

Austrian Avant-Garde Film

Another focus of Filmarchiv Austria's digital restoration department concerns Austrian avant-garde film. 2011 saw the rediscovery of one of the most important Austrian auteur filmmakers of the '70s and '80s, Mansur Madavi. Two of his early works, *HO ANTHROPOS* and *GUCKLOCH*, both key works in the director's oeuvre, could be made accessible again through full digital restoration and were shown during the first big Madavi retrospective at Filmarchiv Austria's Metro Cinema as well at the Czech film festival in Uherské Hradiště and in Mexico City following a guest lecture by Filmarchiv Austria at the Centro de Capacitación Cinematográfica. The only elements known to be in existence, each a 16mm b/w reversal film with a variable area optical soundtrack, served as source materials for the two restorations. Only in the case of *GUCKLOCH* a magnetic sound tape could also be located, which served as a source for the sound. After the image restoration and the creation of a new sound negative from the magnetic audio tape of *GUCKLOCH*, the synchronisation turned out to be a confusing obstacle as the film is highly experimental in character and no synchronisation marks were manifest. The only way to proceed was a painstaking trial and error routine which, in the end, generated a mesmerising result once the right synchronisation point had been found.

» *HO ANTHROPOS* A 1970, directed by Mansur Madavi, with sound, b/w, 264 metres » *GUCKLOCH* A 1970, directed by Mansur Madavi, with sound, b/w, 356 metres

History of the Austrian Advertising Film

In the course of an ongoing research project, Filmarchiv Austria has been working in cooperation with leading Austrian enterprises to review the history of Austria's advertising and industrial films. In 2011, two of the earliest films, directed by Peter Eng (who, like Ladislaus Tuszinsky, was one of the pioneers of Austrian animated film), were digitally preserved. Due to the generally poor tradition of preserving such material, the two films now count as treasures of the Austrian film heritage.

» *[LERNE SCHWIMMEN]* A 1926, directed by Peter Eng, b/w, 44.4 metres » *SCHILLERS RÄUBER* A 1926, directed by Peter Eng, b/w, 56 metres

The Restoration of BEYOND THE ROCKS

The long-thought-lost film, *BEYOND THE ROCKS* – directed by Sam Wood in 1922 and starring Gloria Swanson and Rudolph Valentino – was found by the Nederlands Filmmuseum (since 2010 known as EYE Film Institute Netherlands) in 2004 and restored in 2005. Both digital and photochemical techniques were used for this restoration project, which resulted in the production of seven different versions, namely two silent restoration film versions, two sound distribution film versions, one sound distribution digital version and two DVD versions with two different soundtrack options.

News of the retrieval and restoration of this title has travelled across the globe. The different versions of the film have been shown at several festivals and in hundreds of venues in Europe, North and South America, Australia and Asia. Such wide theatrical distribution, together with the DVD release and the television broadcasts (on Turner Classic Movies and on Dutch public television), made it possible to reach a much larger audience than the quite specialised one that is usually exposed to silent films. Obviously, such a wide exposure has opened the forum for an unprecedented, broad discussion on film restoration. The discussion focused, on the one hand, on the new possibilities given by technology and, on the other hand, on the ethical issues related to its application. Some of these ethical issues will be discussed while describing the restoration of *BEYOND THE ROCKS* and the decisions taken along the way. Until 2004, *BEYOND THE ROCKS* was one of the many silent films considered lost for good. Between 2000 and 2004, an almost complete nitrate print of the film resurfaced, literally reel by reel, at the Nederlands Filmmuseum. The film was held in several unlabelled cans

