**Module 6: Sound**

Sound is incredibly important in the cinema, but it is not something most viewers are as aware of as the visuals; we really do have to learn to “listen” to a soundtrack in order to fully appreciate the creativity and complexity.

Filmmakers understood from the earliest days the importance of sound; even in the “silent” era, someone always played the piano or a theater organ to accompany the film.

<https://www.youtube.com/watch?v=D9x2WeKsjTo>

*Phantom of the Opera,* with theatre organ music



One of the great places you can still see a live theater organ with one of these silent films is Atlanta’s FOX Theatre, the last of the great motion picture palaces that opened in 1927. The Mighty Mo Organ rises from the orchestra pit stage left, and still provides terrific accompaniment for the Silent film series they have every summer.

The reason why the FOX was the last of these palaces was because everything changed in 1927 with the invention of “sync-sound”; this was the ability to record sound that could then run in exact synchronization with the film – something you take for granted today, but that was far more complex than you probably realize.

MUSIC, DIALOGUE, AMBIENT SOUND, and SOUND EFFECTS are the 4 components of sound. We will discuss music more in Module 7, and sound effects more in Module 9.

The combination of all of these sound elements make up the SONIC LANDSCAPE of a film. The person responsible for this is the SOUND DESIGNER; we will go into more detail about this aspect of sound in Module 8.

Dialogue may seem obvious, but the process of recording excellent dialogue is more difficult than you may realize, particularly when a film is shot on location.

One of the first technical choices that must be made is what kind of microphone to use, including whether to use a “wired” mic (with a cable that connects to mic to a recorder), or a “wireless” mic, where the signal is sent to a receiver, which is what connects to the recorder. There is also the issue of how to handle the sound in scenes where there are many actors, actresses, and extras involved. Below is a wireless cardioid (hand-held) mic and its receiver:



LAVALIER MICS: are small, individual mics that you may be most familiar seeing on television news anchors. Another term for this is the “lapel” mic; notice in the below photo how these mics are attached to the clothes of both the female and male anchors:



CARDIOID Mics are commonly associated with field reporters. This is so the reporter can speak into the mic, and then point it at the person she or he is interviewing. These are highly directional mics that work best when you speak directly into them, which is why they are also the primary mic used in studio recording work, and why they are still the primary mic used by bands when they are performing (although some bands today do use “headset” mics to give the singers added mobility).



FISHPOLE OR BOOM MICS:

On film sets, for scenes with lots of people, the location sound is often recorded with a Fishpole or Boom Mic; the pole is used to both get the mic closer to the people, and also to hold it up and out of the frame of the shot. This type of mic also helps cut down on the other ambient location sounds that can make it difficult to understand what is being said.



AUTOMATED DIALOGUE REPLACEMENT (ADR)

A surprise for many students is to learn that for most Hollywood films, the location dialogue is later re-recorded in the studio using the ADR process. Most location dialogue is just too noisy to be able to clearly understand it – there are just too many other ambient noises that interfere. The dialogue is still recorded on set, but it is later re-recorded in a studio setting in a process that is basically “lip-syncing”. So how do the actors and actresses do this in a way where the re-recorded dialogue is in sync with what we see in the picture?

The actor or actress is usually in a glass sound recording booth; they have headphones on so they can hear their original dialogue, and they can also see the scene from the film projected on a large screen outside of the booth. The Sound Recording person can easily re-cue the film and re-record the new dialogue over and over, and there is immediate playback, so that the Director and everyone involved can agree that they “nailed it” before they move on to the next piece of dialogue:



Here’s an excellent short tutorial on ADR that explains this in more depth:

<https://www.youtube.com/watch?v=VfbNgaL_Z0g> Mastering the Art of ADR and Dialogue Replacement

AMBIENT SOUND includes all of the other background sounds you hear in a particular location, and is actually very important in terms of convincing the audience that what they’re seeing is “real”. One common practice of every production I ever worked on was to record one minute of “ambient sound” or “room tone” at the conclusion of every location scene. This would be used in post-production to edit out inadvertent sounds that may have been recorded, like a car horn, a telephone ringing, a door banging, or anything else distracting.

