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It Plays Therefore It Is: The Cartesian Problem for Film Preservationists

Greg Wilsbacher

University of South Carolina - Columbia, gregw@mailbox.sc.edu

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When Jen suggested I join her on this panel I had planned to discuss the mechanics of our experience with digital film scanning, especially of nitrate film.¹ But the past few months have found me increasingly convinced that insufficient attention is being paid to fundamental questions about digital preservation, questions that push us beyond how to what? and especially why? So I ask your indulgence as I pose some of these questions as they have arisen from my experience as an archivist, curator and administrator scanning 16mm and 35mm film on an almost weekly basis for over a year.

There has been a lot of traffic on the AMIA-L list-serv about digital preservation and most of this revisits previous posts and conference talks about the merits of spinning disk, data tape, solid state and now cloud computing. Concurrent with these threads invariably comes Rick Prelinger's annual (or semi-annual) statement about access, in which he promotes free, online access to digital video.

Both conversations feed off one another. If you're Rick you want the field to be more *entrepreneurial* (a phrase he used in the Forum column of the latest issue of *The Moving Image*), digitize however you can for the sake of access (and then figure out a way to preserve those

¹ This paper was delivered on 5 November 2010 at the 20th annual meeting of the Association of Moving Image Archivists. In addition to the author, the panel also featured Jen Sidley and Ken Weissman of the Library of Congress Packard Campus. Sidley delivered a presentation highlighting the lessons learned from a one-time, grant-funded digital preservation project at the Mississippi State Historical Society, a project she headed during her time at that institution. Weissman (whose paper was delivered by Sidley in his absence) presented an overview of the Library of Congress' recent efforts to digitally preserve the Edison Paper Print Collection. The order of presentation was: Sidley, Wilsbacher and Weissman.

Greg Wilsbacher

AMIA 2010: "It Plays Therefore It Is: The Cartesian Problem for Film Preservationists"

files).² If you're one of the many closet system engineers in our midst you want to craft big digital images, preserve those digital files (and then make access copies available to users--or not, depending on your IP concerns). What they share is a fixation on the digital file, not the physical moving image object. As we move beyond SAMMA and the mass digitization of analog video to face the enormity of the challenge of photochemical film we should pause to consider what we are about to do and why.

Jim Linder recently wrote on the list-serve that " far too much discussion in this community is being given to storage, and I personally have moved my interests further along. For me the storage issues are solved, particularly with SD materials. It's done. There is little new ground to break here really. We know how to store this much data, it is definable, and it is being done on a daily basis..."³

I think he is fundamentally correct in this contention. But Jim (being of that systems-engineery type) also contends, "I do not see film as that big of a challenge either - the magnitude of the size of files is larger, but other than that the issues are well known and we know how to deal with them and they have been dealt with in feature film production for decades now." From my own experience with newsreel and actuality films I can say with confidence that more than "file size" distinguishes the digital preservation terrains of film and video.

² Prelinger, Rick. "Points of Origin: Discovering Ourselves Through Access. *The Moving Image* 9.2 (Fall 2009): 168.

³ Linder, Jim. Email to AMIA-L listserv. 18 October 2010.

Greg Wilsbacher

AMIA 2010: "It Plays Therefore It Is: The Cartesian Problem for Film Preservationists"

Video was always an illusion of motion twice removed: a field-based system masquerading as the frame-based system which tricked our eyes into seeing motion where none existed. What's more, the nature of the video system always presumed the moving image to be a composite of informatic signals highly dependent on proper interrelations for the system to (re)produce moving images. What we saw--in the parlance of the industry--was the *essence* -- the rest of it, TBC signals, plastic carriers, magnetic tape was non-essential to a viewing audience and difficult to see (really see) at work.

Digital preservation of analog video easily presents itself as the work of managing a shift from one type of dematerialized information to another. Sure there were *many* challenges but the working archival assumption has been and continues to be that the *essence* of the moving image need only be preserved through the analog to digital migration respecting in the process the look of the analog image. Once accomplished, the task of managing data becomes a problem of information preservation and archiving more broadly construed.

Borrowing from Descartes we could say that the philosophy for this approach to digital preservation might be best rendered: "It plays therefore it *is*". The digital archive is only an archive if it plays back its digital essences. What's more, the Cartesian archivist seeks to reproduce only essences so what is being fed into this Cartesian digital archive was never really physical, never really existed. It was only ever ethereal light in a darkened theater, a "work" projected, not a thing.

Greg Wilsbacher

AMIA 2010: "It Plays Therefore It Is: The Cartesian Problem for Film Preservationists"

Before the Cartesian bandwagon of digital moving images has sailed into the sunset it behooves us to consider other approaches to digital film preservation. I would like to propose a Sartrean (or perhaps simply materialist) counterargument to the prioritizing of *essence* over *existence*.

