Between Nostalgia and Utopia: A Conversation on the Legibility of Film Archives

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Contents

PART 3
Machine

PART 4
Heritage

Coda

CHAPTER 12

Between Nostalgia and Utopia: A Conversation on the Legibility of Film Archives

Peter Verstraten and Giovanna Fossati

Abstract

How do the choices made by film archivists and restorers impact the way films are presented? How do digital copies of films relate to the "original" film copies? What are the pros and cons of celluloid in this era of digitization, from the perspective of film restoration and preservation? Interviewed by Peter Verstraten, Giovanna Fossati discusses the legibility of analog films, with their relatively long life expectancy versus the legibility of digital formats with their rapid obsolescence rate. The authors also discuss the flexibility of digital technology in approximating the look of obsolete film techniques (e.g. color in early cinema), the importance of keeping the analog film tradition alive, and the need for a long-term preservation strategy for digital films.

Peter Verstraten: In an inversion of Louis Lumière's alleged statement that "cinema is an invention without future," Thomas Elsaesser hypothesized that cinema is an "invention without origin" (13). All the significant contributions made by those pioneers who are said to be at the inception of cinema were no more than "byproduct[s] of more urgent concerns" (Rhode qtd. in Elsaesser 13). Thomas Edison was content with his profitable Kinetoscope; the Lumière brothers, who are known as the actual inventors of cinema, were rather keen on developing the possibility of color photography; and Étienne-Jules Marey did not consider the arrival of cinema as an advancement in his attempts to study (human) movement for the benefit of medical research.

Marey's resistance to cinema is of particular interest here, because it directly impinges on notions of legibility, as Mary Ann Doane has argued convincingly in *The Emergence of Cinematic Time* (2002). Marey's chronophotography was intended as a record of a specific movement – a man's walk or jump – in one and the same frame. Since he feared missing the crucial instant of the movement that would be required to examine its exact progression, such as the bending of a knee, Marey's desire was to "decrease the intervals between

the successive positions of the subject" (Doane 49). Once the superimposed photographic records accumulate, however, "the legibility of time is seriously impaired," for the images turn into a total blur. Paradoxically, then, the result was unreadable because there was "*too much* detail in the photographic method" (Doane 50, emphasis in text).

Expecting that cinema would provide a solution to Marey's problem would be a mistake. Film is the medium par excellence for the perfect storage of time, but its fallacy for Marey was that it presents time as a continuum. In his eyes, the cinematic replication was an unfortunate deception, for film obfuscates that the temporal continuum is divisible. Strictly speaking, celluloid consists of a series of frames with black in-between, but during projection the division between frames is concealed, as if there is no loss of time at all. From the perspective of legibility, film's possibility of an "excessive storage" was taken as a disadvantage, Doane argues, because if everything could be made present, how then to distinguish pregnant moments from irrelevant instants or to endow remarkable details with significance? In the eyes of Marey and several of his contemporaries, cinema had resulted in an "archive of noise" (Doane 65): if you record "any-instant-whatever," all moments become equally important, or rather, unimportant.

If a dog were represented in a painting, one could be sure that the painter had deliberately painted the animal, for example to make a statement about loyalty. But what if an early one-shot film portrayed a scenery featuring a dog? Film's ability to record "real" time and its duration posed the difficulty of a "certain indeterminacy, an intolerable instability," since perhaps the dog was walking in the frame for no reason (Doane 164). Whereas a dog in a painting would be a telling detail, its possibly accidental presence in the film shot could be meaningless. Such contingency was both a lure and a threat, Doane argues, for confronted with a new medium that recorded scenes haphazardly, the viewers of early cinema felt at a loss in separating the planned from the unforeseen. The narrativization of cinema would be one of the primary means to enable the viewers to secure the instability of the cinematic image and to "yoke contingency to meaning" (Doane 166).

