The 35MM Fad

ARSC Conference 2012
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A Brief History of 35mm Mag-Film

• Post WWII – Magnetic tape recording migrates to the U.S.
• 1947 – DuPont produces 35mm magnetic film, RCA produces a conversion kit for their PR-23 optical recorder.
• By 1951 – RCA produces 35mm recorders for 1, 2 and 3 tracks, and Westrex enters the business with magnetic recorders for 35mm and 17.5mm.
• SMPTE Progress Report of 1952 states that by the end of 1951, “approximately 75% of the original production recording, music scoring and dubbing in Hollywood was being done on magnetic recording equipment.”
A Brief History of 35mm Mag-Film
Everest Records

- Harry Belock was Hollywood sound man in the 1920’s, knows about film-sound techniques and technology. Also worked for CBS, designing disk-recording equipment.
- Audiophile Belock meets audio dealer/engineer Bert Whyte, mutual enthusiasm to start new record label as stereo era dawns.
- Company builds a studio in Bayside, Queens.
- Initially recorded on 3-channel ½” tape, but acquired 3-channel 35mm equipment in 1959.
- Westrex engineering manager John G. Frayne profiles Everest’s 35mm equipment and techniques for AES Convention/Journal.
Everest Records

Fig. 5. Westrex 35-mm three-track magnetic recording portable unit (Everest Records).

Fig. 6. Main recording room showing two Westrex 35-mm three-track recording machines (Everest Records).

Fig. 7. One of the Everest’s disk recording rooms showing a special Westrex 35-mm three-track reproducer and associated equipment.
Everest Records

Everest brings you the finest sound on records

Direct From 35mm Magnetic Film to Disc

Now... on Everest Records, monaural or stereo... great music with the highest, most accurate fidelity yet achieved! Brilliant performances by the world's finest musicians are recorded on 35 mm magnetic film... then transferred directly to discs. The result: an extraordinary listening experience for you.

**EVEREST MAGNETIC FILM COMPARED WITH CONVENTIONAL TAPES**

- 1/2" tape—actual size
- 1/2" stereo tape—actual size
- Everest's 35 mm magnetic film—actual size

Everest magnetic film is much wider and five times thicker than conventional tapes. With this sprocket-driven magnetic film Everest achieves:
- The widest dynamic range ever recorded
- Recording without "wax" or "oils"
- Elimination of pitch through distortion and tape stretch
- The lowest possible noise factor

Now hear this exciting new sound yourself. Everest offers you these and other selections in a growing library of great monaural and stereo recordings.

**EVEREST RECORDS**

Product of Decca Recording Co. Division of Decca Instrument Corp.

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Fine Recording Bayside

• Belock Instruments’ board shuts down Everest in late 1960.
• By spring, 1961, Fine Recording Inc. acquires the studio in Bayside, Queens and all of the recording equipment. Former Everest engineer Ted Gossman is hired. Facility renamed Fine Recording Bayside.
• Owner C. Robert Fine has many years’ experience in film-sound production and working with magnetic film. Fine Recording’s studio in Manhattan already has extensive sound-for-picture business.
• Fine Recording clients Mercury Records, Command Records and Cameo/Parkway express interest in 35mm recording.
Mercury Living Presence 35mm

- First MLP recording on 35mm takes place May, 1961 in Rochester – SR90245 / Fred Fennell – The Music of Andrea and Giovanni Gabrieli.
- 35mm recordings made in London, Moscow, Detroit, Minneapolis, Rochester and at Fine Recording Bayside.
- Mercury records Richter/Liszt (Philips PHS 900 000) in London 6/61 on 35mm.
- 35mm equipment travels to Moscow 6/62.
- Final 35mm recordings made in London, 7/63.
- Surviving 35mm masters were used to make MLP CD reissues in 1990’s. Playback on original recording equipment.
Mercury Living Presence 35mm
Mercury Living Presence 35mm

NOW! FROM 35MM FILM
LIVING PRESENCE plus

●plus increased realism. Broad, clear musical sound, more natural than you have ever heard on a recording.

●plus wider dynamic range. Fortissimos and pianissimos that were never before possible.

●plus incredibly quiet surfaces. No tape hiss. No flutter. All you hear is the music.

Mercury artists, as always, provide superb-plus performances. Hear these newest (and other)* Living Presence albums today.

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"When the cannonade was at its height, a Confederate band of music began to play polkas and waltzes which sounded very curious, accompanied by the hissing and bursting of the shells."

