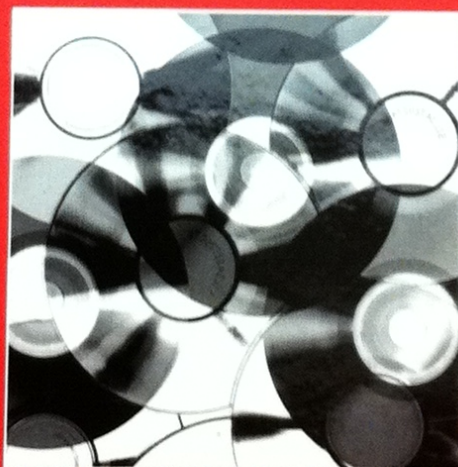


CONTINUUM ENCYCLOPEDIA OF  
POPULAR MUSIC  
OF THE WORLD



VOLUME II  
PERFORMANCE AND PRODUCTION



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CONTINUUM ENCYCLOPEDIA OF  
**POPULAR MUSIC**  
**OF THE WORLD**

VOLUME II:  
PERFORMANCE AND PRODUCTION

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by means of belts or shafts, made mechanical. Even in the days of live accompaniment, synchronization of image and sound was difficult. Rapee (1925) referred to the miscue of sound in providing a synchronized sound effect. In the early 1920s, smaller, undercapitalized companies had introduced synchronous sound achieved through newer electronic technologies, but these were commercial failures until major corporations entered the marketplace. In the United States, Fox Movietone and Warner's Vitaphone were soon followed by RCA Photophone. These three technologies were incompatible with each other. Fox Movietone involved variable density sound on film, a process that controlled the amount of light hitting the photoelectric cell by varying the light transmission ability of the optical soundtrack. Warner's Vitaphone used sound on disc, while RCA Photophone involved variable area sound on film, a process that controlled the amount of light hitting the photoelectric cell by varying the area of the optical soundtrack through which light could pass. At this time, the German Tobis system, whose patents had been licensed by Movietone, became the continental European standard. All systems did result, however, in a standardized filming and projection speed of 24 frames per second. A period of unrest in the film industry ensued, ending with the adoption of a single sound on film variable area process, with the key patents held by or licensed to Western Electric.

Initially, sound film technologies were meant to provide the experience of full orchestral accompaniment or live vaudeville prologs, previously available only in the largest theaters, to any movie house equipped with a synchronous sound system. But the post-synchronized music and effects tracks added to films that had been shot silent, such as *Sunrise* (September 1927), or the musical vaudeville routines reproduced in the Vitaphone shorts were integrated with dialog into film narratives by the time of the October 1927 release of *The Jazz Singer*. By 1930 and the release of *Sunny*, musical numbers were commonly prerecorded, with performers lip-syncing their performances to the recording, and the dubbing of professional singing voices for actors of lesser musical talent had become common.

The adoption of synchronous sound involved changes in camera technology. Soundproofed 'blimped' cameras – cameras that had padding or casing fitted over them to isolate the sound recording equipment from the cameras' mechanical noise – had been introduced by 1930, with the Fox, Mitchell and Debie machines dominating by the end of the decade. The multiple synchronizer, which allowed simultaneous editing of sound and image, was developed, with the Moviola device

becoming the industry standard. The postwar period saw a great leap forward in synchronization technology, particularly with the introduction of magnetic tape recording, which greatly simplified location sound shooting. By 1950, compact quarter-inch tape recorders were synchronized by means of a common AC pulse from the power source. The 1957 Auricon Cine-Voice cameras permitted single-system synchronized sound filming through the use of a magnetic strip on the edge of 16 mm film. Double-system synchronization connected sound and image recorders by means of a cable. By the 1960s, both systems had been superseded by crystal oscillator technology, permitting tape recorder and camera to operate on their own power sources without any physical connection. The Nagra tape recorder dominated film production, and the cheaper Uher became the television standard. The venerable Moviola editors increasingly were replaced by flatbed synchronizing editing machines (based on prewar Zeiss models), with the German Steenbeck dominating the market.

While multitrack synchronized sound was introduced with Disney's Fantasound stereo process in 1940, theatrical systems using as many as six or seven magnetic soundtracks were in use in the mid-1950s, made possible by advances in electronic mixing technology. Dolby stereo optical soundtracks had replaced magnetic media as the industry standard by the mid-1970s, coexisting with the older analog optical systems. At the beginning of the twenty-first century, the marketplace was served by several competing digital sound systems, with most films being released with both analog and digital optical tracks alongside the image.

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Salt, Barry. 1983. *Film Style and Technology: History and Analysis*. London: Starword.  
Schoenherr, Steven E. 1999–2000. *Motion Picture Sound, 1930–1989*. <http://history.acusd.edu/gen/recording/motionpicture.html>

### Filmography

- Sunny*, dir. William A. Seiter. 1930. USA. 67 mins. Musical Romance. Original music by Oscar Hammerstein II, Otto Harbach, Jerome Kern.  
*Sunrise*, dir. F.W. Murnau. 1927. USA. 110 mins. Romance. Original music by Hugo Riesenfeld.  
*The Jazz Singer*, dir. Alan Crosland. 1927. USA. 89 mins. Drama. Original music by Louis Silvers.

MARK LANGER

### Take

'Take' is a term used to identify each recorded play-through of a piece of music, typically in the setting of



recording studios. The term only became common in non-English-language settings with the advent of multitrack studios. The term derives from the notion that something is 'taken' and subsequently inscribed, much as in photography one 'takes' a picture with a camera. Several takes are usually recorded. Before the advent of multitrack studios, the best take would be chosen to make the recording. Since the advent of multitrack studios, the best portions of multiple takes have been edited together to make a single 'ideal' recording. In certain genres, such as rock, where notions of authenticity have been important, musicians have sometimes striven for a

'perfect take,' which requires no later editing or manipulation. In other genres, such as jazz, the process of editing together the best portions of multiple takes, made possible by multitrack studios, is often resisted in the name of preserving the integrity of a particular performance. Takes not used for the final recording issued to the public are referred to as 'out-takes.' The term 'alternate take' is used to refer to out-takes that are released as part of the complete recorded documentation of a musician's or group's work.

STEVE JONES