

No enterprise in the non-profit world can accomplish much without the enlightened, altruistic cooperation of its benefactors. The Reel Thing has been privileged to enjoy the generous support of the professional community since its inception. The organizers of The Reel Thing would like to recognize and thank all the individuals and organizations who contributed their considerable skills, energy and enthusiasm to the symposium. As always, we thank our presenters, who share their knowledge and experience in this symposium. And we would like to recognize the following individuals and organizations for their support and collaboration:

## Gary Adams Beverly Graham Kristina Kersels Laura Rooney Leah Tuttle Dan Wingate The Staff of Seattle's SIFF Cinema Uptown

The Reel Thing is made possible by the active and engaged support of some of the most important and innovative companies in the archival field. These firms work side by side with archivists and asset managers to constantly raise the standard of preservation and restoration, and to find new ways to insure that moving images from public collections and the private sector will retain their quality and remain accessible as a resource for future generations. We offer our gratitude for their indispensable sponsorship of The Reel Thing.

# **Deluxe Entertainment Services Group**

## **Iron Mountain**

Reflex Technologies The Media Preserve Front Porch Digital Bonded Services Kodak Reto.ch Fuji Film Audio Mechanics Universal BluWave Audio Prasad Fotokem Digital Vision DJ Audio T3 Media YCM Laboratories

#### ТНЕ

## REEL THING XXX

#### SIFF Cinema Uptown Seattle

#### Tuesday, December 4, 2012

#### 12:30-5:30pm

### Ð

#### **Reviving DC's Comic Book Collection**

Andy Pratt and Stuart Baker, Deluxe Archive Solutions

#### ٠

#### The Digital Reconstruction of Early Sound-on-Disc Films

A joint project by Deutsche Kinemathek Berlin, University of Applied Sciences HTW Berlin and ARRI Film & TV Services Munich

Dirk Förstner, Deutsches Kinematek

#### ٢

### AEO-Light: An Open-Source Sound Extraction Tool for the Archival Community

Greg Wilsbacher, Moving Image Research Collections, University of South Carolina and Bob Heiber, Chace Audio by Deluxe

Ð

#### The Jazz Singer starring Jerry Lewis

David Crosthwait, DC Video and Chris Lewis

Ð

### The Restoration of Richard III

Kevin Manbeck, MTI Film, Los Angeles CA

### Ð

## Archival Scanning for Non-Standard Gauge Projects

## Case Study: First Filmed Ascent of Mt McKinley

Tim Knapp and Reed Bovee, Reflex Technologies

٢

## The Art and Business of Disney Restoration and Preservation

Jayson Wall and Michele Winn, The Walt Disney Company

Ð

### A Databased Approach to Video Preservation

Bruno George, Capture, Restore and Save, LLC

٠

## Kodak Update: Asset Protection Films

Diane Carroll-Yacoby and Beverly Pasterczyk, Eastman Kodak

Ð

## Independent Film, Non-Standard Sound: The Audio Restoration

## of Dancing Soul of the Walking People

John Polito, Audio Mechanics

Ð



#### ТНЕ

## REEL THING XXX

#### Program

€



## Reviving DC's Comic Book Collection Large Scale Graphics Scanning for an Integrated Archive

Andy Pratt and Stuart Baker, Deluxe Archive Solutions

Virtually every archivist in this association must deal with not only moving images, but also a plethora of other forms of archival material. One unique form is the CMYK negatives that were used in copy dot printing principally for comic books. Much like the YCMs created for motion picture preservation and restoration, the CMYKs were also as a way to preserve and reproduce comic books.

This presentation will touch on DC Comics and Warner Brothers' desire and effort to both archive and make available comic books that span 75 years. There were a number of challenges in this project. The first was the need to revive a scanning process that was discontinued about 15 years ago, adapting and modernizing equipment that is no longer being made. The scale of the project was substantial : an estimated 27,000 comic books to be scanned. With each comic book averaging 32 pages and each page requiring 4 scans for each CMYK, the scope of this project is expected to exceed 3,400,000 scans. An additional 1.7 million files from optical disk media and hard drives had to be integrated with the scanned images, and all of this data had to be migrated to the Warner Brothers cloud environment. The equipment and process used to permanently archive the primary graphic resources of DC Comics will be described.



