



The Biograph Project

Tracey Goessel

Film Preservation Society (FPS)

Abstract

This essay details the trials and tribulations of attempting to restore 450 short films, shot between 1908 and 1913. Details discussed include a history of paper prints created for copyright purposes, and sometimes the only source of degraded material; the eclectic nature of the Biograph camera negative and the challenges of scanning it on modern scanners; the challenges of the surviving material existing in shooting order, not in final print assemblies; missing intertitles; the degradation of nitrate-based film and negative stock; subsequent reissues and re-editing of material, and missing or lost material. Finally, we discuss the challenges of dealing with temperamental and dueling archives, including infighting, internecine jealousies, and blocking of access.

A series of solutions and triumphs are also documented, intended to prevent despair on the part of film scholars, buffs and historians.

Introduction

In the earliest years of the twentieth century, motion pictures were much like filmed, silent stage plays. The audience view was as if they had the best seats in the house, and scenes were played fully, with the camera static and intertitles intervening to describe dialogue or action. This changed in the summer of 1908, when David Wark Griffith, under the pseudonym of Lawrence Griffith, began to direct one- and split-reel films at the American Mutoscope and Biograph Company. Over the course of the next five years, he introduced a series of innovations: moving the camera progressively closer to the actors, cutting from location to location and then back again to show simultaneous actions in different settings, panning the camera, placing the camera on a moving vehicle, inserting close-ups to convey emotion or additional information, using reflectors so that faces could be better seen in outdoor, backlit settings, and more.

"The work of Griffith and the Biograph Studio was head and shoulders above the rest."

This is, of course, an oversimplification. Film scholars can point to others, primarily in Europe, who used or even introduced these innovations. But this is the granular detail-seeking of academics. The essential truth is that all of these progressive innovations were coming from the Biograph studio during these years, and a review of trade magazines of the era or a screening and year-by-year comparison of another studio's product document that the work of Griffith and Biograph was head and shoulders above the rest.

And yet.

The majority of these films sit in scattered archives, often in the original camera negatives in shooting order, missing intertitles, and not readily available to the public or film scholars. Imagine if the written works of Mark Twain were neither assembled nor curated—Chapter One of *Adventures of Huckleberry Finn* in an archive in New York, Chapter Two in the United Kingdom, Chapter Three in the hands of a private collector, Chapter Four at the Library of Congress but with the paragraphs out of order.

The Biograph Project was initiated in 2016 for the express purpose of restoring all 450 split-, one-, and two-reel films directed by D. W. Griffith in the most important formative years of cinema, 1908 to 1913, and making them available to both scholars and the general public. The project is anticipated to take twenty years.

The challenges are several. Each will be discussed in detail and are summarized here.

1. Every film from 1908 and several from subsequent years have been lost.
2. The majority of these lost films were preserved via paper print records at the Library of Congress. No cost-effective method of recording or scanning this material has succeeded, and the material has not been worked on since being transferred to 16mm in the late 1950s by Kemp Niver.
3. Films that existed only in original 35mm nitrate negatives were created with the Biograph camera punching only one sprocket hole on each side of the frame, making them very difficult to scan by modern labs.
4. Films for which only camera negatives are available are preserved in original shooting order, or alternatively tinting order, and require assembly. In some instances, significant nitrate damage has already occurred.
5. The majority of the early films for which only camera negatives or paper prints are available do not have intertitles.
6. Those films for which positive prints survive but camera negatives are missing have been projected in multiple venues for a decade or more and are badly damaged, in many cases missing shots.
7. Many Biograph films were reedited and padded in the 1920s, with intertitles rewritten and lengthened to stretch a one-reel film into two. This is particularly the case with the films starring Mary Pickford.
8. Several of the films for which camera negatives survive are still missing shots.
9. After late July 1912, providing a paper print roll was no longer required for copyright. A written description of each scene—including, fortunately, intertitles—with a print of the first two frames from each shot is all that is available.
10. The source material is scattered throughout the world, sometimes at dueling or uncooperative archives.

As of August 2022, the Film Preservation Society (FPS) has obtained material on 116 of the 450 films. Table 1 shows the distribution.

