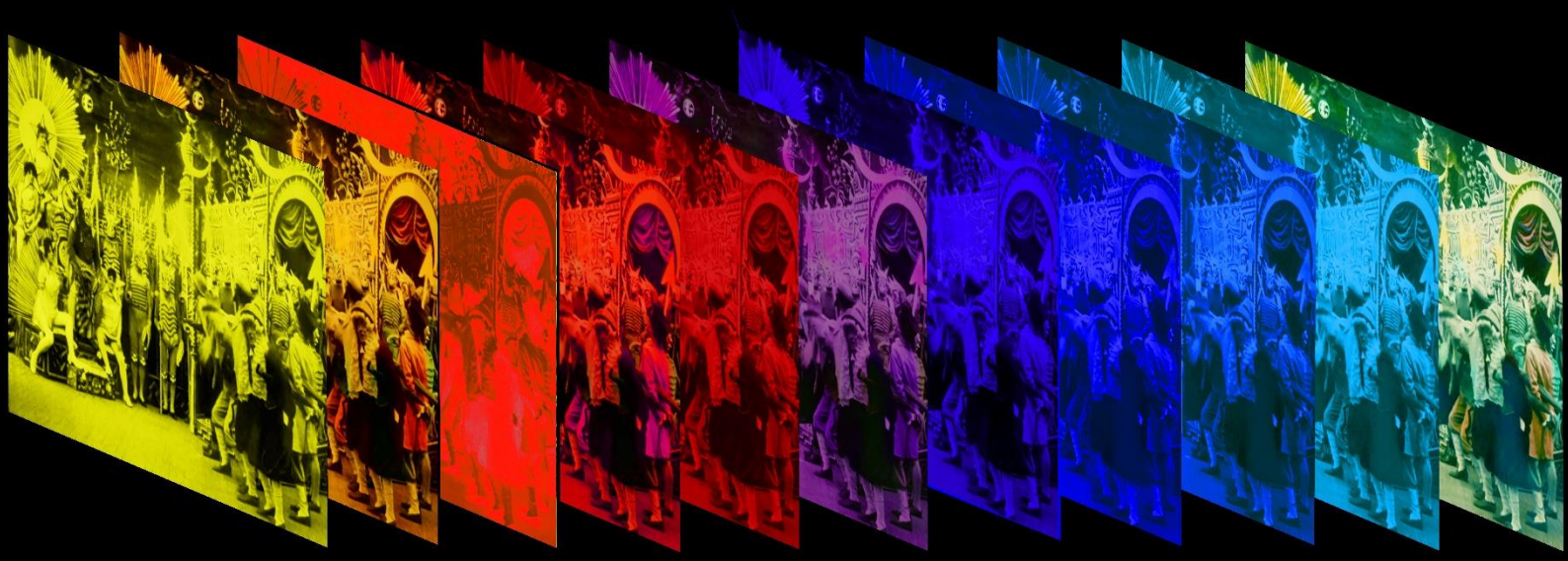

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REEL THING XLIV

AMIA Annual Conference

Whitsell Auditorium – Northwest Film Center, Portland Art Museum

Wednesday November 28, 2018

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:

Morgen Ruff and the staff of the Whitsell Auditorium,
Laura Rooney, Morgan Rooney, Kristina Kersels, Beverly Graham
Kimberlee Granholm and Gary Adams

Northwest Film Center, Portland Art Museum

Netflix

The Reel Thing is made possible by the active and engaged support of some of the most important and innovative institutions in the archival field. These firms work side by side with scholars, archivists and asset managers to compile and disseminate information critical to the archival mission, raise the standard of preservation and restoration, and to find new ways to ensure 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 support of The Reel Thing.

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Case Study: Restoration of *The Masque of the Red Death* (Corman, 1964)
Tessa Idlewine, Academy Film Archive

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Machine-centric Data Clean-up: the Averos project
Franz Hoeller, HS-ART

☯

Report from the Field: Multispectral Film Scanning and Handling of Multispectral Moving Images
Reto Kromer, Re.to

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Quality Control Experiences from a Large-Scale Film Digitization Project
Darrell Myers, Indiana University and Peter Schallauer, Joanneum Research

☯

Break

The Anatomy of LTO Media and Physical Restoration of Data
Brian Kelly, FUJIFILM Recording Media USA and Steve Kochak, Digital Preservation Laboratories

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The Other Side of the Wind
Editors Bob Murawski and Mo Henry in conversation with Grover Crisp

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Case Study: Restoration of *The Masque of the Red Death* (Corman 1964)
Tessa Idlewine, Academy Film Archive

Roger Corman, a seminal figure of American cinema, contributed seven versions of Poe's work to the AIP catalog, including the penultimate *The Masque of the Red Death*, photographed by Nicolas Roeg and released in dye-transfer Technicolor prints in the United Kingdom. This production had a tortured history, and after fifty-some years the film had not yet been restored. The Academy Film Archive set out to restore Roger Corman's original version.