The Digital Reconstruction of Early Sound-on-Disc Films

A joint project by Deutsche Kinemathek Berlin, University of Applied Sciences HTW Berlin and ARRI Film & TV Services Munich

Dirk Förstner, Deutsches Kinematek

The first German "sound-on-disc" systems including, among others, the Biophon-system by Oskar Messter, were developed between 1903 and 1914 as early attempts to synchronize moving images with recorded sound. The image was stored on 35mm nitrate film and the sound on phonographic discs. During the screenings in the cinema the projectionist had to control the frame rate of the film projector and the speed of the Gramophone player in real-time in order to keep image and sound synchronized, as standardized frame rates or disc speed were not defined for these systems.

The reconstruction of the few surviving film and sound elements of these systems is now feasible due to the advent of the Digital Intermediate (DI) process. The tools of the DI process, originally designed for contemporary film postproduction, offer a wide range of possibilities when altering, correcting and manipulating the audiovisual data of films, regardless of their various formats. When used in film restoration, however, these solutions must be considered alongside the ethical requirements relevant to the preservation of historically significant artifacts. The question thus emerges: which instruments of the DI process, both hardware and software, may appropriately be used in the preservation of historical film elements? Furthermore, how can we define the limits of their application?

In this presentation, a range of possibilities of selected tools from the DI process will be analysed, illustrated by the reconstruction of several early "sound-on-disc" films of German production. Apart from the issues of scanning (with the Arriscan) and image restoration (with Diamant and DaVinci Revival), a particular focus will be the synchronization of image and sound (using the Avid Digital Suite), and in particular the need to fill in missing frames in order to keep image and sound in synch. Different approaches from the use of black frames on the one hand to state-of-the-art VFX on the other will be presented and put forward for discussion.



## AEO-Light: An Open-Source Sound Extraction Tool for the Archival Community

Greg Wilsbacher, Moving Image Research Collections, University of South Carolina and Bob Heiber, Chace Audio by Deluxe

The University of South Carolina Moving Image Research Collections is collaborating with research faculty from the University's Interdisciplinary Mathematics Institute to develop AEO-Light, an open-source software application to extract digital audio signals from scans of motion picture film. With \$300,000 in funding from the National Endowment for the Humanities the AEO-Light project has as its primary goal the survival into the digital age of motion picture audio currently stored as optical sound tracks. Put simply, the emphasis of scanning film for intra-frame image content places at risk of loss all other forms of information stored on the film element. AEO-Light software enables the recovery of audio content from motion picture scans so that this essential component of our film heritage is not left behind.

Traditional workflows assume the separate preservation of audio and image content. In a digital environment such workflows scan the film once for frame information and then process the film a second time to extract the audio content. The AEO-Light project encourages a one-pass scan of a film element to capture both the frame content and the optical sound track. AEO-Light can produce an

٢

audio file from digital video or frame files (TIF or DPX) generated by the scanner. The software is also able to produce a synchronized digital video in a number of formats.

Because it extracts audio content one-frame at a time, AEO-Light is able to produce audio from scans made at any speed making the goal of scanning at 24 fps entirely artificial. Films can be scanned as slow or as fast as their physical condition will allow without losing the sound information. Shrunken nitrate sound prints from the early sound era, for example, can be scanned at a slower speed while more modern film elements can be scanned well above sound speed. In other words, AEO-Light allows scanners to operate at whatever speed is ideal for the preservation project.

By demonstrating that audio signals of almost any type can be readily extracted from motion picture scans, the AEO-Light project also encourages archives to create digital surrogates of motion picture films, surrogates that retain as much information from the film element as possible so that AEO-Light and other processes can be used to extract, analyze and preserve that content for future generations AEO-Light will be made freely available for non-commercial use. The team envisions the initial release as the beginning of a community development project, one that will benefit from the collective expertise of specialists in this room. To promote such continued development the source code for the software will be made available to the public so that the community can modify and improve the software over time.





