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## NOTES

1. "Inside Installations," ICN, Amsterdam, 2007, [http://www.inside-installations.org/research/detail.php?r\\_id=83&ct=preservation](http://www.inside-installations.org/research/detail.php?r_id=83&ct=preservation).
2. Peter Struycken, interview with the author, July 16, 2008, Audiocollection Stedelijk Museum Amsterdam, 2008-004, 2008-005.
3. Ibid.
4. "Inside Installations."

## Who Is Going to Look at *That*? Experiences, Possibilities, and Pitfalls of Keeping Experimental Film in a Mid-sized Film Archive

ANNETTE GROSCHKE, MARTIN KOERBER, AND DANIEL MEILLER

Thanks to the interest and persistence of our curatorial predecessors at Deutsche Kinemathek–Museum für Film und Fernsehen, Eva Orbanz (who served as general secretary and president of Fédération Internationale des Archives du Film for many years), and Walther Seidler (a landscape architect turned filmmaker turned archivist), we are proud to keep an extensive collection of films deemed "experimental" in our archive. Leaving the discussion of whether experimental is a genre, or even a useful term, aside, if we call up "experimental" in our database, we have almost a thousand hits. Discounting the viewing elements on DVD or VHS, there are still almost seven hundred items on film. Discounting again the viewing prints of

canonized classics by Fernand Léger, Len Lye, Norman McLaren, László Moholy-Nagy, Man Ray, Hans Richter, Walther Ruttmann, and so on—films which many archives have and we are happy to possess but don't have the mandate to preserve in a proactive fashion because we lack the preprint elements—we still find a large number of elements for experimental films that are not projection prints but reversal originals, negatives, and other preprint elements. There are films in all formats, from 8mm by Bruce Conner to 35mm original negatives of films by Rebecca Horn, as well as a large collection of 16mm films made by such well-known German filmmakers as W+B Hein, Werner Nekes, Dore O., Klaus Wyborny, K. P. Brehmer, Karl Heinz Hödicke, Fritz André Kracht, Wolfgang Ramsbott, Bernd Upnmoor, Wolf Vostell, and many others.

From our records, it is evident that many filmmakers, once having made the decision to archive their films in the first place, remained faithful to the idea and regularly kept depositing new work, mainly preprint elements. When questioned on how this extensive collection of original elements came into being, Eva Orbanz replied,

The main influence to acquire experimental and artist's films for Deutsche Kinemathek came from Helmut Wietz [her companion in life and a filmmaker and producer himself]. He had organized film shows with Werner Nekes and others in Hamburg. Both Walther Seidler and ourselves knew the filmmakers personally. And Helmut had made films with artists after his studies at the Deutsche Film- und Fernsehakademie [DFFB]. It quickly became clear to me that these films, often only existing as 8mm or 16mm reversal originals, would be lost if they would not be collected. And through Helmut I managed to earn the trust of the filmmakers, which is a factor not to be underestimated. . . . What was frustrating, however, was the fact that proactive preservation and programming of these films was hardly ever possible for budget reasons.<sup>1</sup>

We would like to discuss here how this frustration continues and perhaps also how it can

be overcome. How can these films be kept for the long term? How can they be evaluated and contextualized in a manner that keeps them alive not only physically but also culturally—in cinemas, museum galleries, or in new media formats?

Experimental films and related documents are often somewhat neglected in larger film archives, certainly in Germany. The reason for this is probably that these films—apart from some “classics” that are well known and have become widely available—are produced and distributed, and thus also archived, outside of the mainstream, commercial industry. As a result, experimental film as a topic is not typically existent in the large paper archives of film corporations and the trade papers now available in institutions like ours, or in libraries and university collections, which are vital sources for film scholars and their writing and rewriting of film history. The world of experimental filmmaking remains small and depends on personal relationships between artists, archivists, and scholars, and no machine of professionally produced public relation material that has now turned into an archival resource supports and promotes it.