I refer to this idea that shots and scenes in early cinema were identified as an "archive of noise" to imply that questions of legibility and illegibility were at the heart of the early days of cinematic practice. Mindful of the assumption that once such seeds are sown, they are difficult to get rid of entirely, I would like to further discuss the matter of legibility in relation to both the nascent years of cinema and current cinematic practices. The interpretation of moving images has been a consistent concern in film studies. Due to the focus upon the possible meanings of cinematic texts (their plot developments, shot

transitions, camera movements and angles, use of soft or deep focus), questions regarding the preservation of the fragile moving images as well as the conditions of their exhibition have been largely overlooked. How do the choices made by archivists impact the projection of films? If one creates a digital cinema version of an analog film, does that affect the film's readability? Under what conditions can a new score and dialogue be added to an originally silent film? How to keep the colors as bright as decades ago?

In order to reflect upon such issues, there is no better candidate to enter into dialogue with than Giovanna Fossati, who oscillates between cinematic theory and practice. On the one hand, she has been the Chief Curator at the Eye Filmmuseum in Amsterdam since 2009, overseeing an immense collection of film and film-related objects. Before that she was very much involved with the practice of film restoration in what then was still known as the Nederlands Filmmuseum. In this capacity, she prepared for the big screen, among others, the presumed lost silent classic *Beyond the Rocks* (Sam Wood, 1922), starring Rudolph Valentino and Gloria Swanson. On the other hand, Fossati is part-time Professor of Film Heritage and Digital Film Culture at the University of Amsterdam. Her research mainly focuses on the influence of digital technology on efforts to preserve, restore and provide access to film heritage. Furthermore, she reflects upon the question of which new roles film archives and museums have to take on in the digital era. Among her publications, two deserve to be singled out in particular. The book *From Grain to Pixel: The Archival Life of Film in Transition* was published by Amsterdam University Press in 2009. In this study, she reflects upon the challenges that film archives are faced with in an era of digitization. On the basis of a number of innovative restoration cases she examines what tools are available and what practices are viable. Fossati also reconsiders how decisions in a film laboratory are related to issues regarding film ontology. By looking into these matters, her overall aim has been to provide a basis for a digitally informed theory of film archival practice. Currently Fossati is working on a revised edition of this book, since, as the notion of "transition" in the subtitle already indicates, developments are going fast indeed. The second publication I want to single out is an academic volume on the use of color in early cinema, *Fantasia of Color in Early Cinema*, co-authored with Tom Gunning, Joshua Yumibe and Jonathon Rosen, and published in the Framing Film series of Amsterdam University Press in 2015. This study predominantly reflects upon the processes of tinting and toning, as well as stenciling and hand-coloring each frame with a brush used in early cinema. It has the allure of a coffee table book with, on top of that, a foreword by Martin Scorsese.

I begin our conversation by asking Fossati whether it is possible to regard *Fantasia of Color in Early Cinema* as a response to the problem of legibility as it was sketched by Mary Ann Doane. The presumed indexicality of early films, i.e. the notion that a shot is a visually accurate and non-manipulated reproduction of the scenery before the camera, is belied by the particular and widely spread practices discussed in the book, such as the painting by hand of exuberant colors on celluloid. Is this hand-coloring to be seen as just a visual attraction or as a reading tool? Or perhaps as both?

Giovanna Fossati: The question of how we can distinguish pregnant from irrelevant moments, as posed by Doane in relation to film's "excessive storage," which turns it into an "archive of noise," resonates with similar questions posed today in relation to digitization and the ubiquitous presence of moving images. In this light, we can see another interesting example of the parallel between the emergence of cinema in the late 1800s and early 1900s, and the emergence and rapid diffusion of digital media from the late 1900s onwards.[1] This parallel is interesting from various perspectives, technological, social, (film) historical and theoretical, and poses important questions on how our conceptions of old and new media keep changing. In my book *From Grain to Pixel*, I argue that "transition" is not only inherent to film as a medium and as a technology – from silent to sound, from colored to black-and-white to color, from experiment to entertainment to art, from analog to digital to hybrid, etc. – but also provides a suitable perspective to look at film. So, to return to the problem of film as "an archive of noise," which applies to YouTube and other online video platforms as well, one could argue that the very concept of what is pregnant and what is not depends entirely on one's frame of legibility. For Marey and other scientists in the nineteenth century, moving images that could entertain a general audience by portraying scenes from everyday life or funny sketches were irrelevant, but they eventually turned into a multifaceted medium, an art and so much more. Similarly, for a Hollywood filmmaker today, YouTube may represent the graveyard of quality and possibly also a loss of profit, showing a movie meant for the big screen as a grained and fuzzy replica among millions of videos of funny pets, whereas YouTube is clearly developing into something quite different than just an alternative distribution platform for theatrical cinema.