The Jazz Singer starring Jerry Lewis

David Crostwaith, DC Video and Chris Lewis, Jerry Lewis Comedy Classics

When, NBC and Ford wanted to produce a high-end television show, they turned to MCA, and Lew Wasserman who together a slate of talent that included a veritable Who's Who of show people for a 33 episode run. The second offering in the series aired on October 13, 1959 as Lincoln Mercury Startime and featured Jerry Lewis in the title role of The Jazz Singer. The show aired once and was never again broadcast. Despite the fact that the program was in color and was made with the participation of one of television's great innovators, The Jazz Singer lapsed into a long period of undeserved obscurity. As with many other early television productions, the original videotape disappeared. Until recently, only a black-and-white kinescope in the hands of a collector, was known to exist. Originally, the production had been recorded on 2" quad videotape and physically spliced. When a 2" tape of the show came to light, it was found to be a low-quality non-standard color dub, and in the process of playback and rerecording, it was discovered that the 2" tape did not contain the entire production. An appeal to the Lewis family led Chris Lewis, Director of Jerry Lewis Comedy Classics, to undertake a comprehensive search of Jerry Lewis's personal archives, where he found a complete, fifty-year-old black-and-white kinescope of the complete show, and an audiotape of the second half of the show. This presentation will detail the technical challenges of combining and synchronizing the disparate surviving media in this recovery and restoration of a classic television program.



## The Restoration of Richard III

#### Kevin Manbeck, MTI Film, Los Angeles CA

*Richard III* (1955) directed by and starring Laurence Olivier had been re-cut several times during its lifetime, destroying the negative at each edit. In addition, the negative had experienced significant color fading. Age, varied emulsions, and inconsistent archival conditions contributed to the fading process. The 2012 restoration, funded by the Hollywood Foreign Press Association and The Film Foundation, focused on these two unique technical challenges. One goal of the restoration effort was to return the film to the release version by repairing more than one hundred negative splices. A second goal was to restore the film to its original Technicolor vibrancy. This talk is an accessible technical explanation of the restoration effort.



٢



## Archival Scanning for Non-Standard Gauge Projects

## Case Study: First Filmed Ascent of Mt McKinley

Tim Knapp and Reed Bovee, Reflex Technologies

Reflex Technologies worked with the National Park Service to restore the first filmed ascent of Mt McKinley in 1932. There were four climbers on the expedition led by Alfred Lindley and a Norwegian skier named Erling Strom. Harry Liek (Park Super) and Grant Pearson (Park Ranger) also made the climb which included both the North and South Peaks. Lindley captured the climb on 16mm, and one print of the footage captured was given to each climber. The NPS gathered footage from the partial prints that remained in 2010 and the footage came to Reflex after a major U.S. archive deemed the footage too shrunken and brittle to be scanned or restored. There were many interesting twists and turns to this project that included scanning and editing footage from the partial prints and synchronizing a narration by Grant Pearson that was captured on tape in 1980 while Pearson watched one of the original projected prints. This required syncing the picture captured at 18fps and the sound recorded at 29.97fps.

Telecines and scanners have been available for decades, but these devices have traditionally been designed with new film in mind. As the film archival workflow increasingly integrates a datacentric aspect, the ability of scanners to tolerate the deficiencies of shrunken, faded, spliced and repaired film becomes critical to the quality of the image in data. The Reflex Archival Film Scanning system,

developed in association with film archivists, cinematographers and engineers, incorporates a number of features that support high quality image capture from distressed film sources. The patent-pending system provides sprocket-less, continuous motion scanning of motion pictures, including films that present previously insurmountable problems for scanning due to deteriorated condition.