The film archive of Deutsche Kinemathek seems to have offered a safe haven for these homeless films, especially for key German experimental works. The collection is a comprehensive reflection of the West German experimental film scene of the 1960s and 1970s. The greatest value of this collection lies in the fact that usually, the oeuvre of a filmmaker is represented completely, and that the filmmakers decided early on to deposit their originals for safekeeping. The collection cannot be understood without recalling the cultural context in which many of the filmmakers represented here started out in the 1960s. In the mid-1960s, film became widely accepted by artists, and many venues showed their work, often in circumstances that involved political or aesthetic scandal and turmoil. This attracted significant attention, perhaps begetting more films by making filmmaking attractive as an integral component of artistic life at the time, full of the potential for radical expression.

In 1967, a “Film-In” showed experimental work in Hamburg for three days nonstop; the films had previously been turned down by the

then-important film festival in Mannheim. In winter 1967, the festival EXPRMNTL in Knokke, Belgium, saw the confrontation of the European avant-garde and the New American Cinema. The freedom of expression visible in many works of the American underground certainly sent a spark of inspiration into the German scene, as well. The festival was a battleground for political filmmakers based in the student movement (especially from West Berlin’s film school, DFFB), who disrupted and overthrew the traditional festival procedure by demanding that there must be a connection between filmmaking and social activism.

Following the example of the New York Film-Makers’ Coop (founded in 1960) and the London Film-Makers’ Co-operative (founded in 1966), similar initiatives sprang up in Hamburg (Filmemacher Cooperative and Hamburger Filmschau, both founded in 1968), Stuttgart (Südcoop, 1968), Cologne (XSCREEN, 1968), Munich (Undependent, 1968), and Bochum (Studienkreis Film, 1968), uniting filmmakers and people interested in exhibiting and watching films deemed unfit for presentation in well-established venues such as the festivals in Oberhausen, Mannheim, and Berlin. From 1970, the International Forum of Young Cinema and the Arsenal in Berlin were venues that showed radical work. From 1976 to 2000, Ingo Petzke’s company CINE PRO was the only commercial German distributor specializing in experimental films.<sup>2</sup> In 1977, Kassel’s art event Documenta VI had a section devoted to experimental film, curated by Birgit Hein, one of XSCREEN’s founders. In the same year, she also co-curated the exhibition *Film als Film*, initially shown in Cologne and then traveling to Essen, Berlin, Stuttgart, and London. By now, experimental film seemed to have arrived in the art world, and the filmmakers themselves often took important positions in film schools or as curators in the following years. In the 1980s, material from the “wild beginnings” started to flow into our archive and was sometimes shown at special venues in celebration of a particular group or the anniversaries of various events or festivals that were seen as turning points in the creation of the movement as a whole. Retrospectives traveled through the noncommercial *kommunale Kinos* that had been established in many cities throughout West Germany, which

were the main clients of the film distribution that was organized by Deutsche Kinemathek as well as Freunde der Deutschen Kinemathek (today known as Arsenal).<sup>3</sup>

While the widespread screening of experimental films in the 1980s provided a new audience with the opportunity to see these works, the film prints used for these presentations are, in many cases, now so worn down that they can no longer be shown. As Eva Orbanz wrote, the main frustration of the archivist is to know that a film exists but not be able to present it because the funds for making a restored or even a duplicate print of it are lacking. But the frustrations can go far beyond this initial feeling once one attempts to start to take preservation seriously enough to work on experimental films.

