

# Talking Pictures

Origins of Sound Cinema

1913 – 1929

Tuesday, August 21, 2018

Grand Illusion Cinema

The Sprocket Society  
Seattle, WA

# This Evening's Film Selections

All films in this program were originally shot on 35mm, but are shown tonight from 16mm prints that are a mix of originals, reductions, and dupes. All soundtracks are from the original recordings as released, but they have obviously been converted to modern optical sound film technology. Sound quality and volume will vary, reflecting not only the original technologies, but also in some cases the decay of the source elements prior to preservation. A different program with a similar selection of films was presented previously by The Sprocket Society, in September 2010 at the Northwest Film Forum. The program notes for that are available on our web site.

## *Nursery Favorites*

(American Talking Picture Co. [Edison/Keith-Albee], May 1913) 9 min.

Edison Kinetophone sound-on-cylinder

Directed by Allen Ramsey, photographed by Joe Physiog. With Edna Flugrath, Robert Lett, Shirley Mason, Robert Milasch as the giant, and the Edison Players Quartette Orchestra.

One of the few surviving examples of Edison Kinetophone films, which synchronized an oversized cylinder phonograph with a modified 35mm projector via a very long loop of linen cord soaked in castor oil. The system had severe operational and sound quality problems, and lasted only about a year. A catastrophic fire at Edison's New Jersey facility at the end of 1914, which destroyed most of the company's motion picture facilities, spelled the end of Kinetophone.

This particular restoration dates to sometime in the 1970s. For decades, this and one other (a brief demonstration lecture) had been the only ones available, almost entirely on 16mm prints like that shown tonight.

Today, what's known to survive is only 12 of the films (mainly held at the Library of Congress) and 15 of the soundtrack recordings (in the archives of the Thomas Edison National Historic Park). Of these, just eight are matching pairs. By 2016, the Library of Congress completed digitally restoration and resynchronization of these eight (including this film). A DVD has just been released by Ben Model's Undercrank Productions featuring all eight Kinetophone restorations, plus one film with no surviving cylinder presented with a new musical score by Model. A 30 minute documentary is among the extras.

## *Noble Sissle and Eubie Blake Sing Snappy Songs (aka Snappy Tunes) and Noble Sissle and Eubie Blake*

(De Forest Phonofilm, premiered circa April 1923) 6 min. total

De Forest-Case variable area sound-on-film

Directed by Lee de Forest and/or J. Searle Dawley

Two short films, combined later onto a single reel. Neither had opening titles, as was the style of De Forest Phonofilms. The first film, often known as *Snappy Tunes*, shows Sissle and Blake performing the songs "Sons of Old Black Joe" and "My Swanee Home." The only surviving copy had deteriorated before it could be preserved, resulting in the poor image and sound quality of this print. The second film, in considerably better condition,

shows the pair singing "Affectionate Dan" and "All God's Chillen Got Shoes."

Lee de Forest's Phonofilm sound-on-film system had predecessors, but was the first to be commercially viable. Some 200 Phonofilms were made. The vast majority of these were shorts of musical, vaudeville, and comedy acts. A couple two-reelers were made, and one five-reel feature was made, starring a young Elsa Lanchester.

Phonofilm was also used to make special synchronized music versions of portions of major feature films, including Paramount's *Covered Wagon* (1923) and even the US release of Fritz Lang's *Siegfried* (1925). However, these were screened only at special premiere engagements and are now presumed lost.

While De Forest had made key founding innovations, the most important improvements

and finalizations – including critical vacuum tube and equipment designs – had actually been done by a private scientist and inventor named Theodore Case. When de Forest failed to honor agreements to properly credit Case for his work, and then compounded problems by failing to pay his ever-mounting bills to the Case Research Laboratory, the two permanently split by the end of 1925.

## *Come Take a Trip in My Airship*

1930 re-release version for the Paramount *Screen Song* series (De Forest Phonofilm/Out of the Inkwell Films, March 9, 1924) 7 min.

De Forest-Case variable area sound-on-film

Directed by Dick Heumer. Animated by Berny Wolf & Dave Fleischer. Song music by George Evans, lyrics by Ren Shields; originally published 1904.

One of the very earliest of 19 sound cartoons in the *Song Car-Tune* series produced between 1924 and 1926 for De Forest Phonofilm by the legendary Fleischer brothers – four years before Disney's *Steamboat Willie*. It is evidently also the debut of the now-iconic “follow the bouncing ball” technique the Fleischers invented (and patented) to lead audiences through sing-alongs.