COLONEL ARTHUR J. L. FREMANTLE, British military diarist with Lee at the time of the Battle of Gettysburg

THE CIVIL WAR
ITS MUSIC AND ITS SOUNDS

This unique album tells the story of the Civil War through its music and the men who made it—shamrocks, bagpipes, fiddles and drums.

The Union and Confederate songs recorded here are taken from actual Civil War band books and played on authentic Civil War instruments. Included are such favorites as Hail to the Chief, Listen to the Mockingbird, Dixie and Rosalie, Drum and Fife for Fire and Drums, and Cavalry Trumpet signals.

For this unique living presence sound series presentation, Mercury has combined over 1000 shots from actual Civil War weaponry in 33 separate battle sound tracks to recreate the battle of Gettysburg's awesome sounds of conflict. Martin Garst composes this spectacular dramatic score.

FREDERICK FENNELE
EASTERN WIND ENSEMBLE

There has never been a record album like this one—it is a lasting and inspiring recorded document for the entire family.

LIVING PRESENCE SOUND SERIES 35MM
AN ORIGINAL 35MM MAGNETIC FILM RECORDING

April 1962

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Mercury Living Presence 35mm
Mercury Pop 35mm – f:35\textsuperscript{d}

- Mercury’s pop/jazz divisions already have audiophile-oriented “Perfect Presence” series. 35mm recordings added under “f:35d” banner.
- Artists include David Carroll, Xavier Cugat, Fred Fennell, Pete Rugolo, Herman Clebanoff.
- Gatefold covers, gold-colored labels, detailed information about recording setups, 35mm technology, etc.
Command Records 35mm

• Enoch Light’s Command Records, owned by ABC Records, was established in 1958 to produce “stereo spectacular” audiophile recordings. Succeeds from the start with “Persuasive Percussion,” “Provocative Percussion,” “Bongos,” etc.

• Command jumps into 35mm with both feet. Pop album “Stereo/35mm” tops Billboard’s Stereo LP chart.

• After signing William Steinberg/Pittsburgh Symphony, Command Classics launches. All orchestral titles recorded on 35mm.

• Various Command pop and classical titles recorded on 35mm through 1968.

• Enoch Light leaves Command in 1967 to start Project 3.
Command Records 35mm

The first time you hear this record will be one of the most startling experiences of your entire life.

For the very first time you will hear sound that is completely unplanned, sound that is totally true-to-life, full, honest sound with no mechanical reservations whatsoever.

The record that has been made for you.

It reveals the most astounding development in recording techniques since the first Command Record and presents us with a completely unprecedented experience of sound.

You will hear sound so intimately real that you can actually feel the presence of each individual instrument. The sound is so pure, so true, that it is possible to reproduce music of each great intensity that it actually approaches the threshold of pain.

Listening to this record can be a shocking experience. It can be exhilarating, it can be exhilarating. But it isn't a casual experience. This is an adventure in listening that you will never forget.

The natural sensation of the greatest sound chamber in the world-the sound studio of Carnegie Hall in New York.

For the first time you will hear sound recorded on film-

Command Records 35mm

The key to this startling breakthrough is a whole new world of sound recording that has been developed by the latest Command Records 35mm sound studio.

The film is on a roll of microfilm that is inserted in a recording head. The recording head is able to carry the equivalent of the output of three typical magnetic tape tracks with more than twice the space between each track in generating magnetic impulses of sound. And because the film is in a roll, it is possible to record sound continuously by roll-through in a single direction.

The results in a richness of sound that is incomparable to any other sound reproduction. However, Command recordings have always been designed to be extremely distorting and demanding without losing the truest sensation of sound.

The sound is so true, so intimate, so true that it is actually the essence of each individual instrument. The sound is so true that it actually approaches the threshold of pain.

Perfect, Unobtrusive Sound

In attempting to achieve perfect, unobtrusive sound reproduction, in the recording of large orchestra, even the most advanced tape techniques are found to fall short of the mark.

But film does more than provide solutions to the problems of tape of tape. It also opens up possibilities in its own right. The much wider bandwidth of film is used for the recording of live performances of the highest quality.

The Command Record remains the only sound that has been recorded on film.

September 1961
Command Records 35mm

Command records originators of the world’s leading stereophonic records announce an important new advance in the recording of great classical repertoire and world famous artists.

Command CLASSICS designed for the most discriminating and demanding individuals.

Original master recorded on 35 millimeter magnetic film

35MM

For the very first time you will hear sound that is completely liberated, sound that is totally free—pure, full, honest sound with no mechanical restrictions whatsoever.

You will hear sound so intensely real that you can actually feel the presence of each individual musical instrument.

