**Module 8: Sound Design and Special Sound Effects**

The elements of Sound have been used throughout the history of humankind to reinforce the emotions of live performances, in everything from tribal rituals to more formal theatrical plays. Many of Shakespeare’s plays called for bells, whistles, and horns from offstage at certain points in the script.

Films were “silent” up until 1927, so there was no need for the art of Sound Design and Special Sound Effects in film until this technical issue was solved. But the other new mass medium of Radio did provide a training ground for those who would later get involved in creating these effects for film.

SOUND EFFECTS OR “FOLEY” EFFECTS

Jack Foley was an expert in radio sound effects who was hired by Universal in 1927 to make the new “talking picture” soundtrack for *The Jazz Singer* more believable. These sound effects can vary from very simple to very imaginative --- adding in door knocks, door bells, and the whoosh of the wind was pretty straight forward. Here’s an interesting short film from 1938 that shows how these kinds of effects were done “live” for these radio dramas:

<https://www.youtube.com/watch?v=hZ43UC5tIOY>

*Back of the Mike*

Today, these effects are easier to do because of more advanced technologies, but as this video shows, many of the effects are still created “live’ as the Foley Artists look at the rough cut of the visual footage:

<https://www.youtube.com/watch?v=U_tqB4IZvMk> Foley Artists: How Movie Sound Effects are Made

Notice their comment that footsteps are still the most requested thing they do, and that they do it for almost every film they work on.

Radio was a growing and vibrant entertainment medium for the 30+ years before television started becoming the focus of home entertainment. Many families would gather around a radio to get the news, the weather forecasts, and for both comedic and dramatic entertainment. Sound effects got a head start in radio over film, because the technology to put a synchronous sound track on film was not available until 1927.

Theater was able to provide some sound effects that translated quite well to radio. “A [thunder sheet](http://xroads.virginia.edu/~ma05/macdonald/radiosfx/earlysfxBig.jpg), which was a large, thin sheet of copper suspended from a frame by wires, sounded genuinely like thunder when moved.” But other effects did not translate well; things that worked on a large stage in a theater did not work well in a small sound studio with microphones.

The artists who created these effects were typically overworked and underappreciated, often having to dash between multiple jobs in order to try a cobble a living together doing this.

One of the biggest problems of working in radio is that it was “live” – if you made a mistake, it could literally ruin the entire show. Compounding this was apparently the added issue of people sabotaging each other. As this art developed, many of the sound effects were recorded on records, and labelled appropriately. But sometimes a prankster would substitute and re-label the sound of a doorbell with that of a rooster crowing. So these artists started triple checking their sound effects before a show.

They also had to really reach into the depths of their creativity to satisfy demanding Directors who had no feel for how difficult these things could be. Imagine being asked to create the “sound of sunlight” or “snowflakes falling”. When one director complained that his recorded rain didn’t sound enough like rain, the sound effects people added the sound of running water to the rain, and that satisfied him. More and more sophisticated audiences also demanded differences in certain sounds to maintain the “reality” of the show they were listening to. So footsteps had to be distinct and different for walking down the street, up a set of outside stairs, up an indoor staircase, etc. And remember that different shoes make different sounds; men’s loafers sound different than a woman’s high heels.

Artists who could make animal sounds were always in high demand. This guy is a current artist and I bet he gets a lot of work.

<https://www.youtube.com/watch?v=4EUobFfx-tU> One Man does 30 Animal Sounds

A very early use of sound effects in film was in Walt Disney’s *Steamboat Willie,* the first Mickey Mouse cartoon that came out in 1928. The effects are pretty simple, but were absolutely vital to the success of the film.

<https://www.youtube.com/watch?v=BBgghnQF6E4> Steamboat Willie

The riotous antics of the Three Stooges were heavily dependent on the sound effects that were cut in to add humor to their deplorable and childlike personas. They bop each other in the face, bang pots and pans on their heads, kick, and punch each other in a non-stop farcical circus.

<https://www.youtube.com/watch?v=3-5kCoeew8A> Slaps, Smacks and Pokes – the 3 Stooges

One tremendously limiting factor with using sound effects in film was the difficulty in both obtaining them, and then physically editing them into the film. Before the digital era, these would first be recorded to reel to reel magnetic audio tape, and then transferred to magnetic tape stock the same size as either 35MM or 16MM film. Each sound effect would have to be edited in, using a scotch tape splicer. Most film editing machines would only allow for 2 audio tracks running in sync with the visual track, so this did not lend itself to the same kind of creativity we see today. Digital Software from companies like AVID and Apple have 8 tracks of audio that are visible on your computer screens, and you can mix in more if you need to. And of course there is almost no limit to how many tracks that can be mixed in the advanced sound studios used for big budget Hollywood productions.



Above: a Flatbed Editing System where 2 audio tracks could be run in sync with 2 visual tracks



Above: A typical Nagra Reel to Reel Recorder; the sound would first be recorded on a machine like this, and later transferred to either 35MM or 16MM magnetic stock film. The Crystal Motor on the Nagra kept it in sync with the camera, but the slate at the head of every scene would have to first be synced up the sound of the clappers even before you could start to edit the film and the sound.

