













THE REEL THING XXXIX HOLLYWOOD THEATER PITTSBURGH, PENNSYLVANIA NOVEMBER, 9 2016











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 for their support and collaboration:

Gary Adams Beverly Graham Kristina Kersels Laura Rooney And The staff of the Hollywood Theater

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 collectionsand 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.

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T H E **R** E E L T H I N G X X XIX The Hollywood Theater Pittsburgh, Pennsylvania

Wednesday, November 9, 2016 12:30pm-5:30pm

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What's That Sound? A Tutorial on Sound Restoration Robert Heiber, Chace Foundation and Chris Reynolds, Deluxe

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Restoration of the Uncensored Version of Cock of the Air Heather Linville, Academy Film Archive and John Polito, Audio Mechanics

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Speed in the Real World- Factual Representation of Pre-Sound Era Documentary & Newsreels Adrian Wood

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Break

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Restoring Uliisses - Werner Nekes' Homeric journey through film history Julia Wallmuller, Deutsches Kinematek

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What Price Glory? The restoration of Shirley Clarke's In Paris Parks Dennis Doros, Milestone Films

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Aolite Audio Restoration Greg Wilsbacher University of South Carolina and Tommy Aschenbach, Video and Film Solutions

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FILMIC Virtualization Model for Digital Motion Picture Film Preservation: Capturing novel data resources in scanning for digital film preservation Jim Lindner

PROGRAM

What's That Sound? A Tutorial on Sound Restoration

Robert Heiber, Chace Foundation and Chris Reynolds, Deluxe

For more than 25 years attendees at AMIA and Reel Thing conferences have heard presentations regarding issues and solutions in sound restoration. In the beginning these presentations addressed the very basic concepts of noise reduction like pop and click removal. Over the years, as sound restoration technologies matured the nature of the presentations became more specific, narrowly focusing on a certain kind of problem or difficult issue. But while the audience and topic of sound restoration has matured, the fact is, there are new and less experienced archivists joining the professional ranks on a regular basis. These new professionals often lack the understanding and experience of the basic tenets and processes of sound restoration.

This presentation will educate the newcomer and update the seasoned professional about the fundamental principles, technology and aesthetics of sound restoration. An important component of the presentation consists of audio demonstrations that provide concrete historical context to the development of sound restoration technology. Examples of results obtained by early analog equipment applied to basic problems like hiss, hum, and distortion will be compared to examples of the same problems addressed by digital technologies. This analysis of the limitations of analog versus digital processing will help establish criteria for revisiting restoration work done primarily with analog tools. The presentation will also show examples of improperly processed soundtracks and discuss the importance of correct sound extraction as the basis of successful audio restoration.



Restoration of the Uncensored Version of Cock of the Air Heather Linville, Academy Film Archive and John Polito, Audio Mechanics

The romantic comedy *Cock of the Air*, produced by Howard Hughes' Caddo Company, was released through United Artists in January 1932. From initial script drafts to the end of production, Hughes and director Tom Buckingham clashed with the newly established Motion Picture Production Code. On the eve of the film's debut, Hughes relented to the demands of the Code, agreeing to remove 12 minutes of suggestive dialogue

and risqué content scattered throughout the film. It is this censored version of *Cock of the Air* that has existed in a rare 16mm print for decades.

In 2007, film collector Jeff Joseph donated two 35mm elements for *Cock of the Air* to the Academy Film Archive: An MOS nitrate fine grain master of the uncensored version and a nitrate track positive representing the censored version. In 2012, the Academy Film Archive completed photochemical preservation at Film Technology in Hollywood as part of the archive's Film to Film project. New masters were made from the fine grain and the audio was digitally captured for restoration.

The Academy Film Archive acquired the UNLV Howard Hughes Collection in 2014. The acquisition contains second generation 35mm picture and sound master elements on *Cock of the Air*, as well as music stems on metal disc stampers. After a thorough inspection of the elements and evaluation of the music captured from the discs, it was determined that they represent the censored version-- with the exception of one censored song identified on a master metal disc. After an extensive international search, it was determined the remaining audio is most likely lost.

This presentation will discuss the options explored and ultimate steps taken by the Academy Film Archive to recreate the uncensored version of *Cock of the Air*. Through the assistance of members of the Academy's Casting Directors Branch, actors were selected to perform lines of censored dialogue. In addition to recording the new voice performances, new sound effects were also created and mixed into the audio restoration at Audio Mechanics. The project moved from the photochemical to the digital realm with 2K scanning, restoration and grading at Modern VideoFilm. In the final recreation, all censored scenes are indicated with an icon in the bottom right corner of the frame, allowing audiences to learn about the history of motion picture censorship.

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Speed in the Real World- Factual Representation of Pre-Sound Era Documentary & Newsreels Adrian Wood

"I have often seen myself in motion pictures, and the sight has made me very sad. I have wondered if I do walk like an animated jumping jack, or move around with such extreme rapidity as I appear to?" -- President Woodrow Wilson

Projection speed was much debated in the 1910s and 1920s primarily in the context of feature motion pictures, but rarely in regards to newsreels. Often these were thrust into theater schedules at even greater projection speeds than the established SMPE standard, for both shooting and projection, of 60ft per minute, equivalent to 16fps.