Coming back to your question about the book *Fantasia of Color in Early Cinema*, for avant-garde filmmakers and early film theorists and historians in the

1 For a discussion of this parallel, see, for example, Gunning's "Re-Newing Old Technologies" (2003).

1920s and 1930s, the widespread tradition of adding color to black-and-white films deviated from what they considered to be the true aim of film, i.e. the photographic ("indexical") reproduction of reality. This has since become one of the most pervasive perspectives on the medium of film and has very much contributed to determining what we have considered sufficiently relevant to be kept in film archives. For early color films, probably 70% of films made before 1930, this has meant that they have often been preserved, shown and studied without their colors. This attitude only changed in the 1980s and 1990s when a number of archives, including the Nederlands Filmmuseum and the Cineteca di Bologna, started to restore and show these films with their original added colors, bringing them to the attention of film scholars and audiences at festivals such as Il Cinema Ritrovato in Bologna and Le Giornate del Cinema Muto in Pordenone. The book *Fantasia of Color in Early Cinema* started as an idea Tom Gunning discussed with me and film historian and early color expert Joshua Yumibe during Le Giornate del Cinema Muto in 2009 – that of making a larger audience aware of the beauty, the richness and the fantastic dimension of such colored images. This would add to the efforts of archivists and scholars alike, who have restored and researched these colorful images in the past 30 years, while re-establishing a very important characteristic of silent cinema that had been neglected for many decades. The idea developed into a four-year research project (2012–2015) with the book as one of its final results. A collection of high-resolution frame scans and a series of film programs presented at numerous venues around the world have been other outcomes of the project.

As for your last question, I think that early color techniques are indeed both visual attractions and reading tools. Our book shows how in these early films the attempt to fill in a black-and-white reproduction with added tints resulted in a fantastic use of colors with visually stunning results. As Gunning points out in the book, "[a]lthough realistic and representational attitudes to color are sometimes evident in these images, applied color rendered movies more vivid and more fantastic, thereby allying cinema to realms of dreams and fantasy, or to the striking and unusual. … Color functions in these early films … primarily as a visual attraction, something to seize our imagination and heighten our sense of vision" (Gunning et al. 19). Even if not aimed at realism, the colors still provided a reading tool; quite obvious examples are the uses of red for war, fire and passion, or blue for night and winter landscape, but also the use of random colors to suggest a sense of spectacle that was typical of the topic they portrayed (e.g. acrobats performing at fairs, sight and sound spectacles, or fairy tales).

It is interesting to notice that today these films have acquired an additional element of legibility for us, which we could define as the "material" layer. In a time when digitization has become so pervasive, we have a longing for a

direct contact with objects, especially historical ones, and their materiality, a phenomenon that has been defined as the "material turn" within various disciplines and that is becoming an important new stream within media and film studies. As W. J. T. Mitchell put it, "the age of disembodied, immaterial virtuality and cyberspace is upon us, and therefore we are compelled to think about material objects" (149). This new longing for materiality significantly contributes to our fascination today with obsolete technologies, including the early color techniques illustrated in our book, the Ultra Panavision 70 that Tarantino used for his film *Hateful Eight*, and the growing interest in celluloid by filmmakers and audiences alike. In the case of early color films, these added tints draw the attention to the material layer of the film on two levels. Firstly, their distinct unfamiliar look, quite different than any color system we associate with moving pictures, gives rise to questions about their material origin (what are they made of? how are they produced? etc.). Secondly, as they have been applied onto the photographic image, they are, and appear as, a separate layer and, as such, they feel as an added material level to be grasped also on its own terms.

PV: In *Fantasia of Color in Early Cinema* there are a great number of fabulous high-resolution scans and the printing of them is really a sight for sore eyes. In a blurb for the book, film director Guy Maddin calls the enlarged reproductions of film stills "the most gorgeous collection of photos I've ever seen." How do you see these illustrations in relation to the "original" nitrate prints?