One of the films that helped jump start the current high level of attention to the possibilities in sound was the original *Star Wars* in 1977. Creating entirely new sounds like those used for the light sabers took considerably more time and experimentation.

<https://www.youtube.com/watch?v=i0WJ-8B6aUM>

*Ben Burtt on the Design of the Sound for the Light Sabers*

In the Indiana Jones series, there is a wonderful documentary on “The Sounds of Indiana Jones” that details the contributions of Brad Burtt and his team of sound effects specialists.  A few examples:

The scene where the top of the Ark of the Covenant is taken off – the team used the sound of the top of a toilet tank being removed.

The scene where the huge boulder chases Indiana out of the cave; the underlying sound is of a tire rolling over a loose gravel road as a car goes down that road with its engine off

The scene with the snakes; one of the slithery sounds is that of hands squishing a cheese casserole.

<http://www.youtube.com/watch?v=YWDSFihqyH8>

*The Sounds of Indiana Jones* (part 1)

<http://www.youtube.com/watch?v=dYdFiYGLr-s>

*The Sounds of Indiana Jones* (part 2)

This is a short video that mostly features Gary Rydstrom, who works with Skywalker Sound and designed most of the sound effects used in the Toy Story films:

<https://www.youtube.com/watch?v=BVUgsMRvOeI> Toy Story Foley

THE RECOGNITION OF THE SOUND DESIGNER AS A KEY CONTRIBUTOR TO A FILM

Before 1979, the Sound Designer was referred to as a Supervising Sound Editor or the Re-Recording Mixer. The first person to get the new designation in 1979 was Walter Murch, for his work on Francis Ford Coppola’s *Apocalypse Now.*

One of the reasons for creating this new recognition was an acknowledgment from the industry that sound design was now as much of an art as it was a technical craft. Today the Sound Design has a tremendous impact on the popularity of the film. The millions of dollars spent of special visual effects would frankly be wasted if enough attention and detail are not given to creation of the sounds and music that make those effects believable.

<https://www.youtube.com/watch?v=vP-mwk00MgM> The Ride of The Valkyries

Watch the above scene, and notice the complexity of the sound design. An American helicopter unit in the Vietnam War attacks a Viet Cong village. Wagner’s “The Ride of the Valkyries” blares from a powerful audio system on the lead helicopter, because the Captain thinks that this scares the Viet Cong, as if being fired upon by 10 helicopters is not fear inducing enough by itself. You hear the sound of the choppers as they approach the village, the cries of the children, the bombs and bullets going off, and the dialogue in the choppers still understandable despite the noise of the rotors. The Sound Design adds greatly to the horrific impact of this scene.

Another film whose sound design makes for a good example of Sonic Texture was *Black Hawk Down.* The opening scene is amazing, and the sound has a great deal to do with it.

<https://www.youtube.com/watch?v=wDYY-zC7sUw> Titles

<https://www.youtube.com/watch?v=Sam7O1JbmBM> First Scene

So what makes it great? How would you describe this if you were writing about it in a Film Analysis paper?

The opening of the film lets you see scenes of some people trying to survive in the harsh realities of a desert climate. A man wraps a shroud around a body. A truck comes into view from over a hill. You hear the sounds of the windstorm, which make you feel the sting of the sand being blown around. There is a Somalian folk song playing in the background, giving you a sense of the time and place. You see a medical tent with some emaciated looking patients; the sounds of footsteps, the sounds of a man trying to cook something. The folk song gives way to the strings of a haunting melody from composer Hans Zimmer that creates a mood of anxiety and despair. Titles tell the story of how the warlord Mohammed Aidid was stealing food from UN Relief Operations and using access to it as a way to reinforce his own control over large parts of Mogadishu, the capital city in Somalia.

In the second clip, you hear the sounds of a US Helicopter hovering over the Red Cross Relief Center, where they are trying to distribute food to the people. The music is taut and intense, as some of Aidid’s soldiers pull up in their “technicals”, these open jeeps where they are heavily armed with machine guns. You also hear the desperate sounds of the starving people, hoping to get some of the food supplies. Then the shots of the machine guns firing on the crowd. Aidid’s men use a bullhorn to tell the people to go home, that the food now belongs to Aidid. The US soldiers request permission to engage Aidid’s men, but are refused permission, since the helicopters are not taking direct fire. One of Aidid’s men uses his bullhorn like a fake missile launcher, and laughs as he pretends to fire on the impotent helicopters, who have been ordered back to their base.

Here is one more terrific short video on the art of Foley:

<https://www.youtube.com/watch?v=UO3N_PRIgX0> The Magic of Making Sound

Sources for this module:

<https://en.wikipedia.org/wiki/Sound_design> Page on Sound Design

<http://xroads.virginia.edu/~ma05/macdonald/radiosfx/hist_sfx.html> The Evolution of Sound Effects