas that are driven by sound—sound telling story very efficiently in ways that words cannot—have found their way into the script and have informed the way the director will shoot the film.

This begins to create a very organic, collaborative process that most of us take for granted in the traditional paradigm where the director hires the DP, the director of photography, the production designer, the actors, and even the writer, and there is a very seamless collaborative back and forth process. For the first 40 years of my career, I never saw anything like that. But progressive directors are beginning to see the benefits in having sound to be a continuing part of the storytelling process. It makes for better, more compelling, more immersive film making and storytelling.

Brian Vessa:
Do you have a recent movie where that's happened?

Mark Mangini:
Yes. In the last three years on *Mad Max: Fury Road*, *Blade Runner 2049*, *The Way Back*, and the current film that I'm on, *Dune*, which is a reimagining of the Frank Herbert book. George Miller, Denny Vinoth, Gavin O'Connor, all saw value in bringing sound on while they were writing and filming. In fact, we are designing sound during filming, much like the film editor is editing the dailies as they come in. We are designing sound that goes to picture editorial and that then informs the visual effects that need to be locked off very, very early on and, in fact, often inspires the artwork, if you will, or the rendering, the way a visual effect might be conceived because we dreamed of a sound that might be part of something we haven't seen yet. Over the past three or four years, we've been very effective in being able to inform the editing process and the visual effects process, and streamline the post-production process.

Paula Fairfield:
That has never happened to me yet, but I could not agree with everyone more that it's something that has to happen. I used to do more film than TV. But, over the last few years, I've ended up doing a lot of TV. If you are fortunate enough to get on a show that runs for multiple seasons, (which I've been able to do with *Lost* and *Game of Thrones*, both of which I joined during Season 3, though I've also designed a number of series from the beginning), what's interesting is that, while there is no discussion with sound in preproduction, it starts to happen organically because you're on to the next season.

You have a preproduction conversation for Season 2, 3, or 4, and you start talking about sound as part of the production and as part of the show organically in advance. *Game of Thrones* had something which I don't think has happened before, which is that there were creatures that grew up over a series of eight years, that were very central characters in the show, and you had to follow their physicality and their growing up—their vocalizations, their bodies—over a course of years. Naturally, conversations came up around what was going to happen next. Where might we go with this thing or that? Similarly, in *Thrones*, for instance, with the White Walkers, when I came on in Season 3, they were very unevolved. They hadn't really touched on them much; they had developed a language for them, and we were going to do all this language stuff. We tried it and it was awful. It just seemed so beneath them to utter a word of any sort.

I suggested, because they were very icy looking, that as they walked, they froze like Mr. Freeze, they froze everything in their path, which turned into something that I introduced later on when the White Walkers commanded the forces of nature, because then I could rip the ground apart and do all kinds of weird stuff atmospherically. It gave them a voice that was big and beyond language. By that time in the series, I had two other seasons that I was rolling out and I was offering up ideas.

So, what I really like about TV series is that, as opposed to two hours to roll out a design for a film, you might have 10 for a season and that's a beautiful thing. Now, we don't have the schedules or money that you in film do, but it's actually quite a gorgeous thing to think about, but also where it can go next. … I'm actually involved in a couple of series that are new, my first question isn't what are you planning; let's set stuff up because you can then go and be very experimental sonically if you pay it off, at some point, and if you explain yourself at some point sonically.

Randy Thom:
I should talk about animation. About half the movies that I've worked on over the past 20 years have been animated films. This early sound collaboration is a natural for animated films because the way that American-style animated features happen is that they begin as radio plays because the only visual images that they have in the beginning are story boards and still drawings of characters and places. Many people would never guess this, there's rarely a script for an animated film in the beginning. Most animated features are formed piece by piece through experimenting … they have an idea for a scene, some interaction between some characters. They bring in some actors—sometimes professional actors, sometimes not—and they essentially do a little radio play.

So, in order for it to play at all for anybody who they bring in to look at it; they are desperate to have sound very early and music—temporary music. On the vast majority of the animated films that I've worked on, I got involved very early, producing speculative sounds, often before any real animation had begun, and those sounds often did inform the animators; they gave the animators ideas. I go out and record a walrus and the walrus's throat is moving in a certain way and that gives them an idea about how this animated character might move and turn its head and breathe. So, it's a wonderful symbiotic thing that happens in animation that, as we say, is beginning to happen more in live action, and we just hope it happens more.