## PRESERVATION

Experimental film cannot necessarily be approached with the ordinary routine of archival practice. Every aspect of an experimental film—from shooting through postproduction down to exhibition and projection—can differ fundamentally from the procedures we have learned in film schools, laboratories, and cinemas. The production of 35mm theatrical and 16mm mainstream films is a well-established industrial process. The film industry perfected a meticulous technological production line that works miraculously in the background: camera technique, specialized film stocks for different lighting conditions, the positive–negative process in itself, the application of color timing and special effects. Each link in this technical chain is applied with one single aim: to create an audiovisual illusion on the screen that is perceived as a second reality, as an imitation or even a better version of the world around us. The main feature of the process is that none of the steps within the technical production process should be discernible in the final product, while the manufacture of experimental films uses the very same technology but with a completely different outcome in mind.

For the experimental filmmaker, every aspect in the production chain can become an object of manipulation. The purpose of the intervention can vary: it can be purely aesthetic or analytic, so that the technique of filmmaking

itself is revealed and disclosed for the viewer, sometimes with a disturbing or alienating effect. What is usually imperceptible within the film production process is manipulated to create an obstacle within the perception of the viewer. In fact, this approach constitutes what an experimental film is: a film that makes the cinematic process reveal itself to challenge, alienate, and question hitherto accepted and unquestioned patterns of perception. This is achieved by deliberately tweaking or even abusing the technology of filmmaking: manipulating the camera (running speed, multiple exposures); using inappropriate or outdated film stock; altering the developing process; physically or mechanically treating the film itself by painting, scratching, etching, or sticking material on it. Even the postproduction process in the laboratory can be used as a creative tool, in which film can be pushed or underdeveloped or cooked in chemicals to create an effect. Fed with whatever source material, the optical printer allows the artist to go forward or backward, to fall into slow motion or to accelerate, to single out details by zooming in or to layer images in multiple exposures. Applying these techniques allows the filmmaker to approach film like an artist (with brushes and paints) approaches an empty canvas.

A recurrent subject in experimental filmmaking is, for example, the attempt to reveal the carrier of the image, the film material itself. An intriguing example in our collection is *Rohfilm* (1968), one of the early works of Wilhelm and Birgit Hein that made the filmmakers known beyond the German experimental scene. The filmmakers took pieces of 8mm and 16mm positive and negative film and stuck them together with frame lines, perforation holes, and traces of dirt on a piece of 16mm blank film. The film was then reprinted on an optical printer in several passes. As a climactic effect, the image freezes at some point and even seems to melt on the screen.

Such experimental methods can present a challenge to the archivist. With typical laboratory production practices, the edited 35mm negative usually represents the original of the final film. Reprinting or preserving such a film from the original negative is easy. If grading strips or a reference print have survived, it is even easier. However, an experimental film that

was printed on an optical printer with ABCD rolls and different additional treatments can be a problem because the different steps that lie in the process between source material and the final film are rarely documented.<sup>4</sup>

Keeping all of the original elements in the vaults of our archive at an appropriate temperature is not enough to preserve these films. As an archive holding this special collection, we are obliged to document in the most accurate way every technical detail of a film's production. And it is only the filmmakers themselves who are able to clarify how they manufactured their films, how the specific effects were produced, and which techniques they used.

When we invited the experimental filmmaker Klaus Wyborny to our archive to learn how he created some of the effects in his films, we were surprised by an unexpected turn. We checked the 16mm internegative of one of his films, which turned out to be blown up from the original 8mm reversal, accurate to the frame. The film was edited and composed entirely in the camera—shot in single-frame mode and exposed rhythmically with color filters, following a musical concept. Apart from the format change in the blow-up, there was no further process or treatment after shooting. In other words, the entire film had existed in the head of the filmmaker before exposing the first frame. The work's fascinating, complex structure and the discipline with which Wyborny had put it down on film might make one think that this film—as opposed to some more complicated works by this filmmaker involving printing from ABCD rolls—would represent a comparatively easy case from a preservationist's point of view. Both the 8mm reversal camera original and the 16mm internegative are in very good condition. An access print could easily be struck from the 16mm negative, which in turn could be preserved by printing a duplicate positive. We wanted to close the case and move on to the next film, when Wyborny added, "I always was lucky that it was rather a short film. You know, a 16mm projector can get quite heavy when you carry it on your shoulder all the time." This statement opened the next can of worms: how do you preserve a special presentation situation with the portable projection that the filmmaker intended but that is not itself inscribed into the material?