In 1924, the Fleischers partnered with Lee de Forest, Edwin Miles Fadiman (an experienced film producer), and Hugo Riesenfeld (a composer of film scores) to form Red Seal Pictures Corporation to distribute movies made by Phonofilm, Inkwell, and others to their network of 36 theaters stretching from the East Coast to Cleveland, OH. Unfortunately, disagreements with Fadiman (who eventually resigned as president) and de Forest's

ever-mounting financial and legal troubles undermined the company.

By November 1926 Red Seal was broke. Out of nowhere came Alfred Weiss, owner of Artcraft Pictures, who offered to save both Red Seal and Inkwell but proved to be a vulture capitalist. Once the deal was done, he gutted the companies, signed a new deal with Paramount, and slashed everyone's salaries but his own. Production continued, including repackaged versions of the Phonofilm *Song Car-Tunes*.

In late 1928, after numerous dirty dealings by Weiss, Max and Dave quit and declared bankruptcy – just as the sound boom was taking hold. The remaining animators followed them out the door, and within a month the company had folded.

## Promotional film for *The Jazz Singer*

(Warner Brothers, 1927) 7 min.

Vitaphone sound-on-disc

Directed by Herman Heller, assisted by F. M. Long. With John Miljan.

Originally made to promote the second-run opening of *The Jazz Singer* at the Criterion Theatre on Broadway. Subsequently distributed nationwide to advertise the general release in major cities on New Year's Day, 1928.

This was not the very first sound trailer (contrary to some sources). Warner Brothers had

already released several earlier talkie trailers, including one for the feature *Don Juan* (1926), and a general Vitaphone promotional trailer that included a “talking” appearance by Rin Tin Tin, then the studio's biggest star.

## Sound excerpts from *The Jazz Singer*

(Warner Brothers, October 6, 1927) 17 min.

Vitaphone sound-on-disc

Directed by Alan Crosland. Screenplay by Alfred A. Cohn (scenario) and Jack Jarmuth (intertitles), based on the 1925 play by Samson Raphaelson. Cinematography by Hal Mohr. Technicians: Fred Jackman, Lewis Geib, Esdras Hartley, F.N. Murphy, "Alpharetta," Victor Vance. Musical score by Louis Silvers, performed by the Victorphone Orchestra. Edited by Harold McCord. With Al Jolson, May McAvoy, Warner Oland, Eugenie Besserer, Otto Lederer, and Yossele Rosenblatt.

A selection of the sync-sound portions of *The Jazz Singer*, with the following songs:

- "Dirty Hands, Dirty Face" – music by James V. Monaco, lyrics by Edgar Leslie and Grant Clarke
- "Toot, Toot, Tootsie (Goo' Bye)" – music and lyrics by Gus Kahn, Ernie Erdman, and Dan Russo
- "Blue Skies" – music and lyrics by Irving Berlin
- "Mother of Mine, I Still Have You" – music by Louis Silvers, lyrics by Grant Clarke
- "My Mammy" – music by Walter Donaldson and lyrics by Sam M. Lewis and Joe Young

The Vitaphone sound-on-disc system created by AT&T's Western Electric subsidiary – and only licensed by Warner Brothers – made its public debut a year prior on August 6, 1926. That program featured eight sync-sound shorts of musical performances, followed by the feature *Don Juan* – essentially a silent film with an added synchronized soundtrack of music and sound effects. Similar releases followed, as Warner got more theaters wired for Vitaphone sound.

Despite its legendary status as "the first sound feature," *The Jazz Singer* was only a part-talkie. Several segments (excerpted here) had sync-sound, while the rest was given the same music-and-effects treatment as *Don Juan*.

And while a very successful release, it was not the bright line between the silent and sound era that Warner mythology would have us believe. That was actually Jolson's next feature film,

another part-talkie titled *The Singing Fool* (1928). That film's box office returns were so huge that all doubt in Hollywood about whether sound movies were here to stay were swept away. *The Singing Fool* held the box office record for a decade, unseated only by *Gone With the Wind* (1939).

Jolson's actual sound film debut had been in a previous Vitaphone sound short, *Al Jolson in A Plantation Act*, released in October 1926 (as part of the second major Vitaphone program), when Jolson was at the peak of his Broadway career. (Indeed, for this one film he was paid a staggering \$25,000.) Believed lost as early as 1933, in the early 1990s a single "mute" copy of the film was found at the Library of Congress. Later, a single surviving (but unplayably cracked) soundtrack disc was found in the estate of a collector. After extensive restoration work, the film and sound were reunited and re-premiered in 1995.