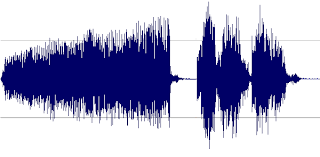
Additional ambient sounds can be added to a scene for a variety of aesthetic reasons; the sounds of insects or forest animals could be added to a scene shot shot in the woods to enhance that feeling of isolation or possible danger. Also, man “enhanced” sound effects are added to films to help the audience experience the film as more realistic. Shots of guns going off on a set are almost always replaced with gun sounds that are “bigger” and louder. The shots of Indiana Jones cracking his whip always have “bigger” versions of the whip sounds edited in, again to enhance their realism.

As long as the audience believes these sounds are “real”, we refer to this kind of sound as “DIAGETIC” SOUND. The key here is whether or not the audience BELIEVES that these sounds are real, even if they are actually sound effects that are added in later.

Any other audible sounds in the scene are referred to as “NON-DIAGETIC” SOUNDS – the **music** is the most obvious example of this, because we all know that people don’t walk in the woods and hear music, unless they are wearing headphones. So we know that the music we hear is NOT REAL – and thus an example of NON-DIGETIC sound.

**SOUND EDITING**

One of the many great advantages of editing sound in the computer age is the ability to “see” a visual display of the waveforms of the sound on your computer screen. If you are editing a scene to the beat of the music, the beats will appear as “spikes” in the visual display, which makes it much easier to edit on that exact frame. In all forms of editing prior to this, you had to “listen” and guess which frame to edit on, which was very much a trial and error process.



SOUND MIXING

Most films today have soundtracks with multiple layers: the dialogue, the ambient sound, the sound effects, and the music all have to be mixed to proper levels by a Sound Mixing expert.



For films with smaller budgets, digital mixers are built into software editing programs like AVID and Final Cut Pro, enabling editors to set appropriate mixing levels for the different sound tracks on the computer, and not using the separate multi-channel audio mixers pictured above.

STAR WARS AND DOLBY 4 CHANNEL OPTICAL SURROUND SOUND

Another huge leap forward in the enjoyment of film sound also occurred with *Star Wars,* which utilized Dolby Stereo surround sound, taking advantage of some of the unused capacity in already installed theater speakers to accentuate the bass tones particularly. You could hear those TIE fighter jets scream by you, with the sound traveling from the front of the theater to the rear. This was not the first film to use this technology, but it was the film that made sure it would be technology utilized on all big budget films going forward

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

TIE Fighter Attack from *Star Wars: A New Hope* (episode IV, but the first film made in this series in 1977)

ACADEMY AWARDS FOR SOUND

The Academy of Motion Picture Arts and Sciences has long understood the importance of sound to motion pictures, and appropriately recognized it at the annual Oscars Award Show.

Awards are given for: SOUND EDITING, SOUND MIXING, ORIGINAL SCORE, AND BEST SONG. The Sound Editing category incorporates the element of Sound Design.

Nominees and Winners at the 2017 Awards:

SOUND EDITING: Arrival (winner), Deepwater Horizon, Hacksaw Ridge, La La Land, Sully

Here is an interesting look at the Sound Design of *Arrival:*

<https://www.youtube.com/watch?v=1AB-wSzxaoQ> Arrival: Acoustic Signature

And here’s a look at the Sound Editing process in that same film:

<https://www.youtube.com/watch?v=fJjUaMXPhZ0> Arrival: The Editing Process

SOUND MIXING: Hacksaw Ridge (winner), La La Land, Arrival, Rogue 1, 13 Hours

This Clip from Hacksaw Ridge has terrific sound, but it is a gruesome war battle scene, with lots of horrific sounds that amplify the violence of war

<https://www.youtube.com/watch?v=H3jSVnETtzM> Hacksaw Ridge: First Battle Scene