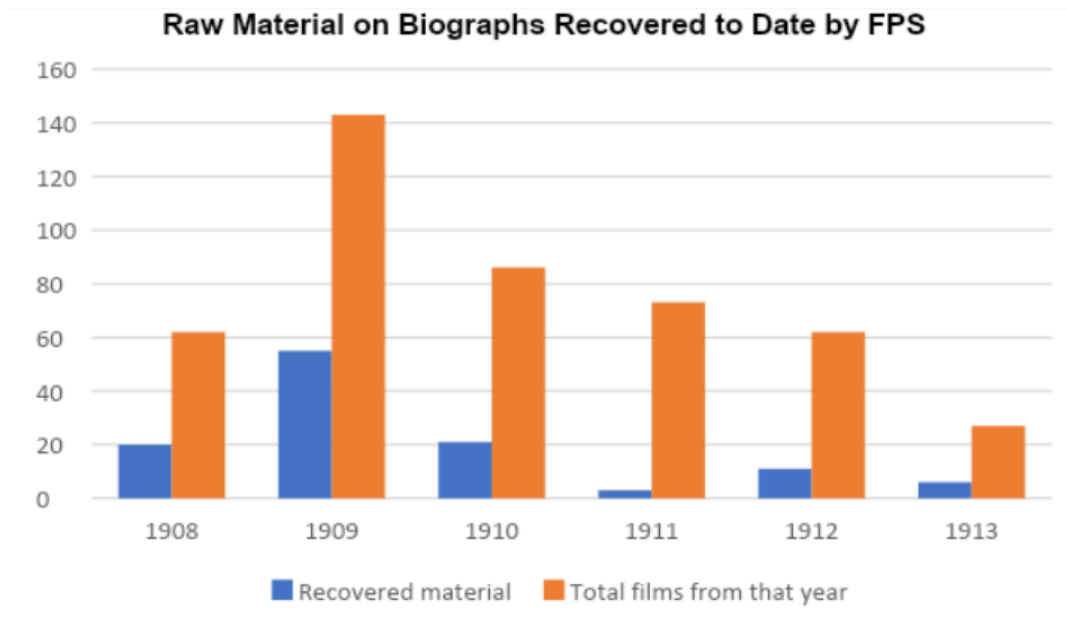


Table 1. Distribution of Biograph Materials

Details of the Challenges

Every film from 1908 and several from subsequent years has been lost.

All sixty-two films from 1908 require scanning of the existing paper prints, as do more than a dozen films from later years. This number remains approximate, as we have yet to identify all the existing elements to determine where degradation will have to be filled in with sections of paper prints. As an example, *The Politician's Love Story* (1909) was identified as available via a 35mm release print at the Museum of Modern Art (MoMA). Examination of the print revealed a series of interior shots had significant nitrate degradation that will require us to scan at least a portion of the paper print.

No cost-effective method of recording or scanning paper prints has succeeded.

Until 1912 there was no legal provision for copyrighting moving pictures. There was, however, a mechanism for copyrighting still photographs. Therefore, production companies would print the film images onto long strips of paper and submit them to the Library of Congress (see Figure 1).



Figure 1. A paper print roll.

In the late 1940s, 3,600 of these rolls of paper were rescued en route to the dumpster. The Library of Congress hired Kemp Niver to preserve them on film in the early 1950s. To quote his *Los Angeles Times* obituary of October 28, 1996, Niver “cobbled together a machine out of an enlarging stand, the insides of an 1898 motion picture camera, a lens adapter, non-distortion glass and gears and axles from a military surplus bombsight.” The task took fifteen years, but finally the rolls of paper were preserved on

16mm film. Unhappily, screening the finished product was akin to looking through a Vaseline-smear lens.

Little was done until the turn of the millennium, when the Library of Congress invested in a scanner and software sold by an outside vendor. This tool had scanned a few reels in the intervening years, but the process was very time-consuming. Each scan contained four frames, and the software built to separate these four images and place them in proper sequence lacked usable interfaces and was slow and unreliable, often dropping several frames in sequence.

"Finally the rolls of paper were preserved on 16mm film. Unhappily, screening the finished product was akin to looking through a Vaseline-smear lens."

In 2016, at the request of the Library of Congress, FPS invested in a vendor-created upgrade of the software.¹ The following year, a skilled technician was recruited to move to Culpeper, Virginia, site of the Packard campus of the Library of Congress’s National Video and Audio Preservation Center. During the course of his one-year contract, he worked tirelessly to make the scanning mechanism functional. At the end of the twelve-month period, only four short, split-reel films had been scanned (*The Adventures of Dolly*, *A Smoked Husband*, *A Calamitous Elopement*, and *Deceived Slumming Party*). In the period since then, the Library of Congress has scanned *The Ingrate*, *Mr. Jones at the Ball*, *The Girl and the Outlaw*, *At the Altar*, and *The Fatal Hour*. Staffing shortages have contributed to a slowdown, and we have not received a paper print scan from the Library of Congress in approximately two years.