## *George Bernard Shaw Talks for Movietone News*

aka *George Bernard Shaw's First Visit to America* (British Movietone version)

(Fox Film Corporation; June 25, 1928 in USA; Aug. 26, 1929 in UK) 5 min.

Fox-Case Movietone variable density sound-on-film

Directed by Jack Connolly.

A very early example of the Movietone sound newsreels, which first premiered on October 27, 1927, with sound footage of Charles Lindbergh's landing at the conclusion of his historic transatlantic flight. (De Forest Phonofilm had their own film of Lindbergh's landing which also ran in

New York theaters, but was clearly inferior – a final nail in the company's coffin.)

Movietone had also been used to provide a music-and-sound effects soundtrack for F.W. Murnau's feature, *Sunrise*, which had premiered on September 23, 1927.

When Theodore Case ended his business relationship with De Forest Phonofilm, he retained key equipment and patents for a sound-on-film system that was already superior. In short order, Case made a deal with the Fox studio – a second-tier player like Warners – resulting in what became branded as the Movietone sound system. Rather than develop their own amplification and loudspeaker system, Fox licensed that technology from Western Electric (which also licensed Vitaphone and amplification systems to Warner Brothers). This had fateful implications as,

unbeknownst to Case, the deal included full cross-licensing of the sound-on-film tech itself. Western Electric took advantage of this to finalize development of their own sound-on-film system.

While Warner Brothers went the more traditional route of producing musical and variety shorts, Fox decided to specialize in sound newsreels. This not only gave them their own market niche, it allowed them to do ongoing experimentation and improvements with recording outside the studio – something Vitaphone was never able to achieve.

### *The Treasurer's Report*

(Fox Film Corporation; March 12, 1928) 11 min.

Fox-Case Movietone variable density sound-on-film

Directed by Thomas Hardie Chalmers. Written and performed by Robert Benchley, based on his scene originally created for the 1922 stage revue, *No Sirree!*

While newsreels may have been Fox Movietone's stock in trade, they also released variety and comedy shorts like this. Shot in early 1928 in Astoria, Long Island, this film was extremely successful. A more polished sequel, *The Sex Life of the Polyp*, was quickly made and then released in July 1928.

Robert Benchley was an essayist, theatre critic, and Algonquin Round Table regular who had been performing mock lectures in the character of a bumbling speaker since his days in college. He

first performed this skit in 1922 for an Algonquin amateur production. When it was incorporated in Irving Berlin and Sam Harris' 1923 edition of their annual Broadway show *The Music Box Revue*, it became a national hit and Benchley became a star.

In January 1929, Fox released its first all-talking Movietone feature: *In Old Arizona*, co-produced by the great Raoul Walsh. Much of it was actually shot outdoors, with microphones literally hidden behind cactus. Meanwhile, Vitaphone remained studio-bound for months to come.

### *Steamboat Willie*

(Disney Cartoons; November 18, 1928) 7 min.

Powers Cinephone variable area sound-on-film

Directed and written by Ub Iwerks and Walt Disney. Animated by Ub Iwerks, assisted by Les Clark, Wilfred Jackson, and Dick Lundy. Music arranged by Wilfred Jackson and Bert Lewis. Music performed by the Green Brothers Novelty Band, conducted by Carl Edouarde. Sound effects by Johnny Cannon.

Contrary to the Disney-created myth, this was not the first sound cartoon – as we've already seen tonight with the Fleischer Song Car-Tunes made for De Forest Phonofilm. It wasn't even the first sound cartoon of 1928. That was Paul Terry's *Dinner Time*, released a month earlier on October 18 by Pathé Exchange.

Nevertheless, *Steamboat Willie* is indeed a keystone moment in animation and sound film

history. It was the first properly-done sync-sound cartoon of the post-*Jazz Singer* era. And of course, it was the debut of Mickey Mouse and, thus, the foundation of the Disney empire. Its legend is sufficiently well-known that it need not be reshaped here.

To distribute his new cartoons, Disney signed a deal with Celebrity Pictures, owned by Pat Powers, a movie wheeler-dealer from the early nickelodeon

era who had, among other things, cofounded Universal and briefly ran FBO Pictures Corporation.