Obviously the screening and exhibiting context can be a crucial issue and needs as much attention, documentation, and perhaps preservation or even restoration as the film itself. Projecting experimental films is often an experiment in itself. Different screenings of the same film may vary in sound sync, projector setting, and even in editing and montage because the filmmaker decided between shows to change the order of his work or to incorporate parts from other works. Thus keeping the most original element in the archival vault does not mean that you have preserved a given film. In addition to the documentation of the exhibition history, tracing back projection copies can be at least as crucial when you want to preserve the work. They may, in fact, tell another story than the original element.

For example, Wilhelm Hein's magnum opus *You Killed the Undergroundfilm or The Real Meaning of Kunst bleibt . . . bleibt . . .* (an ongoing project since 1994) exists in fifteen big reels of 16mm camera negative. However, it was screened in ever-changing combinations of scenes taken from these reels. So one way of preserving this work would be to find a projection print and to duplicate this one particular print using analog methods in a film lab, or perhaps, if the filmmaker agrees, one could digitize the fifteen reels of negative and program a random generator that would operate the digital projection.

To sum up, the very existence of experimental films is certainly more vulnerable than that of other films because every aspect of their making and their appearance in front of an audience can be considered special and requires more knowledge and context than we normally have when we just access a can from our shelves. As Jon Gartenberg wrote, "an entire thread of film history is threatened with extinction, even though many of these films have been created only over the last four decades."<sup>5</sup>

Following Gartenberg's advice, one can conclude that an archive that collects experimental films assumes special duties and has to find new approaches in collecting, preserving, and presenting this legacy. It has to establish a trustful personal relationship with the filmmakers. It has to adopt a proactive attitude because these films will not typically come by chance

or automatically to the archive. The archivist has to seek as much information as possible on how these films were manufactured and on how they were screened. Documentation is key because materials and processes employed to create and exhibit these films may already no longer be available or will disappear in the near future. In the transition from the analog to the digital domain, the archivist will be responsible for translating and simulating the original ideas and techniques in the digital realm.

### CASE STUDY: WERNER GRAEFF

Perhaps the case study of a very special film “that never was” can serve as an example for the films that eventually will be. Werner Graeff, who was a Bauhaus affiliate who supposedly taught Hans Richter how film worked in the first place, conceived his famous “Filmpartitur” in 1922 as a blueprint for two ideal films, one in black and white and the other in color. He then never shot the films. Drawings were published in *De Stijl* in 1923, but the films never made it onto a screen because they did not exist. In 1958, Graeff took his notes from the 1920s and finally shot the black-and-white film in 16mm; a second color film was made almost twenty years later, in 1977. These works were finally shown as films, and copies were sold to prestigious modern art collections, for instance, to Centre Georges Pompidou in Paris. As if they had always existed, they are now part and parcel of gallery shows about Bauhaus and film, and no one watching them in such a context thinks about the history of these productions, which were, to say the least, anachronistic even when they were shot. Not only were they made decades after conception but their *realization* came about in a medium that did not even exist when they were originally put on paper; in 1922, Graeff would certainly have shot on 35mm nitrate negative, and a color emulsion to render his second composition did not even exist.

We received the 16mm originals as a gift from Graeff’s widow and found them to be faded and also otherwise in far from ideal condition. We thus decided not to preserve these films back to new 16mm prints, which would inevitably have shown the flaws of the “originals.” We decided to digitize and render out high-definition tapes of both works, thus

opening the chance for color correction by following Graeff’s instructions perfectly and still keeping the characteristics (slight dust and some scratches) of the 16mm format. We hope that the high-definition video format also has a greater chance of distribution today, especially in the gallery context in which these films are most likely to be shown. Also, the data set resulting from the digitization will give us other format options later on, if we manage to keep the data intact over the long term.