An outside vendor was identified by the Library of Congress, and pilot tests were performed on paper print rolls that we had previously scanned with the library’s scanner. The results were considered satisfactory, and the process was much quicker. Several more 1908 films were then scanned: *The Bandit’s Waterloo*, *The Man and the Woman*, *For Love of Gold*, *Balked at the Altar*, *Monday Morning in a Coney Island Police Court*, *The Heart O Yama*, *The Stolen Jewels*, *The Curtain Pole*, *The Feud and the Turkey*, *The Clubman and the Tramp*, *The Criminal Hypnotist*, *The Roue’s Heart*, *Those Boys!*, and *Father Gets in the Game*.

At this point, the provision of paper print rolls from the Library of Congress ceased. Initially the issue was lack of the proper archival paper for patching, then it was a need to find a better archival glue. On-site staff shortages, worsened by the pandemic, were the final nail in the coffin, as shipments to the outside vendor ceased approximately a year ago. We are working on the problem at this time.

Biograph negatives are very difficult to scan. In addition, the resulting scans require stabilization.

"The Biograph negative doesn't fit most scanners, and the nonstandard placement and number of sprocket holes per frame make it difficult for the scanner to advance the film."

The nature of the Biograph negatives is a consequence of the copyright wars with Thomas Edison. The American Mutoscope and Biograph Company did not join the Edison Trust until 1908. In order to claim it was not derived from Edison's, the Biograph camera punched sprocket holes in the raw negative as the film was being exposed, resulting in a growing pile of film fragments accumulating behind the camera operator during filming. Harold Brown states in *Physical Characteristics of Early Films As Aids to Identification*:

These perforations were not beside that last exposed frame, but a little way from it. The mechanism which pulled each frame of stock through the camera gate did not pull a precise amount. Thus the position of those negative perforations is not constant in relation to the frames beside which they lie. If you project one of these films in a manner so that the perforations can be seen on the screen, the picture and [sic] the perforations of the print will be steady, but the images of the perforations of the negative will jump up and down.²

Scans have significant jitteriness because they are produced by locking on to the only stable image in the frame: its sprocket holes. Accordingly, this artifact has to be reverse engineered to stabilize the image.

The Biograph negative doesn't fit most scanners, and the nonstandard placement and number of sprocket holes per frame make it difficult for the scanner to advance the film, thus increasing the costs. Both the scanning challenges and the stabilization requirements add significant time and expense to restoring a reel of film for which the original camera negative is the only source.



Figure 2. Two frames of *The Redman and the Child*, Griffith's second film, printed and tinted on safety stock. The Biograph camera sprocket holes appear as dark, rectangular objects, two to a frame, more clearly seen on the left.

(Source: Los Angeles Museum of Natural History)

Available films, either from camera negatives or fine-grain positives struck from camera negatives, have shots in filming or tinting order.

In some instances, numbers are assigned at the beginning of the shot to aid assembly. In others the paper print may be used as a reference, although paper prints are not always produced in the correct assembly order and may have sequences out of place (see Figure 2). The Biograph Bulletins provide a useful guide to the narrative. But as the shot numbers in Griffith's films advance from single or double digits for a single reel in 1908 to numbers over one hundred for later stories, challenges arise. On the other hand, viewing the film in the original shooting order is an invaluable resource to understanding how Griffith worked and his studio-imposed limitations.

The majority of the early films for which only camera negatives or paper prints are available do not have intertitles.

Intertitles are available on the occasional paper prints, as well as on copyright registration

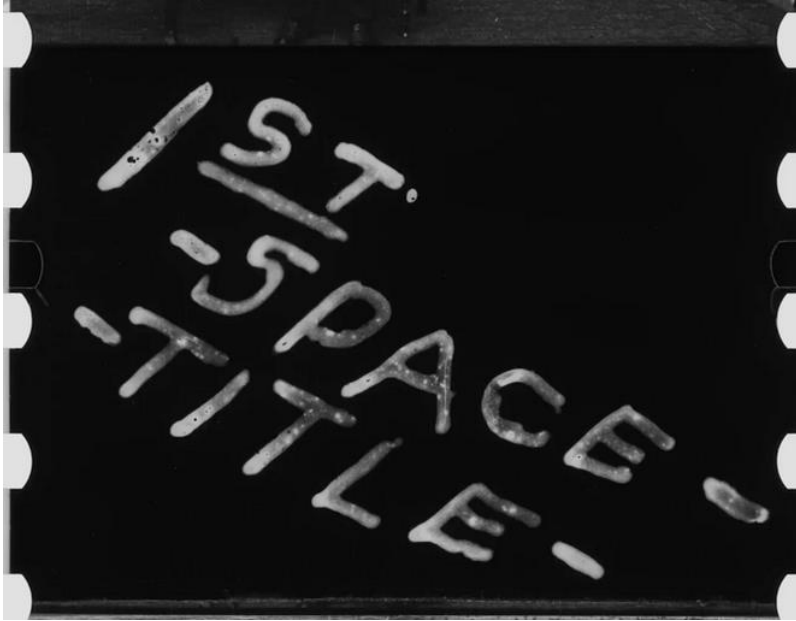


Figure 5. Title marker for *A Baby's Shoe*, scanned from the contact preservation fine-grain positive produced from the Biograph negative in the 1970s by camera operator Karl Malkames.