Powers also had his own sound system, which he grandly called **Powers Cinephone**. In reality, this was nothing but a knockoff of Lee de Forest's system. In 1927, as the Phonofilm company was

foundering, Powers had first invested and then tried to take over outright. When that failed, he simply hired away one of the technicians – William Garity – to create a clone system. Power got away with it only because the cash-strapped de Forest couldn't afford to sue, and it remained in use until 1931-2.

## *Finding His Voice*

(Western Electric Co./ERPI and Fleischer Studios, June 21, 1929) 11 min.

Western Electric Sound System variable density sound-on-film

Directed by Frank Lyle Goldman & Max Fleischer. Written by "W.E. Erpi" (actually Charles W. Barrell). Animated by Al Eugster. Voices: Billy Murray, Walter Van Brunt (aka Walter Scanlon), and Carlyle Ellis.

A demonstration film for theater owners, projectionists, and sound technicians explaining Western Electric's new sound-on-film process, which was to replace their earlier sound-on-disc Vitaphone system. It was probably also shown to general theater audiences as well.

The company commissioned the Fleischer brothers' brand new studio to produce the film. Made on the cheap at a transitional time, the cartoon is not up to the Fleischers' usual standards: the rhythm is rather stilted and dry, and the post-sync soundtrack doesn't always align.

The character Dr. Western appears to be a caricature of Harvey Fletcher, who was the director of Bell Labs (a Western Electric subsidiary).

Long available only on 16mm, in the early 2000s UCLA restored the film from a 35mm source.

Back in January 1927, as Vitaphone was first taking hold, Western Electric and its parent company AT&T had spun off a new subsidiary to commercialize equipment for sound movies (and try to monopolize as much as it could). Electrical Research Products, Inc. was commonly known as ERPI – hence the writer's credit on this cartoon.

When Fox became a licensee of Western Electric's amplification and speaker systems, they were forced to cross license their Movietone process. In fairly short order, it was blended with the technology they were already developing (which had somewhat better frequency response). The resulting variable density process became the one offered by ERPI – and thus the de facto industry standard. Its only real competition was from RCA, which had a variable area sound-on-film process called Photophone.

## *St. Louis Blues*

(RKO Pictures; produced in June 1929, released in September 1929) 16 min.

RCA Photophone variable area sound-on-film

Directed and written by Dudley Murphy, based on a treatment by W.C. Handy and Kenneth W. Adams. Cinematography by Walter Streng. Edited by Russell G. Shields. Song by W.C. Handy. Choral arrangement by John Rosamond Johnson & W.C. Handy. With Bessie Smith, Jimmy Mordecai, Isabel Washington, the Hall Johnson Choir, James P. Johnson, Thomas Morris, and Joe Smith.

An adaptation of the song by W.C. Handy, this is the only film of a performance by the legendary Bessie Smith. The rest of the cast also draws from the aristocracy of the Harlem Renaissance. Bessie's two-timing pimp boyfriend is played by

Jimmy Mordecai, a tap dancer who was a member of one of the top dance acts of the era. The band in the bar is led by the great pianist James P. Johnson who composed, among much else, "Yamecrow: A Negro Rhapsody," which would be made into a

Vitaphone short in 1930 (starring Mordecai). Johnson's band is from Fletcher Henderson's band and orbit: Thomas Morris and Joe Smith on cornet. Composer and blues entrepreneur Perry Bradford has a cameo. And of course, the entire 40 member Hall Johnson Choir features prominently.

The RCA Photophone sound-on-film process first debuted in the summer of 1928. It was based on the Pallophotophone recording and playback system developed by General Electric research Charles A. Hoxie in 1921-22. When competitor Western Electric began revealing Vitaphone in 1916, General Electric and Westinghouse combined their overlapping sound film prototypes into one system, and spun off the Radio Corporation of America to exploit it. RCA moved quickly to acquire the Keith-Orpheum theater chain (which had previously exhibited Edison Kinetophone films) and the FBO Producing Company. This became Radio-Keith-Orpheum – better known as RKO Radio Pictures.

Director Dudley Murphy had previously co-directed the avant garde film *Ballet Mecanique* (1924) while living in France. Following that he returned to the US, where efforts to jump start a film career in New York and then Hollywood gained little traction. But some of his first films, in 1921-22, had been early attempts to combine cinema with music, and this experience helped get him a job making sound films for RCA. *St. Louis Blues* was his third for them.

As he recalled in his memoirs, "I approached W.C. Handy, who sold us the rights and who did a special arrangement of his classic piece. ...I got Bessie Smith, the greatest blues singer of all times, to play the part of the St. Louis Woman, and wrote a story for the film, suggested by the lyric."