GF: With this book, one of our aims was to provide the public with access to the colored film images kept in film archives. In order to improve the quality of this experience as much as possible, we opted for high-definition images, digitized at a very high resolution (approximately 5K or 4800 dpi) directly from the nitrate film original print to which the colors were applied 100 years ago, and we published them as stills. Indeed, only archivists and researchers have direct access to these original prints and have the privilege to look at them on a viewing table where the flow of movement can be halted to inspect, for example, individual images.

I do not, however, regard access to the original artifact as provided in our book as a reaction to what is sometimes seen as today's "archival noise" (e.g. platforms such as YouTube). It is rather complementary to these platforms, with new possibilities still waiting to be explored. Indeed, YouTube and other similar online distribution systems are contributing in different ways to make film heritage accessible and legible to many more people than ever before, and as such they generate novel interest in the subject. Similarly, it is only thanks to digital technology that we can reproduce and make available the film's original

characteristics in such great detail and depth (better resolution equals more detail, higher bit depth means better color reproduction).

Furthermore, both kinds of access, high volume on YouTube and high quality in a publication like *Fantasia of Color in Early Cinema* or in the Rijksstudio's online collection, are spurred by the same desire to be able to better access and consult cultural heritage collections.[2] It should be noted, however, that only a very small percentage of analog film collections have been digitized so far, as the process is expensive and time consuming. An even smaller percentage is available online, as most films are protected by copyrights.

PV: The process of coloring a single film was, as Tom Gunning explains in the book, tedious and delicate. Each individual film frame had to be painted separately, which also implies that this type of early colorful cinema is closely affiliated with painting. You have much experience with the restoration of (early) film. In what manner is film restoration a different practice than the restoration of a painting? And is the restoration of early color film more complex than that of black-and-white film?

GF: Film restoration differs from most other art restoration practices because it results in very little intervention on the original objects. The actual restoration is carried out on a new copy (analog, digital or hybrid, i.e. a combination of the two), which will eventually be shown to the audience as the restored version. Film is a reproducible medium and making new copies is inherent to its very production system. That being said, because film technology has changed so much over the past 120 years, with hundreds of color and sound systems, and a large variety of film and projection formats, most restorations have been carried out making use of a different technology than the one originally used to make the films. This was true in the past, when films were restored using photochemical technology (e.g. films on nitrate of cellulose restored on acetate of cellulose or polyester film, Technicolor titles restored on modern color film stock, etc.), and is still true today, now that most films are restored and projected using hybrid or fully digital technologies.

The case of early color films is indisputably an anomaly in film history as the craft of hand-coloring, stenciling, tinting and toning film falls outside the photochemical sphere and, as you pointed out, puts colored films in a category close to paintings. These films are not unique, though, as they can also be compared to those experimental films where the maker worked directly on

2 See https://www.rijksmuseum.nl/en/rijksstudio.

the film as if it were a canvas. Think of Oskar Fischinger's hand-scratched or hand-colored emulsions or Peter Kubelka's film sculptures. Also, in the case of these films we typically deal with unique film prints as each colored film print is different, sometimes only in terms of color intensity and shape of brush strokes, other times also in terms of color palette. Because of this, the restoration process of these films is particularly complex and the interpretation of how a restoration should be carried out becomes critical. The restorer needs, for instance, to decide what the colors are that are to be restored: the ones we can see on the film today, after a century of fading and deterioration due to usage and storage, or the ones we may suppose were seen by the film's original audience. And this is just one of the challenges.

As I explain in the book, digital technologies provide more flexible tools than photochemical ones and make it possible to approximate the look of early color films in a more accurate manner. Interestingly, what digital tools allow in the case of these films is to maintain the underlying photographic image in its original neutral black-and-white aspect, whereas the applied colors can be individually restored to what they look like on the surviving prints or to what we think they looked like when they were first shown 100 years ago. With photochemical methods it is always a struggle to obtain a neutral black-and-white for a color film stock and colors cannot be addressed individually, with the result that some colors will be more accurate than others.

PV: A number of cinephiles still tend to hang on to the materiality of film as we know it from the analog era. They prefer to see a 35mm projection over a digital screening. What are the unmistakable advantages of celluloid in this era of digitization, from the perspective of film restoration and preservation?