The Archive was able to access the 35mm original picture negative and original audio elements, but faced two significant challenges in restoring the film. First, the negative was in rough shape, with scratches, tears, breaks, and other damage. Second, the film had been censored in both the United States and the United Kingdom, and the original negative had been cut. No full length, un-censored version had been preserved, let alone seen by audiences. In the U.S., the Catholic Legion of Decency had required certain deletions, and in the U.K., the British Board of Film Censors had required a completely different set of cuts. The original negative had been physically cut based on changes required by the Legion, and all pre-print material had been made from this negative *after* it was cut, meaning there was missing footage that no longer seemed to exist. Using continuity scripts from both the U.S. and U.K. versions, the Archive determined what was missing or censored. Using a U.K. Technicolor print in the Academy's collection, the Archive captured the missing U.S. censored cuts with sections that had not been removed in the U.K. After color grading, and digital and audio restoration, the most complete version – matching Roger Corman's original pre-censored vision – has been archived. The film was restored by the Academy of Motion Picture Arts & Sciences Film Archive and The Film Foundation with funding provided by the George Lucas Family Foundation.

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Machine-centric Data Clean-up: the Averos project
Franz Hoeller, HS-ART

Averos, an international research project driven by JOANNEUM RESEARCH, Netherlands Institute for Sound & Vision, CubeTec-International and HS-ART Digital Service has been operating in Europe since 2016. The objective of AVEROS is to develop a scalable automated film enhancement and restoration service in the cloud. The service is addressed to specific technical requirements common to many archives, content holders and service providers.

Despite many initiatives to automate the restoration workflow, this process remains a specialized, labor-intensive activity. AVEROS is aimed at the large number of (semi-)professional users who currently only have access to costly expert restoration solutions. By providing an affordable service, AVEROS will make it possible for more archives to practice restoration, and to process a much larger number of objects than previously possible, thus allowing more value extraction and more diversity to emerge from currently inaccessible collections. By providing more access to restoration, the archival process becomes less exclusive, more diverse, and thus, "democratized."

AVEROS will have an intuitive web-based user interface allowing users to upload AV-contents and use presets to apply restoration and enhancement filters. The service is capable of applying high-end audiovisual filtering

technologies to media restoration. The projected automated video restoration and enhancement functions go far beyond the standard filters available in today's video editing programs.

This presentation will shed light on the difference between “high-end,” pristine restoration and the values and capabilities of “automatic” restoration, and the advantages and disadvantages of a cloud- based restoration solution. Use cases and comparisons of results obtained by automated systems will be presented. It is the intention of this presentation to stimulate discussion within the archival field as to whether and when automated restoration technologies could be acceptable as a general solution.

For more: http://www.hs-art.com Email inquiries: office@hs-art.com Phone: +43 316 915 998

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Report from the Field: Multispectral Film Scanning and Handling of Multispectral Moving Images

Reto Kromer, Re.to

We tend to think of the film system as a single thing, but in fact the physical history of the medium is considerably more complicated, and considerably less documented than the unitary meme of cinema might imply. So further understanding of the technical work to be done depends on research. We have reached a point in the technical history of moving images where technologies that were previously irrelevant or inaccessible can now be brought to bear on solving the problems of how to capture and represent historical moving images in a digital mediasphere - we can deploy new technical means to interrogate the film artifacts that we encounter in the archives. One area rich in research targets is color film. Since the inception of the medium, color has been the locus of continual experimentation, and the result is a plethora of processes that cannot be migrated by technical single system. It is current practice in fine art conservation and restoration to approach analysis of color by multi-spectral scanning, and it would appear that gradually, we will deploy some of these methods in the analysis of historical color in film. The multispectral approach may be useful for "non-standard" colour systems, such as the two-colour additive ones from the 1920s and 1930s, or for very decomposed reels, where any additional bit of information can make the difference during the restoration. Inspired by Jim Lindner’s FILMIC project, Reto Kromer has been conducting research on color. The creation of his ad-hoc multi-spectral scanner and the development of a video codec to work with this kind of content will be discussed, including experiments using the restoration suite Diamant.

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Quality Control Experiences from a Large-Scale Film Digitization Project

Darrell Myers, Indiana University and Peter Schallauer, Joanneum Research

Many institutions now have large media collections and substantial holdings of obsolete formats (analog formats, early digital formats, out-dated codecs). As these institutions confront the rapidly disappearing infrastructure for older media and the short technical life-span of many platforms and codecs, as well as the increasing cost of access to equipment to play out older media, they are choosing mass migration as a strategy to capture older content and migrate it to newer, more flexible digital forms. Mass migration implies the deployment of technologies to automate various parts of the migration workflow. Automation often involves intelligent use of metadata to operate the workflow and guarantee fixity. The result is that many more migration functions can be performed, and thus there are many more migrated digital objects to be QC’d.