"I rehearsed the piece in a loft in Harlem and then brought a group...from Harlem to our studio. To capture the spirit, I had created a set which was more or less a duplicate of a Harlem night club. I gave them beer to drink [this was during Prohibition] while we set up the cameras and rehearsed in the studio."

Bessie Smith was not at all comfortable in front of the cameras. To solve this problem he set up four cameras, "synchronized to the master sound track, so that I would not have to stop the action for close-ups or moving shots and could run the music and song without a break. When the crowd was completely relaxed with the beer and the spirit of the night club, I called for action and a continuous scene, which ran 10 minutes, was photographed. Bessie Smith's close-ups were taken with a 6-inch lens from 20 feet...so that there was no self-consciousness on her part, which might have occurred had the camera been close to her."

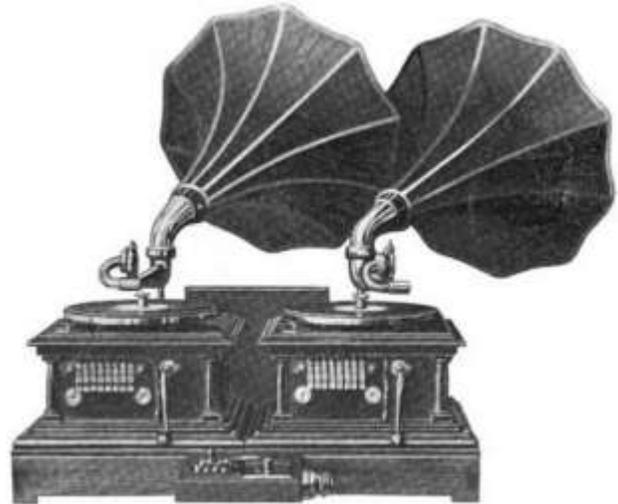
The result is a powerhouse performance. Smith herself was pleased, and when it was finished she turned up at Murphy's door with a case of gin, ready to celebrate. The result, he wrote, was "one of the best parties I have ever given."

*St. Louis Blues* premiered in New York in late August 1929, on a bill with *Bulldog Drummond* (1929), the hit talkie debut of British actor Ronald Colman. It quickly became a hit in its own right.

Murphy followed up with the considerably more polished *Black and Tan* with Duke Ellington and his orchestra, which premiered in December that year. Murphy went on to make a number of other African American-oriented films, most notably *The Emperor Jones* (1933) with Paul Robeson.

# Types of Early Sound Cinema Technology

## Sound on Phonograph Records



*Left:* An Edison Kinetograph (1912-13). The large wheel on the right side of the mechanism is where the synchronizing cord was attached.

*Above:* Gaumont Chronophone "C" dual phonograph as marketed in the US (circa 1908-09)



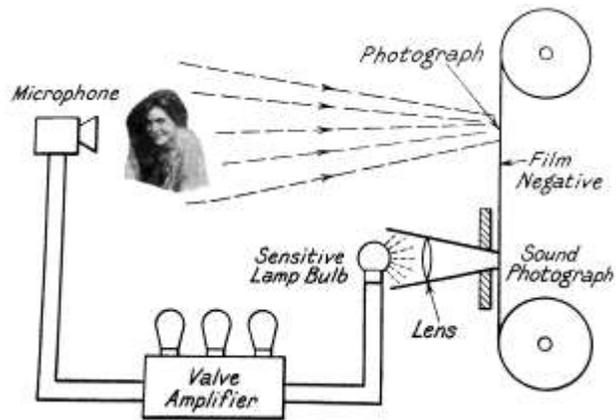
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17	18	19	20

Vitaphone disc center label, circa 1928.