GF: I have always tried to avoid discussing this transition in film technology in terms of "analog *versus* digital." I do not find it a productive approach for at least three reasons. First of all, film's technology has been constantly changing since the early days and, as you pointed out earlier with regard to Marey and the Lumières, the film medium was the result of experiments that led at times to dead ends and at other times to long-lived practices. But in both cases they were quite often collateral results of attempts to invent something else. Consequently, I do not think it is fair to film history to make of 120 years of analog film one homogenous and coherent category to be opposed to digital film. As Gunning puts it, film "has never been one thing," but rather is "a point of intersection, a braiding together of diverse strands … [A]nyone who sees the demise of the cinema as inevitable must be aware they are speaking only of

one form of cinema (or more likely several successive forms whose differences they choose to overlook)" (2007: 36).

My second argument is that, by opposing analog to digital, we specifically overlook more than 20 years of hybrid film as, since the early 1990s, digital has gradually become part of the film production and post-production process. Third, digital film builds upon analog film's long tradition and today's film practice is therefore deeply connected to that tradition, which again cannot be reduced to only one aspect, i.e. the strip of celluloid (actually polyester since the 1980s).

That being said, I fully embrace filmmakers' appeal for keeping the analog tradition alive. From Tacita Dean's plea in *The Guardian* in 2011 to the more recent campaign by Hollywood filmmakers to get Kodak to continue producing film stock (Giardina), these efforts all echo film archivists' concerns for keeping available and alive a technology and its related expertise, including with regard to how such a technology and its materiality can be read. The variety of film stocks and post-production processes that were available when commercial film production and distribution was still revolving around analog technology alone will never be revived. However, film is still used by many filmmakers, experimental and commercial alike, for shooting, and at times also for projecting (think of Christopher Nolan and Quentin Tarantino, as well as many independent and experimental filmmakers and film artists). Film manufacturers, too, are still producing film on a smaller scale and even reintroducing discontinued stocks, as Kodak recently did with the beloved Ektachrome.[3]

In terms of preservation, currently analog film has two main advantages over digital film.[4] Firstly, the infrastructure for and expertise on the long-term preservation of analog film has developed throughout the past 120 years. As a consequence, well-researched and widely established best practices are today known and applied by all archives that can afford them (mainly in the Western World). Secondly, analog film has a relatively long life expectancy, which can vary between several decades and hundreds of years, if they are stored at low temperature (between –5 and +5°C) and low relative humidity (approx. 30 to 40%). The situation with digital film is quite different as it is a relatively young technology, which means that there is still limited expertise about handling it on the longer term. Additionally, it has a quite rapid obsolescence rate as new formats are issued every few years, which means that data need to be "migrated," or copied, to new formats quite regularly, typically every four or five years.

3 See http://www.kodak.com/VN/en/corp/press_center/kodak_brings_back_a_classic_with_ektachrome_film/default.htm.

4 For a discussion on what "digital film" is, refer to Fossati 2017.

The advantages with digital film are that data can be copied without losing quality from one carrier to another (whereas every analog film duplication leads to a loss of image detail), and that digital film is a growing technology with great potential and massive investments in research and development, whereas analog film, even if it seems to survive as a niche product, is not a growing industry any longer. Finally, new films are mainly digital and archives need to learn to take care of them on a long term perspective as well as they can take care of analog films.

PV: In your *From Grain to Pixel*, you quote Tom Gunning: "Every new technology has a utopian dimension that images a future radically transformed by the implications of the device or practice." What is the utopian dimension of digitization from the angle of the archival profession?

GF: I fully embrace Gunning's statement. I also think that it could be easily adapted to look backwards: "every technology has a nostalgic dimension that images a past fully realized thanks to the device or practice." Today, film archival discourse (as well as film studies in general) is very much torn between the nostalgic and the utopian dimensions. This is both exciting and frustrating. It is exciting because both dimensions are inspiring new generations of scholars and practitioners, and are spurring new promising research in all directions (the analog, the digital and the hybrid). It is frustrating because both nostalgia and utopia can lead to an emotional and polarized discussion. And we already have too many of those these days at all levels of our society.