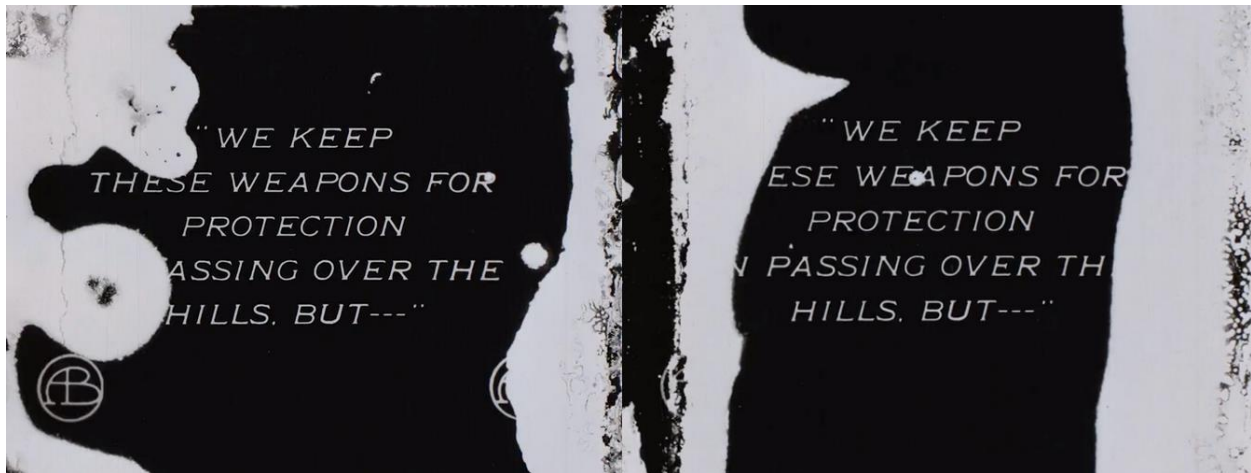


Figure 6. Two frames from the Dawson copy of *Unexpected Help* (1910). Careful frame-by-frame examination will permit determination of the full text, while placement and length are provided by the print itself, if there are no splices.

"The 'Griffith voice' is particular to its era. People are rarely 'friends', but they are often 'chums.'"

Another challenge comes in reproducing the "Griffith voice" (see Figure 7). Especially in the early years, Biograph intertitles tended to anticipate the action, describing what was going to occur sometimes two or three shots in advance. In *The Parade's Gone By*, Kevin Brownlow writes:

The title would dispense with the possibility of any suspense or excitement by announcing the contents of the incoming scene and giving away the outcome. . . . D. W. Griffith was as much of an offender as anyone; in *Goddess of Sagebrush Gulch*, he kept pulse rates low

during a potentially exciting scene with the giveaway title:

*"Help when Help is Needed! Tom, a courageous young man, saves Gertrude from the serpent's fangs."*⁵

Determining when in the years between 1908 and 1913 Griffith abandoned this practice is one of the academic challenges of the project. In addition, the Griffith voice is particular to its era. People are rarely "friends," but they are often "chums," for example.

Placement of the intertitles within the assembled film, accompanied by limitations of time for an audience to read the titles (typically one foot of film per word, excluding "and," "to," "the," and other short words), results in multiple iterations and shortening of proposed title text before completion. All de novo intertitles are designated by the FPS logo on the lower right of the screen.

The Medicine bottle
Intertitles
42 feet

The calculation suggests only 3 titles, I'm going to try to work this one out by number of feet

Title 1: before first shot 1:50
THE YOUNG MATRON'S PLANS TO GO OUT ARE THWARTED BY CUTS AND UNFORTUNATE SPILLS

Change to:
MADAM'S THREATEN HER SOCIAL PLANS
Cut to 8:50 feet

Title 2: at 5:5 seconds
Letter: 8 feet
Lengthen the letter to 8:50 feet

LETTER
-8-FT-

*Nurse Emily Knight
c/o The Ross Household
11 East 14th Street*

City

Miss Emily -

*Please come home immediately.
Your sister has been taken a fall,
and I fear her arm is broke.
There is no one to help her.*

Esther

Title 3: at cut at 1:32 4 feet
THE WRONG BOTTLE

Title 4: for some reason, there is a marker at 5:50. Since it cuts directly into action, and there is no difference in the frame before and after, I am going to presume that DWG put a title here.