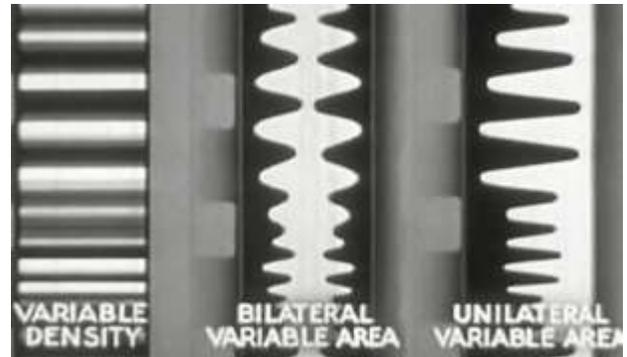


Cueing a disc on a Vitaphone projector, ca. 1928

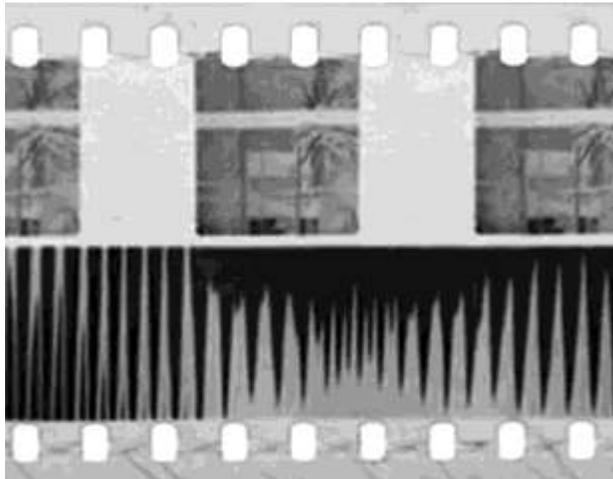
## Sound on Film



Simple schematic from 1931 depicting how a sound-on-film track is recorded



Types of SOF tracks. Phonofilm, Movietone, and Western Electric/ERPI systems all used variable density, common until the mid-'40s when RCA Photophone's variable area became standard.

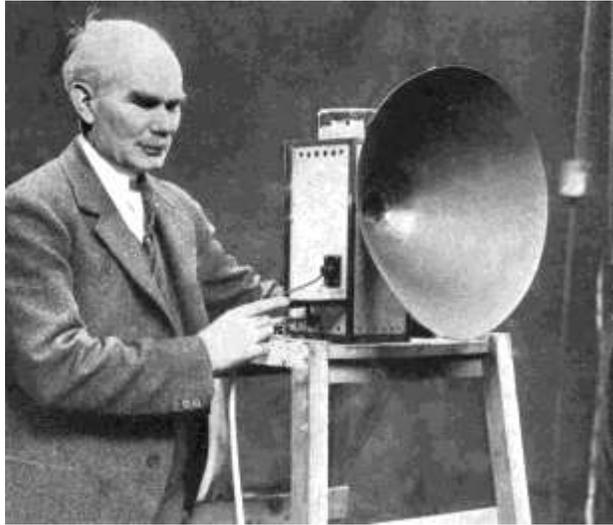


Eugene Lauste experimental film, circa 1910-12



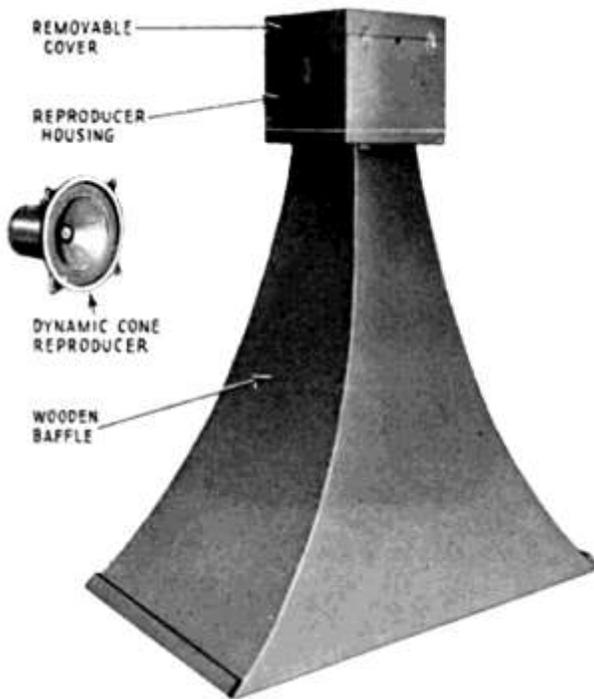
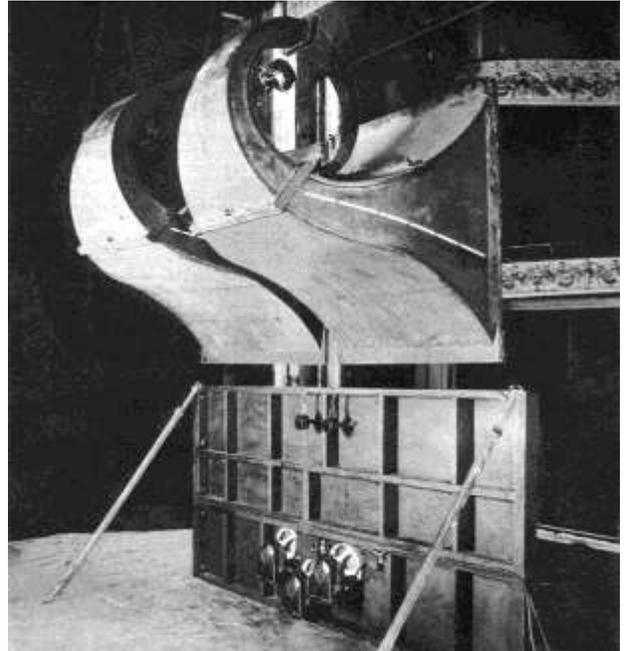
De Forest Phonofilm variable density, 1923  
(from *Covered Wagon*)