The process of Quality Control (QC) is implemented at the end of restoration to determine whether processing was correctly applied, artifacts and distortions of the image have been eliminated, metadata has been successfully written - whether all parts of the picture, audio and metadata have been correctly implemented in the media slated to be archived. QC is one of the most skill-oriented, labor-intensive parts

of the archival workflow, and represents a rate-limiting factor that determines how effectively a large collection can be processed.

The University of Indiana has very extensive and complex holdings of film, video and other media, and the university has led a number of projects supporting large scale digitization in order to enhance this collection and make it accessible. The Reel Thing has been tracking some of these initiatives over the last decade. This presentation will sketch out the specific requirements of the University of Indiana's Media Digitization & Preservation Initiative (MDPI), follow the path of implementation for QC of image and audio resources and discuss the collaborative project with Joanneum Research to automate the QC process.

There will be a live demonstration of the software and a review of the process metadata produced in the first nine months of the operation. The case study will look at the most critical scanning issues detected in image and sound QC, analyze rejections and re-scan rates, and offer some conclusions based on the experiences with this software and the automated approach to QC.

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Break

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The Anatomy of LTO Media and Physical Restoration of Data

Brian Kelly, FUJIFILM Recording Media USA and Steve Kochak, Digital Preservation Laboratories

While many archivists have a deep understanding of the manufacturing process, proper handling techniques and physical restoration of traditional film, significant ambiguity exists for the modern-day magnetic data tape cartridges on which most contemporary moving images and audio are stored. The traditional film archivist will be familiar with leaders and slates, audio start marks, location of various audio tracks, and edge codes providing metadata actually printed on the physical object. Despite the fact that Linear Tape-Open (LTO) was first released in the year 2000, most archivists, service providers and content creators are unaware of the different components that make up current linear magnetic data tape, and of the terminology that describes the salient features of an LTO tape. After an explanation of the manufacturing process and key component terminology, Steve Kochak will perform the physical restoration of LTO tape during a live procedure whereby the magnetic tape contents of an element suffering impact damage will be transplanted into new housing.

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The Other Side of the Wind

Editors Bob Murawski and Mo Henry in conversation with Grover Crisp

In 1960 – twenty years into his Hollywood career and two years after his last troubled Hollywood feature - Orson Welles is discussed as a cult director by Parker Tyler in the pages of *Film Culture*. Tyler identifies the cult of Welles with the director's unfinished or mutilated projects. The "final" Welles feature, *The Other Side of the Wind*, coming over a decade after Tyler's piece, has long circulated as myth, rumor and in the form of a few memorable fragments that Welles prepared to raise money for the film. In the wake of Welles passing, many attempts were made to finish the film, all of which failed until Netflix managed to put together a deal and a plan to construct a film-like continuity from the disparate resources created by Welles. The vast physical diaspora of the film has been recovered from vaults around the world, restored, documented and submitted to contemporary post-production, resulting in an assembly of the film (based on Welles script and footage shot by Welles and Gary Graver), and a Morgan Neville documentary about the process, *They'll Love Me When I'm Dead*. These are now playing in various venues theatrically, and are available on Netflix. Rather

than entering the debates about the status of *The Other Side of the Wind* – film, fragment, study piece, farrago – or how it might be compared to other reconstructions of Welles' work (*Magnificent Ambersons*, *It's All True*, *Mr. Arkadin*, *Touch of Evil*), this presentation will focus on the problems encountered in organizing the footage and in creating a montage that adheres to Welles script for the movie.

This was an epic process of identifying, cleaning and repairing, transferring, digitally cleaning, coloring and assembling the footage. Mo Henry will talk about the unique film resources and the task of organizing and making sense out of the original and mostly unedited film materials. Robert Murowski will describe the process of editing this surfeit of footage, and crafting a motion picture that represents to the greatest extent an unfinished film can, the themes, directions and questions that Welles was working through to produce his *summa*. Whatever perspectives scholars and audiences take on *The Other Side of the Wind*, they now have the rich legacy of this work – a representation of Hollywood film culture in the throes of historical change, and Welles' directorial autobiography posed at the heart of that development.

Clips will be shown, and Grover Crisp will moderate a discussion with our presenters.