Mark Mangini:
I'm working on *Dune* right now, and we have not seen the editor's or the director's cut yet, which is a prescribed process of a number of weeks of getting to a finish line, and yet this early on, before the editor has presented his cut to the director, we've got the major sequences in this film sound designed, and what it has done is informed his edit in such a way that rather than waiting in the traditional paradigm until postsound six months from now when everyone hopes that the battle sequence is going to be great when sound is applied to it, we've applied sound to the battle sequence even before it's edited and we have discovered where the dead spots are, which informs the

editor where that edit will be tightened up and where we need to expand because we find that there's a moment that we want to savor a little longer because sound made it that much more interesting. We're defying that convention in a very intelligent way that makes filmmaking far more economical, in fact, and sensible.

Brian Vessa:
Paula, when you're doing a series, I would imagine there has to be thematic sound from season to season—particular sounds you might expect to hear, or certain sonic signatures, right?

Paula Fairfield:
Yeah, what I learned very quickly was to think ahead. What was the craziest thing they could do? I remember at the end of Season 7 when the Viserion turns into an ice dragon, with the blue fire and stuff, it's like that was daunting enough and almost made me hurl the first time I saw it. It's like, "Oh my God." But then, the thought of what could happen in Season 8, which I also knew would be the final season, it's like, what could they possibly dream of. And I thought the craziest thing would be a battle between the regular dragon and the ice dragon. I did not anticipate an air battle between all three dragons, but I was prepared because I had already thought ahead of the craziest stuff. When I made the blue fire and the ice dragon vocalizations, I had already made a lot of stuff that then I could dig into and actually didn't need to elaborate too much more this season on that particular element.

One of the things that I was worried about was thinking ahead, so you don't design yourself into a corner that's hard to get out of when they throw a monkey wrench in the works and you've got to do a little turn with the design. I want to build up enough interesting elements with loose ends that can be pulled off in different directions, given what kinds of possibilities that the show runners will dream up for the next season, so that it flows seamlessly when people sit down and binge watch four seasons together or all eight seasons or whatever.

If you're not careful in the layout of the design, the flaws are going to become very obvious very quickly, but a lot of it has to do with just planning ahead, because they often have no clue where they're going. You've got to open up the design enough that you leave yourself enough trails so that you can follow this one or go down that one so there's consistency and it feels like we just left off there and now we picked up here. You don't want it to seem to be a completely different season with everything sounding completely different.

Brian Vessa:
One of the things that I think is really cool about being a sound designer is actually going out and recording sounds that are in nature and figuring out what sounds to record for the particular project that you happen to be on. Of course, you have sounds in your library and you know your own library, so you can go to that too. The field recording part of it has always been interesting to me. You have a movie, like *Once Upon a Time in Hollywood*, where you've got all these particular cars and you have other movies where there are particular guns that you want to record. How do you think about what to record and where to go out and get those sounds?

Randy Thom:
When the three of us began working in movies, there were very few commercial sound effects libraries available and so we were kind of compelled to go out and record a lot of our own sounds, especially if you were working on a film like *Apocalypse Now* that didn't have access to a big film studio's library, and even if it did, they wouldn't have had a lot of Vietnam war sounds, so we had to go out and record our own stuff. I think it's one of the most crucial things that we do partly because it's about discovery. Yes, you have a list of things that you need to record and you try to find places to record them and people who can help you record them, but very often the most interesting sound that you record when you go to one of those places is something that has nothing to do with what you thought you were going to find there.

Mark Mangini:
I think what we do is akin to how a great chef works. The greatest, the most delicious meal starts with the freshest ingredients. We would no more present a dish to a diner that had canned peas in it than present a soundtrack with canned dog barks or thunder. That has always underlined my ethos about recording which is to record every single sound from scratch purposely recorded for that project, but of course, that's a universe that doesn't exist. So knowing my library, which is an indispensable tool in any endeavor and its shortcomings, I can make a list of the fresh ingredients I need. That's the way I structure my approach to what we need to record before we can begin this design and edit process.

Randy Thom:
To get ultraspecific about trying to record sounds in the field and given that we just saw the clip from *The Revenant*, I mentioned that Iñárritu wanted it to sound real, like a documentary and he was very interested in hearing the movement of the bear, especially the footsteps on the wet forest floor. Alejandro was obsessed about it being wet and you would think it would be a straight forward thing, if the director tells you, as a sound designer, to go out and record some wet sounding bear footsteps. It's one of the most difficult things I've ever tried to do.