Between utopia and nostalgia, I think there is a productive middle ground for very interesting and innovative projects that can benefit the film community at large, including film archivists and film scholars, starting with the public, of course. We can, for instance, explore new ways to analyze and document films (including their materiality and their legibility for different audiences throughout their history) both for restoration and research. And, of course, thanks to digitization, we can rely on a scale of distribution and access that was unknown before. There is still so much we do not know about the possible uses of new technologies and about the ways in which we can make them useful, also in the preservation, restoration and documentation of old technologies (think of 3D scanning and printing, to name just an example).

Finally, I think both utopia and nostalgia are very productive dimensions to guide us further in exploring film heritage as archivists, restorers, researchers, filmmakers and users.

PV: The life expectancy of even very old film, stored under the right climactic conditions, far exceeds the possibilities of the digital format. In other words, the preservation of analog material is relatively risk-free. You just said that new technologies offer many opportunities, but that we do not know yet how to make them entirely useful. Could you, in conclusion, also comment on the possible risks and pitfalls involved in the preservation of digital films?

GF: It has taken about twenty years to recognize the implications and risks related to the introduction of digital preservation. When personal computers and DVDs were introduced in the 1990s, we did not think that our digital documents, photographs, and films would only last a few years if left sitting on their carriers (hard-disks, CD-ROMs and DVDs). Now we know that hard-disks crash and that digital formats change every few years so that data need to be regularly transcoded to new file formats and migrated to new carriers. Most importantly, we know that digitization is not the (only) solution for long-term preservation and that important investments are needed to make it a sustainable long-term solution.

In the field of film heritage, most Western film archives and their funding entities have acknowledged in the last decades that original film artefacts (e.g. negatives, film prints and other film-related material produced at the time the film was first released) need to be treated as museum objects. As such, they require suitable long-term preservation facilities including vaults with controlled temperature (ideally, below freezing temperature) and humidity.[5] However, since the so-called digital rollout in 2011/2012, when a digital film workflow replaced the production, distribution, and projection of film prints in most Western countries, new films are born digital. To remain consistent with their preservation policy, film archives need to be equipped to preserve these new films in their original digital format.

Ultimately, a long-term preservation strategy for digital films needs to be developed, borrowing from the lessons learned in other fields. A number of film archives, including the Eye Filmmuseum, have recently built a digital archive that operates in accordance with today's best practices, which include the standardization of formats to be stored, the use of uncompressed files for

5 It should be noted that until not long ago archival practice was mainly focused on making new copies of original films as a preservation strategy (see Houston). In the last twenty years, there has been a stronger focus on the long-term preservation of original film artefacts, as discussed in Nissen et al. Let us also remember that this situation is true for Western archives, whereas many archives in poorer countries are simply not in a position to guarantee adequate storage conditions for their collections.

sound and image to form the so-called Digital Cinema Distribution Master (DCDM), a migration plan that foresees the transfer of the data onto new carriers (e.g. LTO tapes) every four or five years, and the storage of at least one copy of the data in a location different than the main digital archive. Based on research in the larger field of digital preservation, these conditions should be sufficient to guarantee the long-term preservation of digital films.[6] This kind of digital archive is of course suitable for the long-term preservation of both original digitized film-born films and access copies and restored versions of film-born films.

Returning to the topic of "legibility," there is one important aspect to point out with regard to the difference between the film vault and the digital film vault. The artefacts held in a film vault can be inspected and "read" by the human eye, whereas digital films held in a digital vault need to be interpreted by a computer before we can see and hear what they contain. The other side of the coin is that manually checking and viewing the hundreds of thousands of film cans in a film archive's vaults takes years. This still leads today to the loss of entire films due to undetected decay. The digital in principle offers the possibility to regularly run basic quality-checks that would allow the identification of any problems at an early stage and that would thus limit the risk of losing content (e.g. bits and bytes of image and sound). This is a promising application of the digital that still needs proper development. Furthermore, whereas a film archive requires the constant mediation of a small group of film archivists, a digital film collection is theoretically always available and accessible by everyone. "Theoretically," because the current copyright situation creates an even greater barrier to accessing film heritage than any film archives' vault. But that is another story…

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6 See, among others, the online platform *Digital Preservation Coalition* (http://www.dpconline.org) and, more specifically for moving images, their online resources (http://www.dpconline.org/handbook/content-specific-preservation/moving-pictures-and-sound).

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