# Electrical Sound Reinforcement



*Above:* Lee De Forest with a Phonofilm speaker

*Right:* Western Electric speakers circa 1928



*Left:* General Electric speaker cone and directional baffle for RCA Photophone, ca. 1929-30

*Right:* Western Electric 47-A condenser microphone with a 394 "transmitter" (pre-amp) and "bail" clip for hanging attached on top, circa 1927. Widely used until the mid-1930s for cinema, radio broadcast, and studio recordings.



# Sources and Suggested Reading

## General Histories

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- Bernard Brown. *Talking Pictures. A Practical and Popular Account of the Principles of Construction and Operation of the Apparatus Used in Making and Showing Sound Films.* (Sir Isaac Pitman & Sons [London], 1932. New Era Publishing Co., 1933.)
- Raymond Fielding, ed. *A Technological History of Motion Pictures and Television: An Anthology from the Pages of the Journal of the Society of the Motion Picture and Television Engineers.* (Univ. of California Press, 1967. Second printing, 1974.) Profusely illustrated, facsimile reprints of articles from SMPTE's official journal, many of them first-hand writings by the original inventors. Includes a short but very worthwhile section on early sound processes, including Edward W. Kellogg's excellent three-part article (listed below).
- Douglas Gomery. *The Coming of Sound: A History.* (Routledge, 2005) An excellent work that concisely documents the business aspects of the conversion to sound, putting to rest the notion of a "sudden, chaotic" transition. Extensive endnotes, indexed.
- Donald Crafton. *The Talkies: American Cinema's Transition to Sound 1926-1931.* (University of California Press, 1997/1999. *History of the American Cinema*, Vol. 4.) The standard work on the subject. Extremely well-researched, generously illustrated, and copiously footnoted.
- E.I. (Earl I.) Sponable. "Historical Development of Sound Films." *Journal of the Society of Motion Picture Engineers*, vol. 48, nos. 4-5 (April/May, 1947). An essential, detailed chronology by a direct participant, drawing on and quoting extensively from the papers of his boss, Theodore Case, as well as patent records, and other original documentation – even travel itineraries. Archived in full online at <http://members.optushome.com.au/picturepalace/FilmHistory.html>
- Edward W. Kellogg. "History of Sound Motion Pictures." *Journal of the Society of Motion Picture Engineers* [Journal of the SMPTE], volume 64 (1955). Part 1: June, pp. 291-302; Part 2: July, pp. 356-374; and Part 3 (with errata): August, pp. 422-437. Extensive illustrated technical history. A standard reference. Archived PDFs available online at...  
<http://www.aes.org/aeshc/docs/smppte/movie.sound/kellogg-history1.pdf> ,  
<http://www.aes.org/aeshc/docs/smppte/movie.sound/kellogg-history2.pdf> , and  
<http://www.aes.org/aeshc/docs/smppte/movie.sound/kellogg-history3.pdf>
- Rick Altman. *Silent Film Sound.* (Oxford University Press, 2004) Sumptuously illustrated large-format general history of the subject in general (accompaniments of all sorts, precursors, etc.) with chapters and *passim* devoted to early sound film processes. An outstanding book.
- Richard Abel & Rick Altman, eds. *The Sounds of Early Cinema.* (Indiana University Press, 2001) A wide-ranging anthology of essays and papers examining the topic in a general sense, with a number of pieces specifically on "sound film" topics.
- Scott Eyman. *The Speed of Sound: Hollywood and the Talkie Revolution 1926-1930.* (Simon & Schuster, 1997) A commonly available and fairly decent survey history of the transitional period, focusing on feature films produced in Hollywood.