A FORTUNATE SPILL -4 FEET
Remove!

Figure 7. Sample worksheet documenting serial changes in creating intertitles for *The Medicine Bottle*.

Those films for which positive prints survive but camera negatives are missing have been projected in multiple venues for a decade or more and are badly damaged and, in many cases, missing shots.

Here we have relied on commercial products for scratch and nitrate damage repair. Our initial tool was PixelFarm, followed in 2022 by the Diamante program. The excellence of the programs in detecting what registers as scratches or blots on the frame can result in an extensive frame-by-frame quality control process, as rapid movements or small objects that belong to the image can be interpreted by the software as artifacts (see Figure 8). Policemen's coat buttons come and go at will, and hands disappear if the actor is moving them too quickly. These errant "corrections" then have to be manually overwritten by the technician.



Figure 8. Two frames from the paper print of *The Adventures of Dolly* followed by the same two frames postrestoration.

They are much improved, but note that the badminton racquets have disappeared because they are moving, necessitating manual correction of each frame.

Biograph films were reedited and padded in the 1920s, with intertitles rewritten and lengthened to stretch a one-reel film into two.

The worldwide popularity of Pickford exploded in 1914. During the years Pickford worked for Biograph (1909–1912), actors' names were not provided by the studio on the films or the posters, or to the eager viewers sending in letters (see Figure 9).

Because of this, the one-reel films she made during those years were reissued in the following decade, padded to fit two reels. This was primarily done by the addition of dialogue intertitles and a florid replacement of the text of Griffith's standard narrative intertitles (see Figure 10). While we are grateful that this practice may have caused some Pickford Biographs to survive, it

does not decrease the challenge of returning them to their original state. Original intertitles must be researched, and original title placement deduced. Additionally, the practice of cutting conversational intertitles into previously uncut segments of film can result in frame loss, for which compensation is required.

An Arcadian Maid (1910) serves as an example. The original camera negative, a single reel, had been recut by the Aywon Corporation, with removal of seven original intertitles and insertion of new, longer ones, expanding the film's length to two reels. One of these two reels was in the Pickford-donated collection of Biographs at the Library of Congress. It was incomplete, with shots out of sequence and without original intertitles. The second Aywon reel was discovered in the possession of a private collector in Southern California. This had the reissue intertitles as well as the remaining shots, again out of order. We were fortunate that the surviving paper print contained seven intertitles. While it was now in three separate parts, in 1962 it had been copied by Kemp Niver to a 16mm acetate print, from which we were able to replicate the original intertitles.

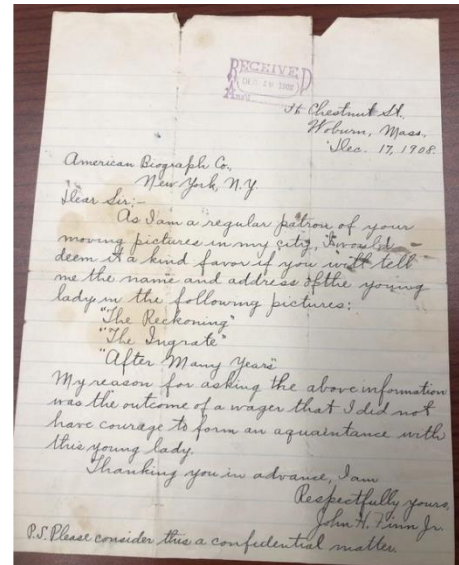


Figure 9. A 1908 letter to the American Mutoscope and Biograph Company requesting the name of Florence Lawrence. (Source: Florence Lawrence Collection, Los Angeles Museum of Natural History)