You would think, we'll just spray water on the ground and … if it's moist or if the leaves are moist, if the surface is moist that will make it sound wet, but it does not automatically make it sound wet. You have to experiment and experiment until you come up with it. Because if you have dry grass and you have somebody walk through it and then you spray it with water and have them walk through

it, there really isn't that much difference in terms of the way it sounds. Drawing on my physics background, I can tell you that what sells something as wet sounding tends to be bubbles. It tends to be air pockets that are collapsing, basically turbulence in whatever moist substance it is. So, what finally sold these bear footsteps was actually going out at Skywalker Ranch on a very wet day—it had been raining for a long time, many days—and squeezing this wet material, more than stepping on it, squeezing fibrous redwood bark and needles, etc. All of that stuff had lots of little openings in it and, as you squeeze, the air and the water are squeezed out and that's what reads as wet. We do these kinds of experiments all the time. What does it mean to sound wet? You think you know, but you don't.

Paula Fairfield:
It goes to show the phenomena of how we hear. We know instantly when we hear it, but how long did it take to figure out what it was? We process sound, so much information every second, it's all coming in and we're thinking of it and we're calculating. It's like when you consider a car rolling by you in a quiet place and it's just rolling by. What might you hear? You might hear the weight of the car, the tires, the grit, maybe the engine is humming a little, whatever. And another car rolls by and it has a tiny pebble in the wheel well and instantly your mind goes to that and in a split second you think about how the pebble got in the wheel well and make a judgment about it. Oh, it was on a dirt road or oh, it's an older car or something, but you make a judgment in a split second and that split second opens a portal, a narrative portal that you can then maximize and exploit sonically and it also helps guide your eye. It draws your attention.

Brian Vessa:
Our ears and our minds are much sharper in some ways than our eyes are. Sounds evoke memories, places you've been to, situations, and a lot of things, and one of the really wonderful things about designing sound is to play on the imaginations of those who are watching. It's not only suspension of belief, but you're actually drawing the people right to where you want to draw them.

Mark Mangini:
Another example: Imagine a movie opening on a medium shot of a man standing in a room and he does this [Mark stands, reaches into his right pocket, and jingles some coins]. What does that sound tell you about that character? Nervous. Think of the economy of that narrative use of sound and think about how long it would take to say that with words in that brief opening shot of a movie? It's not just about big monsters and spaceships; it's the simple use of sound that tells stories quickly.

Paula Fairfield:
I love using all kinds of familiar sounds, but manipulating them so that you don't recognize them and yet they still play because the sounds retain some of their originality. My approach in working on something that's otherworldly, for instance, to always use something familiar, because that's your trust, that's the trust thing.

Randy Thom:
One of George Lucas' great breakthroughs in *Star Wars* was something he called the used future. Before *Star Wars*, all science fiction films imagined that sophisticated societies and other worlds, cultures, everything would be clean and perfect and pristine and the soundtracks for those movies reflect that. And it occurred to George, wouldn't it be interesting if the spaceships got dirty. Wouldn't it make you relate to them in a way that you wouldn't relate to otherwise? So Ben Burtt, who was the sound designer for the early *Star Wars* films and who created so many iconic sounds that we're familiar with, light sabers and Wookies—out of bears, by the way—took that ball and ran with it and did exactly what you're describing in terms of sound, went out and recorded real-world sounds but then put a twist on them, an electronic twist or some kind of exotic twist so that they would be plausible, sound like something that comes from a world that we're familiar with, but would be exotic at the same time.

Brian Vessa:
Let's talk for just a second about interfacing with the composer and the music. I think the best films that I've seen are the ones where there are sound moments, there are music moments, and then there are moments that are uniquely a combination of those two things. And the only way that could have happened is if there had been collaboration, right, that didn't just happen incidentally….

Mark Mangini:
On *Blade Runner 2049*, Theo Green was my co-sound designer, and his first words to us were, "I want you to compose with sound," and this is what he meant by that. He said, "I want sound to work in that nether world that is not necessarily music, not necessarily sound effects, but something else that might encourage the audience to feel something, whether that's at peace or ill, at ease, happy, sad, afraid, any one of a number of emotions that we might be able to elicit with this sound design." His secondary goal with that admonishment was if you can create a sonic environment that is complete before we begin the traditional spotting-of-music process, that is one less cue that the composer has to write and that is one more opportunity where, when music does need to play, it plays like gangbusters because it hasn't worn out its welcome constantly indicating to the audience what they might feel.

We took the side door approach with sound design. We created long, languid, ambient, pads, tonalities, nothing with a melody, but very often made from, comprised of musical-like sounds, things that had pure pitches and tones and intervals in them and made that the foundation of most of the environments in *Blade Runner 2049*.

So, when Ben Wallfisch and Hans Zimmer came on to say where they wanted music, it was very clear to me what scenes needed music and what scenes didn't need music, such that when we arrived at final mix, we were able to avoid what might be considered a traditional conflict of interest to have one's material heard.