٩



## The Art and Business of Disney Restoration and Preservation

Jayson Wall and Michele Winn, The Walt Disney Company

In the spring of 1954, to aid in financing the construction of Disneyland, Walt Disney and his brother Roy stuck a deal with ABC Television for a weekly anthology series. Premiering on October 27, 1954, *DISNEYLAND* the series detailed the construction progress of the theme park in Anaheim, California, as well as provided a platform for showcasing library material from the Disney vaults and new productions created exclusively for television. The first new narrative story planned for the TV show format was the legend of American hero Davy Crockett, in 3 parts, directed by Norman Foster. Foster wanted song-and-dance man Buddy Ebsen to play Crockett, but Disney was not sold on the idea. During a private screening of the Atomic classic *THEM*! one afternoon, Disney noticed a bit player by the name of Fess Parker and -- as the legend goes -- he stood up, pointed at the screen and said, "That's my Davy Crockett." Parker was quickly signed as the lead, partnered with Buddy Ebsen as Davy's trusted sidekick Georgie Russell.

The three episodes together were originally budgeted for \$300,000, but Walt ended up shooting these on location and in color (a rarity for television at the time), resulting in a final price tag of \$700,000. The first of the 3 episodes, *Davy Crockett: Indian Fighter* aired in black and white on Wednesday, December 15, 1954 on ABC. No one, including Walt, had any idea what would hit the country on Thursday, December 16: the Davy Crockett Craze.

The Studio and its marketing partners were blindsided by the demand for *Davy Crockett* merchandise. In less than a week, license agreements were made for over 500 products, the first being the "official coonskin cap," hitting stores just after Christmas in 1954. The phenomenon continued to grow as the second episode of the Davy Crockett saga aired in late January of 1955. By mid-February, work had begun on editing down the episodes into a 90-minute theatrical feature, presented in Technicolor and "Wide Screen", entitled *Davy Crocket: King Of the Wild Frontier*, released in May 1955, just a month after the last episode aired on TV.

For the second season of *DISNEYLAND*, two more Crockett adventures were filmed. They, too, were shot in color, aired in black and white, and released theatrically in July of 1956 as *Davy Crocket and the River Pirates* (also in Technicolor and "Wide Screen"). In the span of a year and half, the company had made more money on Davy Crockett merchandise alone, than on any other property before or after, up until Walt's death in 1966. Directors of photography Charles Boyle and Bert Glennon shot all 5 episodes of *Davy Crockett* on Eastman Kodak 5248 stock, with date codes ranging from 1953 to 1955. The camera negatives were originally conformed for auto select printing (a Disney standard until the late 1970's) which allowed the production of multiple versions from one set of negatives when necessary. In the mid 1980's, the negatives were then re-conformed for traditional A- and B-roll printing.

The five *Davy Crockett* TV episodes were first reconstructed and restored photochemically in the mid 1990's by the Library Restoration team. Today, spearheading the digital restoration of all things *Davy Crockett* is Jayson Wall, Manager of Library Mastering for the Walt Disney Company. Partnering with Warner Brothers MPI, work began on the two feature versions in October 2012 as the original camera negatives were scanned at 4K on the Lasergraphics Director scanner. Kodak's Digital Ice technology was applied to reduce dirt and surface scratches on the image. MPI colorist Ray Grabowski is using the Studio's dye transfer Technicolor reels as one of the color guides to assist in capturing the original "first day of release" look on both features.

The current workflow will result in new digital servicing files, with plans for DCPs and long-term film preservation elements on both *Davy Crockett* features. The restoration is presently ongoing, and the presentation will explore issues of color fading with multiple examples of work-in-progress footage.

Part 2 of the Disney presentation will explore the challenges involved when prioritizing preservation at a major Studio. Michele Winn will cover what steps Disney has taken to actively preserve their film assets, the creation of a digital preservation schedule, and what the future holds for the Studio's long-term preservation plans as photochemical preservation options are dwindling.