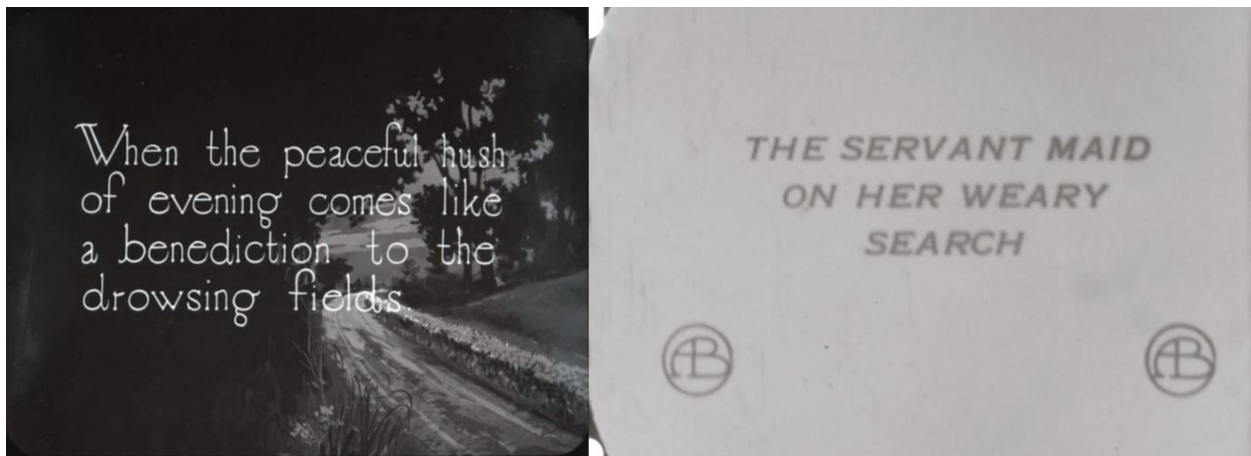


Figure 10. Aywon reissue title for *An Arcadian Maid*, left. Original intertitle, right, was sourced from the paper print. It would have been white text on black background in the release print.

Several of the films for which camera negatives survive have missing or degraded shots.

For Biographs with a surviving paper print, this is solved by scanning both the camera negative or fine-grain positive and the paper print. This more than doubles the scanning expenses per reel but permits recovery of missing or damaged footage (see Figure 11).

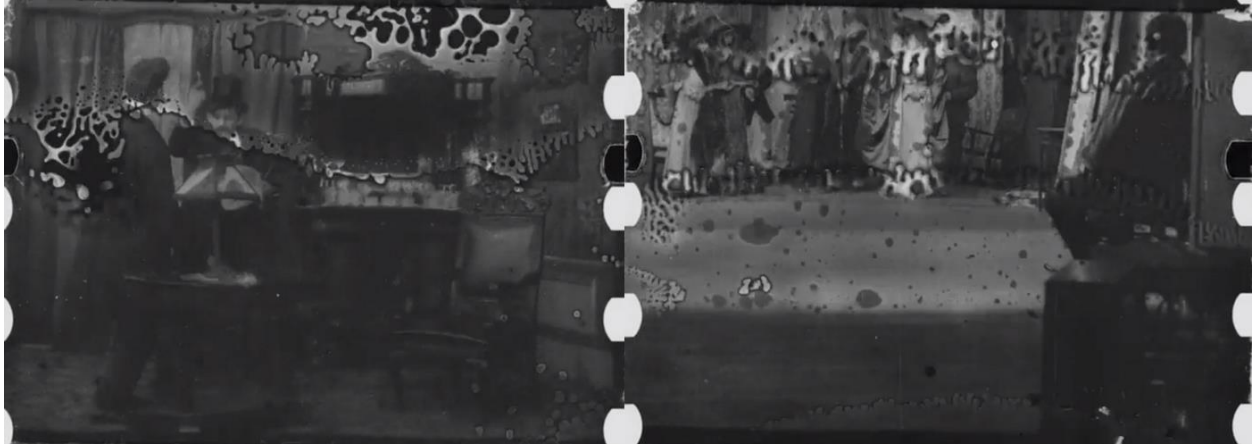


Figure 11. Nitrate degradation on original camera negative at the time of transfer to safety stock. Left: *The Politician's Love Story*; Right: *Those Awful Hats*.

We have yet to get the paper prints from the Library of Congress to scan and replace these sections.

One example is *At the Altar* (1909). This is a significant film, being only the third time Griffith used a close-up as an insert shot. Yet it is not screened; MoMA had all interior shots but one in 35mm, but none of the exteriors. The Library of Congress had the paper print. By scanning the paper print and working on digital enhancement of only the missing shots, we were able to restore all the shots in the film. These restored shots do not, however, constitute a complete image. See Figure 12, comparing paper print frame with 35mm frame from *The Cord of Life*, a film for which both sources are intact. Paper print images cut off the perimeter of the frame. The same is true of 16mm source material.



Figure 12. A 35mm frame of *The Cord of Life*, left, with the corresponding paper print frame, right. The tighter cropping of the paper print omits the edge of the frame. For narrative purposes, it matters little in this shot, but it can make a difference.

Another example is in *A Cry for Help*. Only 507 of the original 1,000 feet remains at MoMA. Historian David Mayer writes, "There is probably too little remaining of *A Cry for Help* to reconstruct an intelligible version of this improbable rescue-melodrama."⁶ However, 337 additional feet was recovered from a 16mm fragment of *Flicker Flashbacks, Second Series, Number 6* (circa 1943) at the Royal Belgian Film Archive. Still, seventeen shots were missing. This brings us to our ninth challenge.