The images on film that have enabled the production of motion picture film are physical images. It isn't simply that we can see them, but what we see are the accumulation of various inorganic and organic compounds combined not to create a signal but to produce a picture. That picture has an irrefutable physical, historical and existential character. Prior to advanced processing techniques the gelatin of the emulsion was influenced by the cellulose matter consumed by the cows whose bodies were dissolved to hold the camera's images. The *essence* of the image was writ on--truly dependent on--the *existence* of flora and fauna. As celluloid film is used and stored its physical body changes. Films are cut and joined; dyed; punched; stamped. They swell with humidity and shrink over time.

We should explore how digital tools provide an opportunity to preserve this physicality and this historicity before (or at least coincident with) our preservation of the moving image *essence*. In what follows I wish to explore one way we might attempt such an existential and materialist digital undertaking.

I have had the luxury of scanning films without purpose--no clients, no work orders. Actually there was purpose, to test and further develop the scanner we are using. Doing this meant pulling in a wide array of film elements to monitor how they behaved during the scanning process. Watching such diverse film elements further impressed upon me the importance of

Harold Brown's work on the material characteristics of early motion picture film.⁴ Though admired, Brown's book never spawned additional publications to fill out the enormous gaps in our collective knowledge. A noteworthy exception is George Willeman's presentation to this Association in St. Louis on nitrate stock samples and the various versions of Kodak's edge information. From a historian's perspective, we simply don't know enough about the traces of physical evidence on our films that might help us better understand the material production and use of that film.

As the number of digital film preservation and online access projects grows we risk losing access to the material elements being preserved. NARA, for one, has as a policy that access to original documents is severely restricted if use copies are available. This is a sensible policy provided it isn't applied in too severe a fashion. As a result, though, the digital files created today will stand for the scanned material film elements for a **very** long time [side note to the CriticalPast website]⁵. Even when staff are willing to be very helpful and provide access to inspection records (as NARA has done for me) those-text based documents cannot capture the rich visual information pulsing along the body of the film elements just outside frame.

If we accept two premises I don't see why digital masters for film materials should not be produced as full edge-to-edge scans. First, storage has gotten and will continue to get cheaper. Second, imaging sensors will get better, faster and cheaper. So, scanning beyond the frame

⁴ Brown, Harold. *Physical Characteristics of Early Films as an Aid to Identification*. Bruxelles, Belgium: FIAF, 1990.

⁵ This side conversation about the website, www.criticalpast.com, did not take place. Readers should be aware the purpose would have been to draw attention to the very large scale digitization of NARA films already undertaken and done in a manner not preserving the physical archival information of the film.

content will not come at the cost of inter-frame image quality. We can count on these things precisely because machine vision sensors and data storage systems are driven by economies vastly more powerful than film archiving. Given these two premises, edge-to-edge masters can provide data for frame-only and edge-to-edge access tiers. If we produce such digital masters, we will have already moved beyond "essence" as traditionally defined by the industry and begun a new chapter in archiving film as a material object.

Let's assume that we are scanning our film at very high resolutions and that we are scanning edge-to-edge. Because traditional frame-only representations of motion picture film in digital form will be the default mode of scholarly and non-scholarly access and because the number of locations able to manipulate film elements in the traditional manner (either in projectors or film printers) will likely continue to decrease we can begin to re-think physical film preservation as well as digital film preservation.

If physical preservation elements created from digital masters are freed from the immediate requirement of functioning within traditional photochemical film workflows then we can experiment with radical new approaches to physical film preservation for some of the world's most important film elements.

We could, for example, attempt to physically preserve the entirety of the edge-to-edge scans by printing them to non-perforated film stock. Why? Because only in this way could we create photochemical facsimiles of extra-frame information without the interference of a new generation of sprocket and gate information. Or we could return to the Edison Company's

Greg Wilsbacher

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brilliant decision to print motion picture film on ribbons of paper (lignum-free, acid-free paper, of course). To be clear, I am not arguing that these are preservation solutions we should implement now. They are thought experiments only.

However, if we simply adopt the industry/tape model of preserving just the *essence* we will lose an opportunity to preserve film history and film culture more broadly construed as a material practice. What's more, we risk losing access to the very qualities of motion picture film that can provide it with significant historical purchase. Namely, those unequivocal markers that shape the proper contextualization of our moving image evidence: (BH or KS; OCN or FGM or Print, triangles, circles, and squares, manufacture's marks, camera gate identifiers, etc...)

Even though we might now be able to draw only limited (or for all we know incorrect) conclusions from the material record of the film strip imaged from one edge to another, we ought as archivists identify ways to preserve and make accessible to future scholars these details so that they might consider their importance for our collective history.