Randy Thom:

How many of you have seen the old film, *Once Upon a Time in the West*? A great Sergio Leone movie. In the beginning of the film there is no music at all until the Charles Bronson character begins to play the harmonica. And for those few who haven't seen it, the beginning of the film is a bunch of bad guys waiting at this train stop in the middle of the desert to kill somebody who's arriving in the train. Leone had the idea that he would have Ennio Morricone, the composer, compose all the music for the film before they started shooting the film and that he would use it on the set to help motivate the actors. Obviously, it wasn't going to be precise, but he had a pretty good idea of what was going to happen in each scene. Morricone composed the music and they recorded it, but neither he nor Leone were happy with the first music cue that he had composed for the beginning of the film (**Fig. 5**).

They didn't know what they were going to do and then it so happened that Morricone went to a musique concrète concert where a guy was literally making music with a ladder, banging on the ladder and scraping on the ladder and that sort of thing. A little light bulb went off in his head and he called Sergio Leone and he said, "There should be no music, no conventional music in the beginning of the film. It should only be the sounds that happen in this place used in a musical way." Sergio Leone did exactly that. He designed that opening sequence, driven as much by the sounds that happened in that environment, the water dripping on a guy's head under the water tank and the rhythmic tonal squeak of the windmill. God, I wish that kind of thing happened more often.

Mark Mangini:

On *Mad Max: Fury Road*, I was very fortunate to have been put in a van with Tom Holkenborg, the composer a.k.a Junky XL, and our first conversations were about music, and when he learned that I was a guitarist and a musician, I think that put him at ease. This turned into a six-month adventure where Tom and I would meet for coffee every morning at 7:00 a.m., before the van picked us up to bring us to the studio. Inevitably, small talk would turn into big talk and we would plot out what we felt was the dynamic of our movie.

As I began to see what he was doing with the film's musical themes, that would completely change my design approach to a sequence, so that by the time we got to the final mix, we had a very, very well-orchestrated, dynamic, and a very successful first pass on the film that probably wouldn't have been as successful had we not spoken daily about what we thought the film should sound like.

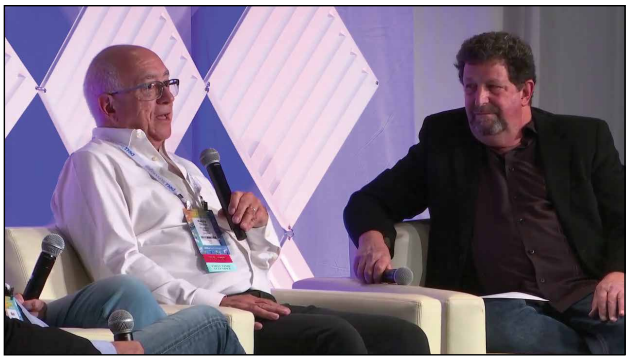

FIGURE 5. Randy Thom (left) and Brian Vessa.

Randy Thom:

But the director has to be on board and, unfortunately, what still happens most of the time is that the director is insecure about what they have in terms of the story and they ask the composer to bring his or her full arsenal to bear on every scene and they ask the sound designer to do the same thing and so you end up with what it sounds like when you're standing by the Niagara Falls and you spend several days in the final mix trying to come up with something that makes sense and is coherent out of this wall of sound.

Paula Fairfield:

It ends up being what I called the ultimate battle of fire and ice in *Thrones*, between music and sound design. You develop survival tactics because, if you're going to make a dragon that only has low ends and the composer comes blaring in with all low-end orchestration, guess what happens? Bye-bye, dragon sounds. You hear the music take over. We all live for those moments when someone on the mix stage says, "Hey, let's drop the music in this scene." That happens very rarely. The sad part of it is that you have to prepare for it as though it's always going to happen, because if you don't, the moment when they say, "Let's drop the music," you will not be prepared.

In *Thrones*, with the dragons, everything was fully articulated. You rip the music out, you hear everything, every wing, every body movement. I started coming up with a strategy of splitting the design into frequencies. So, I would have low, mid, and high range stuff that could be shoved through the music like a fist, wherever it had to go. The insane thickness of Ramin's music completely changed the way I designed and now I know that even if something sounds sensuous and gorgeous and, it's all mid and low tones, if I don't put a high tone in there, there's a chance that it will get obliterated. It's like you're designing in three layers all the time for story, for content, for emotionality, and for the hope that it will stick and if they decide to lift the music, it all plays together beautifully. So, you have to be smart about how you design and do it, so that if you lose one layer, another layer is going to live on.