The project of preserving Graeff’s films in the digital realm, which has its own pitfalls and perils in need of management, will serve, it is hoped, as an experiment from which we can learn something about the preservation of other experimental films as well. Not all films in our collection lend themselves to such “experiments,” however. Works that involve analog techniques, such as A/B (C/D, etc.) rolls and optical printing from original negatives, and highly complicated intermediates need special attention and cannot simply be digitized from the elements we have, as these often represent only the starting point for further interventions down the postproduction line, until the work emerges in the final print. For such cases, new approaches have to be found, as it can be expected that the chance to preserve them in the original format will vanish (or has gone already) with the disappearance of appropriate film emulsions and the decline of laboratories equipped with machines for the proper workflow.

Thus preserving experimental films is one big and complicated experiment itself. We should start thinking about it sooner rather than later, when many of the artists are still around to testify to their intentions and work methods. For now, at least, we can create preservation masters on film that incorporate and decode these artistic intentions correctly to allow further steps in the future in whatever technology might then be available for producing access and exhibition elements.

### ACCESS

Finally, we have come to the question of access, the lack of which was part of the frustrating experience of our predecessors, which may well continue into the future if we do not follow new

models of operation. Most of our experimental films are still only available as films and not as digital copies. In fact, most of our experimental films are not available for any exhibition at all because we “only” have the negative or a unique original print.<sup>6</sup> On one hand, it is a blessing to have so many original elements; on the other hand, it makes providing access to these titles very difficult because we lack the funds to transfer everything onto film or a digital carrier.

We share Tacita Dean’s view of analog versus digital: “many of us are exhausted from grieving over the dismantling of analogue technologies. Digital is not better than analogue, but different. What we are asking for is co-existence: that analogue film might be allowed to remain an option for those who want it, and for the ascendancy of one not to have to mean the extinguishing of the other.”<sup>7</sup> However, with the disappearance of 16mm and smaller-gauge print production in Europe and the rest of the world, and with the looming impossibility (technical and financial) of transferring 16mm and smaller gauges onto 35mm film stock, we will sadly no longer have the choice to decide *how* we want to give access to our experimental film collection. Films will have to be distributed on digital carriers, while the vintage prints will become even more valuable and will only be shown on special occasions. They will be kept under strict protection and only available for serious study by scholars, or for the creation of new masters, when necessary. Even though there are services like those of the Film Gallery, which provides projection equipment to museums and galleries, projection of film prints will become very rare.<sup>8</sup>

For many (experimental) films, digitization offers advantages: a potentially much larger audience and worldwide access, if the file is made available on the Internet, and no possibility of damage to the precious film materials. It is no surprise, then, that archives are often asked to digitize their collections and to make them broadly available. However, there are a number of obstacles to be overcome: the funding for digitization needs to be found; the transfer of film to file has to be supervised; and if the new digital copy is to be showcased online, the rights need to be cleared.

On YouTube, a search for “experimental

film” yields about 40,100 results, including films by Hans Richter, Fernand Léger, and Maya Deren, to name just a few. Is the availability of this material on video portals like YouTube or the more specialized UbuWeb (which is dedicated to experimental and avant-garde work), or on DVD or other digital formats, a viable alternative to screening experimental films?<sup>9</sup> What about all those films that are about the physicality of the material used to make them such as Nam June Paik’s *Zen for Film* (1964)? Peter Zorn has explained that “Paik created the minimalist end-point of film: an unexposed reel of 16mm film running through the projector. The scratches and dust that add up during every showing are the only visible artifacts of projection. The rest of the film goes on in the viewer’s head.”<sup>10</sup> Could this kind of film really work as an Internet video or digital projection?