Figure 13. A 16mm frame inset in the corresponding 35mm frame from *A Cry for Help*.

In this scene, Lionel Barrymore has been begging and has not been given a coin. He contemplates his empty palm, then turns it upside down to show that he received nothing. In the 16mm version, his hand is cut from the frame, and he appears to be looking at his lap.

After late July 1912, paper print rolls were no longer required for copyright.

A written description of each scene—including, fortunately, intertitles—with a print of the first two frames from each shot was all that was available (see Figures 14 and 15). Because the film was shot after the practice of submitting paper prints for copyright ended, we could not source those missing seventeen shots. However, the copyright records for films after late July 1912 had the first two opening frames of each shot, along with a shot-by-shot description. Accordingly, for these seventeen shots, we inserted the still frames where they belonged and employed a pan-and-scan mechanism.

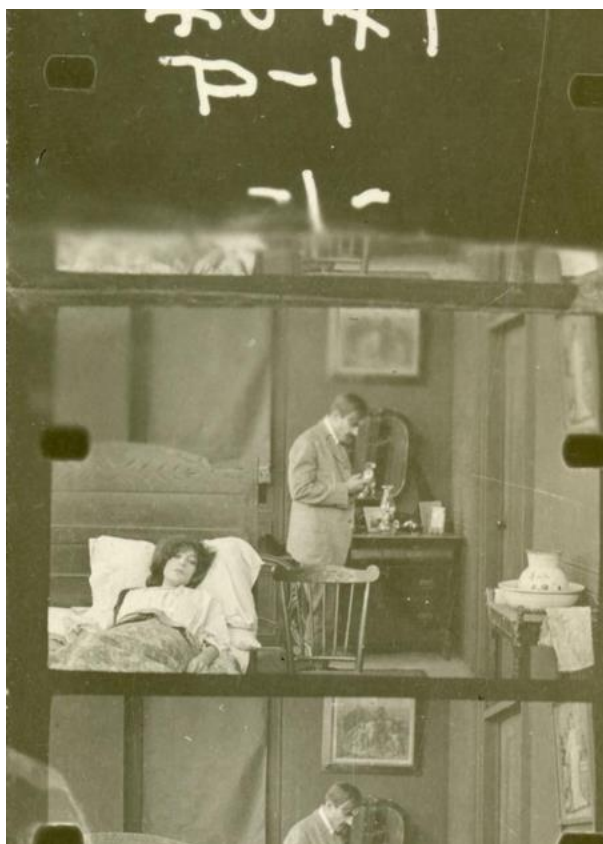


Figure 14. The first two frames of a missing shot from *A Cry for Help*.