## International History (non-US)

- Allison McMahan. *Alice Guy Blaché: Lost Visionary of the Cinema* (Continuum Books, 2002). Devotes an entire chapter to the Gaumont Chronophone and Alice Guy's role as director of over 100 of their "Phonoscenes." Such a detailed account is especially rare in English.

- Franklin S. Irby. "International Relations in the Sound Picture Field." *Journal of the Society of Motion Picture Engineers* (SMPE), vol. 15, no. 4 (October, 1930). A contemporaneous survey of sound film-related corporate and patent history to 1930, including a rare overview of developments in Europe.
- "The Emergence of German Sound Film." (Deutsches Filminstitut, undated) A brief overview online at <https://www.filmportal.de/en/topic/the-emergence-of-german-sound-film> The sidebar also includes links to various related "Materials."
- Douglas Gomery. "Economic Struggle and Hollywood Imperialism: Europe Converts to Sound." *Yale French Studies*, no. 60, Cinema/Sound (1980), pp. 80-93.
- Douglas Gomery. "Tri-Ergon, Tobis-Klangfilm, and the Coming of Sound." *Cinema Journal*, vol. 16 no. 1 (Fall 1976), pp. 51-61.

### Edison Kinetophone

- Rosalind Rogoff. "Edison's Dream: A Brief History of the Kinetophone," *Cinema Journal*, vol. 15, no. 2, American Film History (Spring, 1976), pp. 58-68.
- Art [Arthur] Shifrin, "Researching and Restoring Pioneer Talking Pictures: The 70th Anniversary of the Theatrical Release of Kinetophone," *Journal of the Society of Motion Picture and Television Engineers* [Journal of SMPTE], (vol. 92, no. 7; July, 1983), pp. 739-751.
- Arthur Shifrin, "Restoration of Kinetophone Sound Motion Pictures," *Journal of the Audio Engineering Society* [JAES], vol. 31, no. 11 (November 1983), pp. 874-890.

### Phonofilms, Lee De Forest, and Theodore Case

- Stephanie Przybylek. *Breaking the Silence on Film: The History of the Case Research Lab*. (Cayuga Museum of History and Art [NY], 1999) Essential. One of the only books on Theodore Case and his work, and fortunately quite well done though brief. Drawing on Case's papers, archived but long ignored at the Cayuga Museum, on the grounds of the family estate.
- Leo Enticknap. "De Forest Phonofilms: A Reappraisal." *Early Popular Visual Culture*, vol. 4, no. 3 (Nov. 2006), pp. 273-284. Also as PDF via the author's web site:  
[http://www.enticknap.net/leo/downloads/enticknap\\_phonofilms.pdf](http://www.enticknap.net/leo/downloads/enticknap_phonofilms.pdf)
- Brian Yecies. "Transformative Soundscapes: Innovating De Forest Phonofilms Talkies in Australia." *Scope: An Online Journal of Film & TV Studies* (University of Nottingham, UK), no. 1 (Feb. 2005)

### Select DVDs and Home Video

- The Kinetophone: A Fact! A Reality!* (Undercrank Productions, 2018) DVD. A landmark release, and essential viewing. New digital restorations by the Library of Congress of eight 1913 Edison Kinetophone films with their soundtracks. Extras include a 30 min. documentary with a Library of Congress archivist. See <http://www.undercrankproductions.com/DVDs.html>
- Discovering Cinema*. (Flicker Alley, 2007) DVD. An essential 2-disc set devoted, respectively, to early sound and early color. Disc 1 includes the new feature-length documentary *Learning to Talk*, plus 18 extremely rare restored European and US sound shorts (and fragments) from 1908-1929.  
<http://www.flickeralley.com/>
- Max Fleischer's Ko-Ko Song Car-Tunes*. (Inkwell Images, 2002) DVD-R. A collection of six Fleischer Phonofilm releases from 1925-1926, including early bouncing-ball sing-alongs.  
<http://www.inkwellimagesink.com/>
- Don Juan* (1926). (Warner Archive Collection, 2011) DVD-R. Recreates the full Vitaphone world premiere program of August 6, 1926, with all eight of the sync-sound shorts and the full *Don Juan* feature film with the original music-and-effects soundtrack.
- Westfront 1918* (1930) and *Kameradschaft* (1931). (Criterion Collection, 2018) Blu-Ray & DVD. New archival restorations of two important and hitherto hard-to-find pioneering sound films by G.W. Pabst.