Obviously, many experimental films, such as those that deal with the deterioration of the material over time, and especially those used within an Expanded Cinema context, resist being utilized and circulated as digital copies.<sup>11</sup> Likewise, not every filmmaker will agree to having his films digitized. While some may not mind having their films shown on DVD, others, like Tacita Dean, insist on showing their works screened on a projector. The place for gaining access to these films will remain film festivals, art fairs, and gallery and museum screenings, as long as their creators have a say in how they are exhibited.

The exhibition *Celluloid. Cameraless Film*, which took place in summer 2010 at the Schirn Kunsthalle in Frankfurt am Main, Germany, showcased films produced by “applying diverse artistic processes: painting, drawing, collage on celluloid, scrapes and scratches in the emulsion, chemical disaggregation, or the direct exposure of the photosensitive material.”<sup>12</sup> Some films were shown as loops on 16mm projectors, whereas others were projected via video projectors.<sup>13</sup> Each film had its own booth lined with black, soundproof foam. The Schirn chose to present the films in a more or less neutral environment, by which we mean that they did not try to re-create the historical settings of the original screenings.

Should museums or any other institution showing experimental films of the past try to re-create historical screenings? An example of

this was the Electric Cinema Redux at the Rotterdam Film Festival in 2007, a rather meticulous reconstruction of the Amsterdam Electric Cinema screenings of the 1970s. These were re-created by Tina Bastajian, who had not only brought together the films of this period but also tried to rebuild the intangible aspects of the original presentations, such as the absence of seating, expanded cinema situations, multiple screens, and so on. Is it possible to relive the auratic interplay between a moment in time, a location, the projection equipment, the setup of the projectors, the people present at the screening, and, last but not least, the films shown at the event itself? Even if the answer would be no, we think that it would be great to have documents of all of the preceding when incorporating a new experimental film into our collection.

## AN OUTLOOK

The future for experimental films at Deutsche Kinemathek will have to incorporate a little of all of the ideas we ponder earlier, and much more. Online access to our holdings is key, as younger generations already take it for granted that everything in any collection should be at their fingertips. What is not available online seems to be nonexistent. To provide extensive online and real-life access, we need to find extra funding to actively preserve and digitize more of our experimental film collection. We also need to look beyond traditional spaces and partners for exhibiting experimental films.

To keep this unique art form alive, it is important to document the memories of the dwindling number of people who were part of the original exhibition experience. However, this attempt to document needs to work in tandem with efforts to attract new audiences. Introducing experimental films to children, for instance, can be a way to proliferate the joy one can feel when grasping the creative freedom filmmakers took for granted when they first ventured into new territories of cinematic invention.

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für Film und Fernsehen since 2004. Recently, she has completed reconstructions of two Asta Nielsen films: *Die Suffragette* (Germany, 1913) and *Das Liebes ABC* (Germany, 1916).

**Martin Koerber** has worked as a freelance film archivist for Deutsche Kinemathek, Nederlands Filmmuseum, Friedrich–Wilhelm–Murnau–Stiftung, Deutsches Filminstitut, and others since 1986, mainly dealing with film restoration. He has put numerous films into better shape during these times, including classics like *M* (1931) and *Metropolis* (1927). In 1999, he became a permanent staff member of Deutsche Kinemathek and moved on to become professor of restoration of audiovisual and photographic heritage at Hochschule für Technik und Wirtschaft, Berlin's largest university of applied sciences. In 2007, he was appointed curator for film at Deutsche Kinemathek–Museum für Film und Fernsehen.

**Daniel Meiller** is technical director of the film archive at Deutsche Kinemathek–Museum für Film und Fernsehen. His background includes a decade of experience as the editor of feature films and documentaries for film and television as well as project leader of film restoration at the Nederlands Filmmuseum. One of the restoration projects with which he was involved included Dutch experimental films.