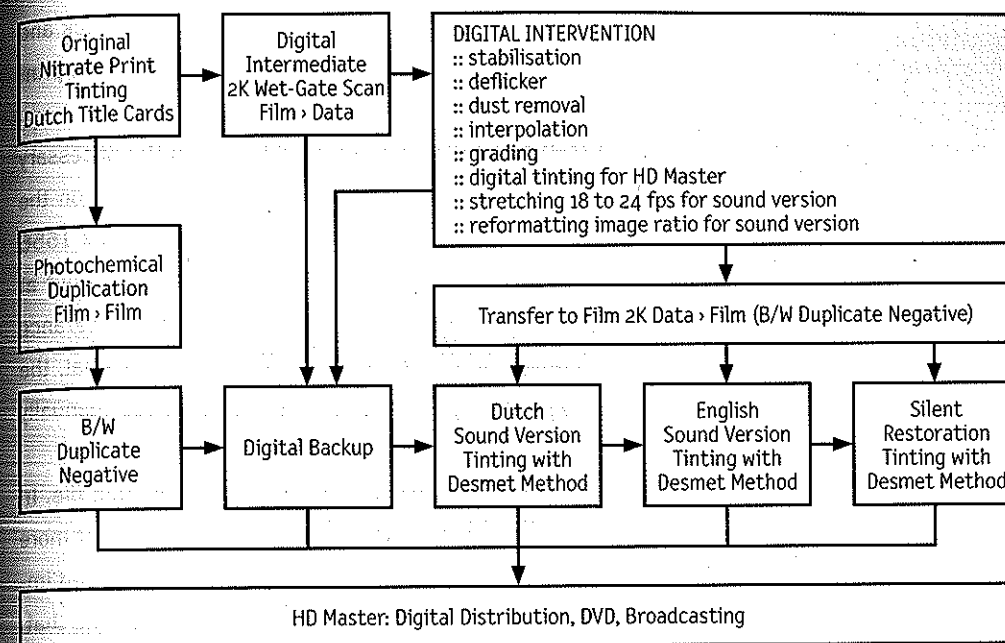
scattered throughout a large film collection donated to the Nederlands Filmmuseum by the family of a Dutch film collector after his death in 2000. Under the supervision of Collection Specialist Elif Rongen-Kaynakçi, it took approximately three years to register and identify this large collection and with it all the reels of BEYOND THE ROCKS. The nitrate print, in the end, turned out to be almost complete, with only a few frames and shots missing. Remarkably, only two minutes of the recovered film were damaged beyond restoration and the overall state of the nitrate was relatively good.

The valuable collaboration with the University of Texas, Harry Ransom Research Center, where the Gloria Swanson Collection is held, and the Margaret Herrick Library at the Academy of Motion Picture Arts and Sciences, which preserves the Paramount Scripts Collection, helped the Nederlands Filmmuseum to reconstruct the film's editing and its title cards.

ING Real Estate financially supported this restoration project, which was carried out in collaboration with the Haghefilm Conservation Center. From the very beginning, it was decided that not only would the film be restored to its original silent version, but that a version would also be produced with a newly composed soundtrack, written and performed by the Dutch composer Henny Vrienten.

The first digitally restored sound version of BEYOND THE ROCKS, carrying the Dutch title cards that were found in the nitrate print, premiered in Amsterdam in April 2005 during the Nederlands Filmmuseum biennial festival, the Filmmuseum Biennale. A second sound version was shown in May 2005 at the Cannes film festival in the Cannes Classics selection; for this version more digital restoration had been applied to the image (i.e. more scratches were removed) and new English title cards, based on the continuity script, had replaced the Dutch ones. In July 2005, the same restoration version was shown at the festival Il Cinema Ritrovato, held each year in Bologna. Both the sound and the silent restoration versions were shown at Le Giornate del Cinema Muto in October 2005.

BEYOND THE ROCKS was by far the most ambitious restoration and distribution project carried out by the Nederlands Filmmuseum at that point, in terms of investment, exposure and techniques employed. The whole project cost around 200,000 Euros, including the costs for the analogue and digital restoration process, the new preservation film elements, the distribution film prints, the realisation of the new soundtrack and the digital masters for digital projection, DVD and broadcasting. The cost of the restoration alone was about half of the total amount. It should be noted that the average cost of a photochemical restoration for a



Restoration workflow of BEYOND THE ROCKS (Sam Wood, USA, 1922 – courtesy of EYE Film Institute Netherlands)

feature-length silent film is, even today, still significantly less than that of a digital restoration. Nevertheless, a solely photochemical process could have never given results comparable to those obtained by also applying the digital. Let us look at the restoration process step by step.

Once the nitrate print was recovered and inspected, the first step for its preservation was to reconstruct the correct editing of the film. As mentioned above, this was made possible thanks to the availability of the original continuity script, kindly provided by the Margaret Herrick Library at the Academy of Motion Picture Arts and Sciences, with Paramount's permission. After minor re-editing, the nitrate print was sent to the laboratory, in this case the Haghefilm Conservation Center in Amsterdam, which specialises in the restoration of archival films. There, the nitrate print went through careful inspection and physical repair. Every single joint, tear and sprocket hole was inspected and, where necessary, repaired by hand. Subsequently, the nitrate print was carefully cleaned. After repairing and cleaning, a

one-to-one photochemical duplication of the nitrate print was made to produce a black and white duplicate negative. This negative serves as the preservation element of the nitrate print before any kind of digital interventions are carried out.