You will hear exciting performances recorded with utter clarity and truth from triple piano (fff) to triple forte (fff).

Produced by Enoch Light and the COMMAND research team of music and sound experts, these new COMMAND CLASSICS offer performances that are an unprecedented combination of musical brilliance and startlingly real, completely unlimited sound reproduction.

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Command Records 35mm

**POPULAR...AND...CLASSICAL**

**STEREO 35/MM, Volume 1**

**BRAHMS Symphony No. 2 in D, Op. 73**

**The Nation’s No. 1 Best-Selling Stereo Album**

Enoch Light and His Orchestra, 60 of America’s Finest Musicians performing at Carnegie Hall, recorded on 35 mm magnetic film.

**LIFE MAGAZINE:** “For sparkling sound, STEREO 35/MM, Volume 1, with Enoch Light playing pop standards, is the season’s biggest sensation.”

**RECORD WORLD:** “With this spectacular performance from Enoch Light’s COMMAND, what has emerged is a complete audiophile achievement and an exciting new frontier in music reproduction.”

**HARMONIA MUNIENSIS:** “STEREO 35/MM, Volume 1, is a magnificent achievement in sound recording and reproduction. It is a musical experience that will leave you breathless.”

**McCALL’S MAGAZINE:** “This album is a masterpiece of musical engineering. It is a work of art that will be treasured for generations to come.”

**AND JUST RELEASED...**

**STEREO 35/MM VOLUME 2**

Enoch Light and His Orchestra

**COMMAND, producer of STEREO 35/MM, Volume 2**

**BRAHMS Symphony No. 2 in D, Op. 73**

**Chosen the Best Classical Orchestral Album of 1961**

William Steinberg and the Pittsburgh Symphony Orchestra, Original COMMAND master recorded on 35 mm magnetic film.

**THE NEW YORK HERALD TRIBUNE:** “This is the sound Brahms desired in stereo, and one of the finest ever recorded.”

**AMERICAN RECORD GUIDE:** “The result is the level of recording perfection of the Brahms Recordings of the Pittsburgh Symphony Orchestra under the direction of William Steinberg.”

**THE RECORD WORLD:** “The performance is as close to the original as any we have ever heard.”

**COMMAND’S COMPLETE CLASSICAL SERIES**

**... all master-recorded on 35 mm magnetic film**

Send for free descriptive brochure of all COMMAND releases.

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Other 35mm Players

• Cameo/Parkway releases line of 35mm records, made at Fine Recording Bayside or on-location by Fine Recording.

• After leaving Command Records in 1967, Enoch Light launches Project 3. Initial recordings on the new label are 35mm. One of the early sessions, at Fine Recording in Manhattan, is detailed in a Popular Science article. Project 3 moves most recording to A&R Studios and continues to record on 35mm until the late 1960’s.

• Still others??? Who? Where? When?
Other 35mm Players

• 35mm fad seems to have completely died out by 1970. First-hand participants often cite high cost of magnetic film and somewhat more costly and complex production techniques as the main reasons.

• Also, Dolby NR and quieter tape formulations came along.

• Plus, recording of pop and rock music moves to many tracks with overdubbing, remixing, etc.
Cameo/Parkway

TECHNICAL DATA

The use of 4-channel, 35-millimeter film instead of conventional magnetic tape is responsible for the radical improvement in sound quality that can be heard on this record. Because of the greater film width, each recording track is 2 1/2 times the track width on conventional tape. This extra-wide track results in a greatly improved signal-to-noise ratio and a consequent reduction of hiss to the point where it is virtually inaudible.

Luma movie film, 35-millimeter film is sprocket-driven. It moves across the recording heads in a "closed loop" which permits a very fine control of film speed. As a result, disturbances due to speed fluctuation—"wow" and "flutter"—are reduced to a level that even the most sensitive ear cannot detect.

Finally, 35-millimeter film is more than three times as thick as ordinary magnetic tape. For this reason, "tape print-through," which is the undesirable transfer of sound from one turn to another in the tape roll, is eliminated along with other spurious noises.

The original 35-millimeter film "takes" were made with a custom-built Western Electric and Westrex RA 1502 film recorders. To cut the record masters, the tape was played back on a Westrex RA 1552 film transport. The signal was fed through Pultec equalizers and 200-watt McIntosh amplifiers into a Westrex 3A stereo cutter mounted on a Stufty arbite for the stereo version, and a similarly mounted Miller cutter for the monaural version.