But whilst speed is predominantly an issue for this presentation it is only one of the issues in regards to the restoration of films from the silent era. There is the legacy of bad duplication causing cropping with an optical mask, the truncation of title and inter-title cards to a single or even a partial frame, the re-cutting of films leaving no extant copy of the original form to rely on and scarce information on a films duration other than the number of reels and an overall footage length, a length that may or not include head and tail leaders. Whilst this discussion will touch on all those issues, its primary focus will be on original capture speeds and how to address that in digital restoration today, based on experiences over the past decade.

In the course of work in documentary production and more recently in overseeing the restoration of documentary films, the shooting speed of content and its huge variations has been not only increasingly apparent but a matter of considerable significance. In the late 1970s, in the course of examining the surviving film record of the lying in state and funeral of the late Diarmaid Ó Donnabháin Rosa, in City Hall,

Dublin in 1915, it was clear that the lack of available light for the camera led to an exposure rate in the region of 6-8fps. The only solution then available to reuse this material sensibly for broadcast purposes was to use optical step-printing so as to duplicate each frame 3 or 4 times for screening. This was far from satisfactory but managed to illustrate a sense of motion. The published proceedings of SMPE, professional journals and handbooks of the period offer a record of the discussion and debate taking place around both 'taking' and projection speeds. They also record the admissions of projectionists in regards to the pressure they were under from theater owners and managers to maximize the amount of material projected within a working day. Whilst certain high profile directors may have specified projection speeds for particular sequences, as well as sound effects to be added within musical scores, the vast majority of material was left to the discretion of projectionists or the diktat of theatre owners.

Literature on the issue of film speed in both camera and projector has been dominated by the traditions of the fiction films - from slapstick shorts to the most artful features. Although analysis and reconstruction of speed was essential to the excavation of the kinematographic period of actualities and trick films, there appears to be little discussion of speed with regard to documentaries and newsreels, nor to that important and specialized category of documentary constituted by the sports film or newsreel. It can be argued that the essence of sports film is speed and the representation of movement in space, and so the issues relevant to the features and shorts of the pre-sound era (and, by the way, the post-silent era as well) connect the sports film to the both the essence of the earliest cinema as specifically the exploration of movement, and also in having special requirements for reconstruction and presentation. From analysis of the surviving materials it is clear that multiple shooting speeds were utilized. What often cannot be stated is whether this was for financial expediency by reducing the amount of raw stock exposed or dramatic creativity. If a director had creatively used under-cranking for dramatic effect, then textural records need to be discovered that endorse that intent. More often than not, no such records are available, and the issues of correct speed need to be discovered by analysis of surviving film. If a true visual record of sporting events (summer, winter, formalized or nascent) is to be not only preserved but also presented to audiences, accuracy is paramount. Even when a determination of speed can be made and a restoration effected, the presentation of these projects is currently constrained by modern display systems. What can be achieved today for digital presentation through 48fps and 24fps DCPs is 'natural' movement that approaches that of the original viewing experience. Perhaps one day even greater possibilities will exist to address the criticisms of the late President Wilson.

This is an updated version of a report on Adrian Wood's work that was delivered at RTXXVIII in Los Angeles in August 2016.



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Break

Restoring Uliisses - Werner Nekes' Homeric journey through film history

Julia Wallmuller, Deutsches Kinematek

Werner Nekes, one of the most outstanding figures of the German cinematic avant-garde, was a notorious technical innovator who created a lexicon of special effects designed to interrogate the nature of the medium as well as supporting the extremely original and idiosyncratic narratives of his films. In many cases, the cinematic tropes he created were in response to existing figures in popular culture of film and, television. His obsession with collecting historical cinema devices including pre- and para-cinematic toys, and his deployment of their principles and effects in his work give the films a special kind of temporality which evokes both the post-cinematic future and the primordial origins of the cinema. The record of his films provide us with one of the richest and most profound investigations of the materiality of media.

This account will begin with an analysis of *Jüm-Jüm*, Nekes' 1970 short film which pioneered many of the techniques he would use in his masterpiece, *Uliisses* (1982), and describe the evolutionary process by which he moved from early exploration of the physical medium to his most fully realized film concepts. The presentation will also discuss the restoration of *Uliisses* including the digital phase of the work, and the many complex restoration challenges posed by Nekes' unique physical constructions.



What Price Glory? The restoration of Shirley Clarke's In Paris Parks Dennis Doros, Milestone Films

For nearly a decade, Milestone has been working on restoring and distributing the films of Shirley Clarke. Their final release, which will be out later this year, is a 3-disc DVD and Blu-ray set called The Magic Box that includes dance films, experimental shorts, home movies, outtakes and Clarke's Oscar-winning film on Robert Frost.