## NOTES

1. Eva Orbanz, e-mail to Martin Koerber, February 28, 2011. Translation by Martin Koerber. Deutsche Film- und Fernsehakademie is the Berlin-based German film and television school, founded in 1966. Many alumni became famous filmmakers, such as Harun Farocki, Hartmut Bitomsky, Wolfgang Petersen, and Christian Petzold, to name just a few.
2. Petzke described his company in an e-mail sent on March 24, 2011, to Annette Groschke as “a for-profit business that was run for non-profit screenings. I distributed 16mm prints of classic avant-garde films and the films of almost every German experimental filmmaker. Eventually I got into trouble with the local tax office who couldn't understand why I stayed in the red by only keeping 30% of the revenue and giving the rest to the filmmakers.”
3. The Arsenal's exhibition prints can be re-

searched online at <http://films.arsenal-berlin.de/>.

4. The negative of an edited film is built into two (or more) rolls, A and B (and C and D, etc.), to allow for invisible splices, instant changes of the timing lights, and fades and dissolves. The A roll will have all the odd-numbered shots, with black leader in place of all the missing shots. The B roll will have all the even-numbered shots, with black leader in place of all the shots on the A roll. The negative is printed in several passes through the contact printer, one for each roll and another for the sound track. Only after all the elements have been exposed onto the print stock is the print developed.

5. Jon Gartenberg, "The Fragile Emulsion," *The Moving Image* 2, no. 2 (2002): 142–53.

6. Our exhibition prints can be researched online at <http://verleihfilme.deutsche-kine-mathek.de/>.

7. Tacita Dean, "Save Celluloid, for Art's Sake," *Guardian*, February 22, 2011.

8. Founded in September 2005, the Film Gallery is an offshoot of RE:VOIR, the Parisian distributor of classic and contemporary experimental films on video. "The Film Gallery also provides projection equipment to museums and galleries . . . in order to promote screening film works on film rather than video. We rent projectors and loopers and offer maintenance services in Super-8mm, 16mm and 35mm." <http://www.film-gallery.org/>.

9. Mihaela Brebenel, in "Is the Auratic Character of Experimental Films Lost on YouTube—from Cinema 16 to Future Shorts," <http://www.slideshare.net/gramafunk/is-the-auratic-character-of-experimental-films-lost-on-you-tube-from-cinema-16-to-future-shorts>, writes that "the different cinematic experience created by YouTube, as opposed to galleries and theatre screenings, raises questions of authenticity and

autonomy of the artworks. Is this the original work or was it edited? Is this the piece in its entirety? Is this the original soundtrack, approved by the filmmaker? Legitimacy of the work is questioned alongside its value."

10. Peter Zorn, "From the Beginnings of Experimental Film to the Turbulent Seventies," <http://www.goethe.de/kue/bku/dos/mid/gus/en3018648.htm>.

11. Coined in the mid-1960s by American artist Stan Vanderbeek and publicized through the writings of Sheldon Renon and Gene Youngblood, Expanded Cinema is an artistic practice that aims to break with the traditional setting of the cinematic space. The focus is shifted away from the silent reception of a finished movie to the creation of a live performance that highlights the technical and material aspects of film by means of, for instance, the use of several projectors that operate within the theater or the manipulation of film stock during the performance by the artist. Thus Expanded Cinema cannot be repeated; it is always a unique event.

12. Celluloid. Cameraless Film, June 2–August 29, 2010, <http://www.schirn.de/en/exhibitions/2010/celluloid/celluloid-cameraless-film-exhibition.html>.

13. Esther Schlicht, the curator of Celluloid, explained in an e-mail to Annette Groschke, March 30, 2011, why a number of films were shown as digital projections. For some films, it was only possible to get a digital copy. One film was originally on 70mm, so showing it in its native format was not viable. Sometimes the choice between film print and digital version was given and the curator made the decision. In the end, the digital version was chosen in a number of cases because of the way the exhibition was set up and to keep the amount of maintenance manageable.