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Restoring the Dutch and British Mutoscope and Biograph 68mm Collections (1897-1902) at Eye Filmmuseum and British Film Institute

Giovanna Fossati and Anne Gant, Eye Filmmuseum

Recently, archivists at Eye Filmmuseum led by Giovanna Fossati and Anne Gant established a collaborative relationship with Kieron Webb and his staff at BFI and Simon Lund of Cineric to restore their collections of 68mm British and Dutch Mutoscope films. This presentation will focus on the early stages of the restoration and presentation project involving films produced or distributed by the Dutch branch of the Mutoscope Biograph Company, one of the oldest film collections held at Eye Filmmuseum (Eye) and includes a large number of films shot in the Netherlands between 1898 and 1902. This collection is shot on nitrate photographic film with an obsolete technology that produced an exceptionally large format film (approx. 68mm without perforation) with an extremely high resolution (richness of detail) similar to 70mm (or 8 to 16K in digital terms). For more information on the project, see:

https://www.eyefilm.nl/en/collection/film-history/company/nederlandsche-biograaf-en-mutoscope-maatschappij

The British Film Institute (BFI) recently carried out the 8K restoration of its British Mutoscope and Biograph collection in collaboration with Haghefilm Digitaal in Amsterdam. During the London Film Festival (LFF, October 10-21, 2018) a selection of fifty-one restored 68mm titles were presented on the BFI IMAX screen in occasion of the LFF Archive Gala. The program also included a few titles from the Eye Collection. For more information on that event, see:

https://www.bfi.org.uk/news-opinion/news-bfi/announcements/62-lff-victorian-moving-picture-show-imax). The program also included a few titles from the Eye Collection.

In this presentation, the history and technical character of this collection will be reviewed, and the restoration history (including the first duplication effort in 1948 and the later restoration project carried out by Eye and BFI in 1999) will be examined. A comparison of some of the results of two 8K digitization routes will be shown. The first path, carried out by Haghefilm Digitaal for the restoration of the BFI 68mm collection made use of a rostrum camera that digitized the film frame by frame. The second path, under development by Cineric, is based on a 68mm wet gate capstan drive scanner that runs film continuously past an 8K linescan camera, creating a digital image of the entire strip of film. Later, in a second step, the individual frames are extracted from the master file using image processing.

Examples of these one-minute time capsules from 120 years ago, which still convey the richest and sharpest image film can achieve, will be shown.

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Film Restoration of 16mm Reversal Masters

Janice Allen, Cinema Arts

In the wake of the transformation from film to digital media, it is easy to forget that film still exists as a medium and as a choice for preservation. The collapse of much of the infrastructure for film has made it harder for those who want to choose film as a preservation medium. But there are still high quality film labs and high quality film emulsions available, and important reasons to use the film option in preservation.

This presentation addresses the problem of 16mm reversal film – in this case, Kodachrome. For many years reversal masters represented the high-quality option for those who did not afford to work in 35mm film, or who required a simpler technology that could be implemented by a smaller crew, smaller camera, or smaller medium. Typically, these were industrial and educational film-makers, but documentarians and independent film-makers also embraced 16mm reversal film. As a result, a significant part of our film heritage was captured on reversal emulsion. Fortunately, there is a Kodak internegative stock that can be deployed to capture the sharpness and dynamic range of camera-original reversal images.

Cinema Arts recently restored the film *Adirondack Holiday* (1960) narrated by Lowell Thomas. A cut-down black-and-white version can be seen on YouTube, but the original color version had been long lost for viewing purposes. The original Kodachrome camera reversal and sound negative were rediscovered in the Prelinger Archive. And this turned out to be the work of a film-maker who devoted a lot of time to achieving the highest possible quality in 16mm film.

Adirondack Holiday was photographed by Kenneth Richter, an esoteric filmmaker and engineer not unknown to Hollywood. He won an AMPAS Scientific and Technical Award for the design and engineering of the R-2 Auto-Collimator in 1985. He was always obsessed with image quality and contributed widely to that aim in the motion picture industry through the production of his highly regarded Auto-Collimator. He also presented a successful demonstration in Hollywood that put forth the concept of replacing 35mm prints with 16mm. It has been reported that the attending technical and studio people who observed the demo were in agreement that the 16mm prints provided an on-screen image comparable to the original 35mm print run. The idea was to reduce shipping and lab cost by using smaller gauge film. Retrofitting large quantities of theaters with new projection equipment for this endeavor was a stumbling block, but there was at least one theater chain interested at the time. This was long before the digital revolution in projection. For more on Kenneth Richter, see: http://cinematechnic.com/resources/richter_cine

According to Janice Allen, who visited Ken Richter in his later years at his lab, Ken never believed that a high quality duplicate negative could be produced from Kodachrome; he was so convinced that many of the films he produced were only exhibited by screening the original reversal master! Subsequently, with funding supplied by the NFPF, Cinema Arts produced pre-print of some of his original Kodachrome elements that met Richter's exacting standards. This October, the viability and flexibility of 16mm archival negative in a digital era was demonstrated once again when *Adirondack Holiday* was presented at the Lake Placid Film Festival via 2k DCP scanned from the new color internegative preservation element.

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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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