From the start of "Project Shirley," Milestone has had the benefit of consulting with the filmmaker's daughter, the artist and vidographer Wendy Clarke, who worked closely with her mother on many of her films. The two Clarkes first collaborated on the 1954 film, *In Paris Parks*, which was a huge artistic breakthrough for Shirley and featured the ten-year-old Wendy as a hoop-rolling youngster. The film is a charming exploration of the rhythms and patterns of a park full of children, and of course, Milestone wanted and needed to have it as part of the compilation!

When they went to do the digitization of *In Paris Parks*, Amy Heller and Dennis Doros of Milestone were informed that the only remaining master material was a 16mm negative — and it was badly faded. Disappointed, they nevertheless paid a good deal of money to create a 2K digital scan with cleanup and stabilization. Although the scan conveyed some of the film's ebullient tone, when they compared it to original Kodachrome outtakes preserved at the Wisconsin Center for Film & Theater Research, Heller and Doros were struck by how much definition and vibrant color had been lost.

Fortunately, at that point the team at the Anthology Film Archives responded to an email Dennis had sent out to archives all over the world inquiring about their holdings of Clarke's films. John Klacsmann conveyed the welcome news that Anthology had the original A+B rolls for *In Paris Parks*.

It would be nice to report that Milestone immediately launched into a second digitization of the film... but what really happened was something that is rarely discussed — the conflict of the commercial realities of a distributor with the ideals and standards of an archive. For almost two years Doros and Heller struggled to come to Anthology's terms of sharing the cost on a photochemical preservation as well as paying for the digitization of the fifteen-minute film for our purposes — knowing that Milestone's financial gains would be minimal if any.

In the end, Milestone had to agree that Anthology's demands were not only fair - but correct. Both institutions decided that the images of young Wendy dashing through the gardens, the rapt toddlers at the puppet show, the little train, the merry-go-round, and the hungry goats all needed to be as beautiful as possible and preserved for future generations.

John Klacsmann of the Anthology Film Archives faced technical challenges not only due to the age of the 16mm materials but also due to the inexperience of the novice filmmaker Clarke. The prep work took two weeks to re-splice and prepare the A+B to send to Colorlab. The workflow was: 16mm A+B Kodachrome original to 16mm Estar 3273 color internegative (liquid gate) to 16mm 3383 color composite prints. The 2K scan was done dry gate on a Spirit 2K from the 3273 color internegative. Sound restoration was provided by Rich Cutler.

Thanks to the work of John Klacsmann and Colorlab, the technical challenges were met and a new internegative and digital master were created. The A+B original also proved to be a minute longer than the previously used dupe negative. This will be the premiere of the restored *In Paris Parks*.

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Aolite Audio Restoration

Greg Wilsbacher University of South Carolina and Tommy Aschenbach, Video and Film Solutions

The AEO-Light project based at the University of South Carolina and funded by the National Endowment for the Humanities has partnered with Tommy Aschenbach of Video & Film Solutions to produce a new generation of open-source, freely available software designed to improve the quality of audio recovered from scans of optical sound tracks. This presentation will review the development and deployment of AEO-Light 1.0, and explain how moving the code from the CPU to the GPU enabled performance enhancements including better quality sound, faster extraction and greater flexibility to cope with non-print optical sound. In addition to highlighting the role AEO-Light plays in the long-term preservation of film-sound heritage, the presentation will showcase new features and capabilities of the system, including enhanced variable area and variable density negative scanning, time-code support for integration into editing suites, and support for class A and class B push-pull tracks. With improved audio recovery and greater speed and flexibility, AEO-Light has entered a new phase of deployment in which it can provide reliable extraction to aid in the film preservation mission of all members of our community. The AEO-Light project demonstrates the viability of open-source software, the value of the public-private partnership which supports the project, and demonstrates the importance of continual and incremental development for the future or restoration.



FILMIC Virtualization Model for Digital Motion Picture Film Preservation: Capturing novel data resources in scanning for digital film preservation Jim Lindner

The FILMIC project is an international, multi-disciplinary, open research project to create a preservationquality virtual data representation of motion picture films as digital objects. In addition to the massive information of the scan itself, the virtual representation of motion picture film as data includes physical metadata and information about the state of the physical support and the image. Many visual artifacts are the result of carrier condition such as image instability and shrinkage. In the process of virtualization, machine vision technology is used to capture extremely accurate condition metadata to digitally describe carrier condition. This class of data is the basis for algorithmic image restoration ("un-shrinkage" and image stabilization, for example) that exceeds the capabilities of traditional methodology.

The project is investigating the application of multi-spectral image scanning for motion picture film. In multi-spectral technology, many channels of image filtration are used instead of just RGB scanning. In order to control the precise light required, the project has participated in the development of a prototype LED light cube which can control many different LEDs to finely control the illumination of the film. This allows for the construction of a spectral data cube or a curve for each pixel instead of an average of RGB values.

The FILMIC project is a re-conceptualization of film preservation by digital means that provides a path for future innovation through investigation of film content preservation in purely digital terms. As a collaborative program, it offers a collective space for archival repositories, content owners, manufacturers,

vendors and scholarly researchers to participate in developing, evaluating and shaping new tools and methods for restoring and archiving the data inherent in legacy motion pictures originated on celluloid.



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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.

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