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RECOMMENDED FOR YOUR RECORD LIBRARY

This high-fidelity album is just one in a series of outstanding releases featuring the exclusive Cameo/Parkway 4:35 recording technique. Listed below, with their catalog numbers, are a few others presently available through your local dealer. See him for more details . . .

- "An Exciting Evening At Home With The International "Pop" Orchestra" C-4001
- "Soul of Hawaii" C-4002
- "Soul of Italy" C-4004
- "If The Big Bands Were Here Today—Volume 1" C-4005
- "If The Big Bands Were Here Today—Volume II" C-4007
- "Broadway Originals" C-4006
- "120 Cadence Marches" C-4001
- "20 All-Time German Favorites" C-4002
- "12 Years of Academy Award Winners"—Hammmed Organ C-4014
- "Exotica" C-4008
- "Spanish Inns" C-4015
- "Musical Wonders of Italy" C-4016
- "Bobby Rydell Sings With The Big Bands" C-4017

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STEREO HAS COME OF AGE
PROJECT 3 RECORDS SURPASS THE STATE OF THE ART PROJECT 3 RECORDS HAVE ACHIEVED TOTAL SOUND!

Total Sound is the full impact... distortion-free sound. You can play a Project 3 record or tape or cartridge at full volume or at lowest volume, and you will consistently enjoy the pleasure of complete musical definition of instruments, natural presence, and perfect musical balance.

In preparing for a Project 3 recording session, selection of microphones is one of the important decisions. The microphone most complimentary to the particular instrument being recorded is chosen; these microphones are matched to our console equipment, incorporating the latest technological advances, which pass the musical information to the 35 mm. magnetic film recording equipment. This insures a distortion-free, natural-presence sound.

Project 3 albums are master recorded on 35 mm. magnetic film. In spite of the fact that the film is fifteen times more expensive than most studio tape, the advantages of recording on film are irrefutable. The use of 35 mm. magnetic film recording equipment, because of its sprocket-driven, closed-loop recording, insures extremely stable, flutter-free sound. The film, with its wider tracks, allows for improved signal-to-noise ratio; and the substance and solidity of the magnetic film completely eliminate print-through, a form of distortion.

The master disc is cut directly from the film, rather than from any intermediary mix-down step, using specially designed recording amplifiers, capable of delivering two hundred watts of power per channel, in connection with a Westrex type cutter. The master is cut and re-cut until it meets the rigid quality of our engineers.

All of the above-mentioned characteristics are important and represent a significant advance and improvement in recording; but the ultimate test of any record is in the listening. Hearing is believing; and we believe that Project 3 records have achieved Total Sound.

Performers are recorded on dual 35mm magnetic film recorders (above). Magnetic film, although superior to conventional magnetic recording tape in most respects, is not used universally in the recording industry because of its high cost: roughly 15 times the price of magnetic tape.

Film-recorded “takes” are transferred to two master disks—one for each side of the finished record—by a complex electromechanical, lathe-driven cutting head. The two cut masters are playable one-sided phonograph records, complete with lead-in and lead-out grooves and blank bands between tunes.
35mm Preservation Issues

• Time has not been kind to the master films from the 35mm Fad.
• 35mm mag-film from that era was acetate-base and tends to suffer from “vinegar syndrome” and other deterioration/shrinkage.
• Record companies were not vigilant in their vaults. Many 35mm masters are now lost. Some were ordered destroyed.
• Those masters that survive tend to be in very poor condition.
• Some Mercury 35mm masters survived and were reissued on CD in the 1990’s. Ditto for some Everest masters. A few Command Classics 35mm masters were reissued on CD by MCA Classics.
35mm Preservation Issues

• Below is an example of early 1960’s magnetic film damaged by time.

• Nick Bergh: “A mix of all sorts of problems. The dimples are caused by uneven shrinkage and breaking of the acetate polymer chains. The white is hardened plasticizer crystals that must be cleaned off. Under the old (film) is a new piece of (film) so you can see the amount of shrinkage. The width is about 33mm.”
3 Minutes of 35mm Classical Music

- Segments 1-3 – EVEREST (note airplane passing over Queens studio in segment 2)
- Segments 4-6 – MERCURY
- Segment 7 – COMMAND
- Segment 8 – CAMEO ( alas, from a mono LP)
2 Minutes of 35mm Pop Music

- PROJECT 3 (Urbie Green)
- COMMAND ("Big Band Bossa Nova")
- COMMAND ("Stereo/35mm")
- COMMAND ("Dimension 3")
- MERCURY (Xavier Cugat)
- MERCURY (George Barnes)
- MERCURY (Xavier Cugat)
- MERCURY (David Carroll)
Thank You