Before digitising the nitrate print, a series of tests were performed to establish the necessary resolution and bit depth for capturing all the details of the print in the scan. Based on the tests, it was decided to scan the nitrate print at so-called 2K resolution (i.e. 2048 x 1556 pixels per frame) and at a colour depth of 10-bit logarithmic. The scan was carried out at Haghefilm on an Oxberry scanner custom fitted with a wet-gate to eliminate the appearance of superficial scratches on the base side of the film. Due to the fragility of the material, the scanning process had to be carefully supervised and often the film had to be fed manually into the scanner's gate.

For the digital restoration of a film, every single frame is typically stored as a separate file. In the case of *BEYOND THE ROCKS*, 80,000 files were produced, accounting for a total of more than one terabyte of data. The files were subsequently imported in *Diamant*, a high-speed image manipulation software especially developed for use on digitised archival films. Note that during digital restoration, a temporary storage of about five terabytes was needed, more than four times the size of the scanned film. The digital image restoration process included image stabilisation, deflickering and dust removal.

Digital stabilisation was needed because, mainly due to the shrinkage of the nitrate print, the image often shook on the screen during projection. Although it is possible to correct this instability with digital tools, the restorer's goal should not be that of total stabilisation. Film-born films, especially silent ones, have never been ›rock steady‹. For *BEYOND THE ROCKS*, some image instability was preserved, which replicates the original appearance of the film in projection.

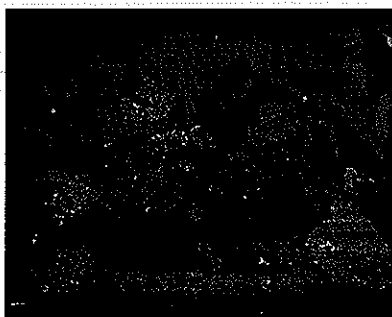
Some of the scenes also suffered from quite heavy flickering, i.e. the instability of light within the same shot. After a set of reference frames was chosen, shot by shot, the *Diamant* software averaged all the frames accordingly. As in the case of stabilisation, the choice was not for a complete deflickering, but rather for a lower level of flicker, typical of film projection and not disturbing for the eye.

Dust removal (also known as scratch removal) was also largely applied. Before digital tools for restoration were developed, it was possible to remove only superficial scratches that had not reached the image via wet-gate duplication. When a scratch has removed part of the



BEYOND THE ROCKS 1922
Image before (top) and after (bottom)
digital restoration of a patch in a frame
(Courtesy of EYE Film Institute Netherlands)

original image from one or more frames, the only option is to recreate the missing part in the digital domain. This is possible by copying it from the previous or the following frames. Dust removal is a very powerful tool but also the most delicate to apply. A film consists of several thousands of frames, each one containing hundreds of scratches as a result of heavy use and decay. Only an automated filter can tackle such an enormous number of corrections. Since computer software can easily misread the image and, by mistake, remove part of it as a scratch, constant supervision is required and, when necessary, software mistakes must be corrected by the restorer.



BEYOND THE ROCKS 1922
Image before (bottom) and after (top)
digital restoration of a patch in a frame
(Courtesy of EYE Film Institute Netherlands)

Once stabilisation, deflicker and dust removal were carried out, there was still much damage in the image that needed to be addressed manually. *Diamant*, as with most software for digital restoration, includes tools for correcting damage, such as tears or patches, individually. When **BEYOND THE ROCKS** was restored, in 2005, the only available tool for this in *Diamant* was the interpolation tool. In these cases the missing image information was reconstructed by mixing the previous and the following frames, only in the place of spots, scratches or patches. One extreme example of a digital intervention carried out on **BEYOND THE ROCKS** was the



BEYOND THE ROCKS 1922
Example of nitrate deterioration to
a point beyond restoration
(Courtesy of EYE Film
Institute Netherlands)

creation by necessity of a completely new image to replace one that had been heavily damaged. This image did not exist before and we can only assume it to be very similar to the damaged one. From a restorer's perspective this is an ethically questionable intervention. Most restorers, though, would accept it as long as it is well documented and supposedly does not distort the original appearance of the film.

Only two sequences of the nitrate print were so severely damaged by chemical degradation that it was impossible to recover the image significantly. It was decided to keep these two sequences in the restored version anyway, as the narrative in these damaged fragments was still clear enough to preserve continuity.

Once the digital restoration was completed, the data (known as the 'digital intermediate') needed to be graded to establish the correct printing lights for the entire film. Grading was carried out at Haghefilm and the final result was approved by the Nederlands Filmmuseum before printing the graded digital intermediate on 35mm black and white negative (in this case Kodak 5234 film stock was used). Re-recording back to film was done on an *Arrilaser* at a resolution of 2K, the same used for the scan.