#### Ð

#### A Databased Approach to Video Preservation

#### Bruno George, Capture, Restore and Save, LLC

In the past three years, there has been on-going development of a novel system of capture for electronic media. This process, rather than extracting electronic signals as pictures, focuses on creating a database representation of media content as the primary deliverable. These captures are being made at exceptionally high frequencies. Acknowledging that today's image formats and approaches to compression have a limited lifespan, and that archives will need access to the underlying data for maximum flexibility and migration both for perennial preservation and for future access modalities, this process allows for the retention of pure data that is not truncated or altered by contemporary storage methodologies. Quality differences between this approach and traditional picture-based video archiving will be displayed.

#### Ð

Kodak Update: Asset Protection Films

#### Diane Carroll-Yacoby and Beverly Pasterczyk, Eastman Kodak

Kodak's long history of providing media for the motion picture industry and archives continues to evolve. In 2012, Kodak introduced the Kodak Asset Protection Film Platform – offering a choice of film products tailored to specific preservation needs. As one of the few remaining suppliers of film for preservation, Kodak currently offers several films that are used in the restoration and preservation field: black-and-white separation films, color internegative films, and color intermediate films. Two new film emulsions underscore Kodak's renewed focus on preservation on Film. The first of these, Kodak Color Asset Protection Film 2332, is an emulsion designed for recording of electronic assets to film in order to take advantage of the long-term viability of film as an archival medium. This emulsion relieves the archive of the migration required by digital media, providing advantages in cost and in maintenance effort, and fits seamlessly into the traditional practices of the film archive. For productions requiring color separation, KODAK VISION<sub>3</sub> Digital Separation Film 2237, a black-and-white separation negative designed for recorders, is now available. Both of these emulsions have been specifically designed for today's workflows, and reflect Kodak's commitment to the retention of both historical and contemporary moving images on film. This presentation will discuss the concept of the Kodak Asset Protection Film Platform, the specifications of the new emulsions, and will provide case studies and visual examples of these new films.

Ð



Independent Film, Non-Standard Sound:

## The Audio Restoration of Dancing Soul of the Walking People (1980)

## John Polito, Audio Mechanics

Paula Gladstone, a Berkeley-based independent film-maker produced, wrote, directed, and edited this documentary. The soundtrack is a collage of music and spoken word material from a variety of sources, including her own poetry. In a strategy typical of non-institutional film-makers of the 1960s and 1970s, many of these were "needle drop" sources, captured from commercially available vinyl records of artists such as Duke Ellington and The Drifters. The picture was shot over a two-year period in Coney Island, and the resulting film is an abstract meditation on life under the boardwalk and a poetic document of a vanished world that resembles "city symphonies" of the 1920s such as Dziga Vertov's *Man with a Movie Camera*.

The film was shot in 8mm at 18 frames per second, and the sound was recorded, edited, and mixed using Super-8 Sound, an 8mm full-coat magnetic film format that simplified the recording and editing process for independent filmmakers. The format was short-lived, and had inherent wow and flutter issues due to its slow speed. The sound restoration proved to be quite challenging due to the lack of playback equipment and the inherent issues of Super-8 Sound. The presentation will examine these challenges and play before-and-after examples of the restoration process.

The Reel Thing Technical Symposium is organized and coordinated by Grover Crisp and Michael Friend

The Reel Thing regularly video-records these proceedings. These recordings are the official record of the event and are the sole property of The Reel Thing. The intended use of these recordings is to produce publicly available programs which may appear on AMIA or other websites, and which may also be made available in other commercial and non-commercial contexts at the discretion of The Reel Thing. Attendance at this event constitutes your consent to appear without compensation in these recordings and in any versions of this event produced or authorized by The Reel Thing. The organizers of The Reel Thing are always interested in new and important developments in conservation, preservation, restoration and digital asset management. If you have a project or a technology that you would like to share with the community, please contact us at any time during the year. We are also interested in feedback, criticism, and suggestions for future presentations. Let us know how we can make The Reel Thing better and more useful for you.

Grover Crisp grover\_crisp@spe.sony.com (310) 244- 7416 Michael Friend michael\_friend@spe.sony.com (310) 244 -7426