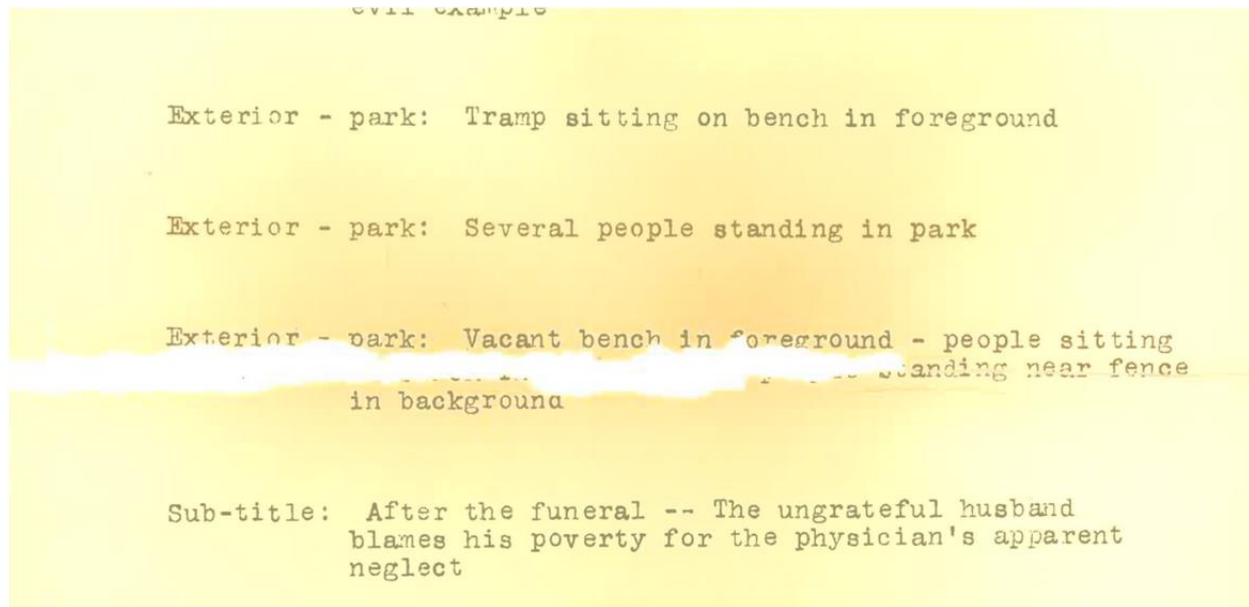


Figure 15. A sample of the shot-by-shot description (including intertitles) for *A Cry for Help*, which supplanted the paper prints in July 1912.

The source material is scattered throughout the world, sometimes at dueling or uncooperative archives.

We get to the core of the matter here. All the discussion and documentation of film restoration is of little meaning if the raw material is not provided. While FPS is providing most, if not all, of the funding for this project, cooperation is not always forthcoming. Politics and personal preference sometimes dictate the provision or withholding of material. “They are making the films look too good” is a claim we have heard as a reason not to send us fresh reels—an argument common in the archival world between those who favor digital restoration and the photochemical restoration stalwarts. The Pickford Foundation attempted to block our access to the Pickford Biographs at the Library of Congress, mistakenly thinking that it maintained control. Senior administrative staff at the library had to explain that this public domain material had been donated to the American people, and restoration work was not prohibited. It took several years to get two reels of a Douglas Fairbanks film for a non-Biograph-related restoration of *Double Trouble* from a Brazilian archive.

“All the discussion and documentation of film restoration is of little meaning if the raw material is not provided.”

FPS’s needs, understandably, are not at the top of any archive’s task list. These archives have programs and projects of their own, and an outside nonprofit performing a special project often represents an intrusion on their work flow. Also, because of *The Birth of a Nation* (1915) and its southern point of view on race relations and post–Civil War reconstruction, Griffith is considered radioactive in some corners. Nevertheless, we persist.

A list of relevant external links for this essay can be found [here](#).⁷

About the Author

Although both a physician and an entrepreneur, Tracey Goessel's true passion is silent film history. In 2015 she published *The First King of Hollywood*, a biography of Douglas Fairbanks, Sr., dubbed by *The New York Times* to be "a buoyant handspring of a book ... one of the most delightful Hollywood biographies to slide down the mast in years." The book came out in paperback in 2018.

In addition, she founded the nonprofit Film Preservation Society (FPS), (www.filmpreservationsociety.org) which has recovered and restored several silent films formerly thought to be lost or unavailable for viewing, including Fairbanks' *Mr. Fixit*, *The Good Bad Man*, *The Halfbreed*, *Too Many Kisses* and *Double Trouble*.

FPS funded the software that enables the Library of Congress to scan original paper prints of silent films from the first decade of the 1900s, and currently the goal is to restore all ~450 D.W. Griffith Biograph films that were made between 1908 and 1913.

¹ FPS determined that an off-the-shelf product, Adobe Acrobat, functioned more efficiently than Metastitch, the expensive custom software built for the Library of Congress at the time of the scanner sale and upgraded in 2016 by FPS. We switched to that product in 2017.

² Harold Brown, *Physical Characteristics of Early Films As Aids to Identification*, Camille Blot-Wellens, ed. (FIAF, 2020), 87.

³ See Biograph Bulletin for *The Smoked Husband*, released September 25, 1908, which provides the text of the letter that so enrages the character played by John Cumpson.

⁴ An example being *The Better Way* (1909), in which a reviewer noted, "A subtitle tells us that she had expected something higher and better than this." (*New York Dramatic Mirror*, August 21, 1909.)

⁵ Kevin Brownlow, *The Parade's Gone By* (University of California Press, 1976), 298.

⁶ David Mayer, "A Cry for Help," in *The Griffith Project, Vol. 6: Films Produced in 1912*, Paolo Cherchi Usai, ed. (British Film Institute, 2002), 210.

⁷ Links Relevant To "The Biograph Project":

Film Preservation Society: <https://filmpreservationsociety.org/>

Kemp Niver Obituary from the *Los Angeles Times*: <https://www.latimes.com/archives/la-xpm-1996-10-28-mn-58714-story.html>

Published by the Dartmouth College Library.
Copyright © 2024 (Tracey Goessel) CC BY-NC 4.0
<http://journals.dartmouth.edu/joems/>
Article DOI: [10.1349/PS1.1938-6060.A.492](https://doi.org/10.1349/PS1.1938-6060.A.492)