It was decided to simulate the original tinting effects present on the nitrate print photochemically. This was achieved by applying the flashing method developed by Noël Desmet from the

Cinémathèque Royale de Belgique in Brussels. With this method, the tint is artificially recreated in the projection print by printing the black and white negative onto colour film stock and then flashing it with the appropriate coloured light. Projection prints were printed on a particular colour film stock, namely Agfa CP30, as it gave the best results, based on a series of tests. New English title cards that were missing in the Dutch version were created for the silent restoration version, following the continuity script. As no reference for the original style of the English title cards had survived, and the Dutch titles were too plain compared to those of studio productions from the time (often including artwork), it was decided that a modern style should be used. In this way a contemporary audience would not be tricked into thinking that the title cards were original or based on an original reference. This is again a controversial choice since it affects the overall reception of the film, considering that title cards are an integral part of the whole. From a conservative perspective, only the restoration version with original Dutch title cards would be considered the restoration of what the film had been when shown to a Dutch audience at the time of the original distribution. The English version with newly made title cards could be considered, from this perspective, no less 'tampered with' than the version with added soundtrack discussed below.

As mentioned earlier, besides restoring the film to its original silent version, the Nederlands Filmmuseum decided also to produce two distribution versions of BEYOND THE ROCKS with a new soundtrack by Dutch composer Henny Vrienten, one with the original Dutch title cards and one with the newly made English title cards, based on the original continuity script.

Vrienten's soundtrack was the subject of much criticism from within the archival community. Indeed, although the music itself was widely appreciated, the heavy use of sound effects (such as opening doors, barking dogs, and such) became the main point of criticism from fellow archivists and scholars. Mainly for this reason, the Nederlands Filmmuseum decided to add an alternative sound option to the DVD edition where sound effects are reduced and well integrated in the score. Nevertheless, both of these versions, as well as the other five, are still very much in line with the Filmmuseum's policy of creating presentation versions of silent films meant for a contemporary audience.

Although the workflow described above was used for both the silent and the sound versions, some extra steps were needed for producing the sound versions and the digital master for the DVD and for broadcasting. For the production of the sound version an extra digital step was needed together with the production of a separate negative for the sound version. Besides the

new film negatives (silent and sound), from which the silent restoration and the new sound version were made, a High Definition tape was also produced directly from the restored data, as a master for digital projection, the production of a DVD, and for television broadcasting.

The two most radical interventions were done to convert an originally silent film into a sound version. Two modifications were needed for the purpose: first, stretching the film from its original frame rate of 18 frames per second to the standard sound frame rate of 24 frames per second; secondly, the film's full frame had to be reformatted to a smaller size, the so-called 'Academy' format, in order to make space on the left side of the image for the soundtrack. At present, these are still the only ways to add a soundtrack to a silent film and to make it projectable (as film) in any commercial cinema. With digital projection, which is now more widespread than it was at the time the restoration of BEYOND THE ROCKS was carried out, the need to stretch a silent film to show it in regular cinemas is technically no longer necessary. This is still a controversial point of discussion, however, as Hollywood studios' Digital Cinema Initiatives (DCI) and the Society of Motion Picture and Television Engineers (SMPTE) have fixed the standard projection speed for digital cinema at 24 and 48 frames per second. Technically, the stretching effect could have been obtained in two ways, either by creating new frames as interpolations of the existing ones or by doubling existing frames. Based upon test results, in the case of BEYOND THE ROCKS, the latter was chosen as interpolation led to the creation of weird looking frames that were not acceptable. On top of that, from an ethical perspective, creating new frames means adding images to the film that have never been there and could easily be mistaken for original frames. If badly documented, these interventions could also become irreversible. The stretching process that was chosen for BEYOND THE ROCKS in the end, namely to double every third frame of the film, going from 18 to 24 frames per second (i.e. 123345667899...), is in contrast both detectable and reversible. The drawback of this choice, though, is that a stuttering effect can be noticed in projection. In reality, only an expert eye will notice the stutter, which becomes more visible in combination with lateral movement within the image and with panoramic shots.

Finally, a different path for simulating the original tints was followed in the creation of the HD master meant for digital projection, the DVD release and the television broadcast. As the Desmet method, a photochemical process, was used for making the film prints, a digital process had to be applied for making the digital versions. Here colour filters, simulating the original tints, were added digitally to the black and white digital image.

The restoration of *BEYOND THE ROCKS* made use of everything that film technology could offer in 2005, on both the photochemical and the digital front. Although the use of digital tools made it possible to make the film cleaner, more stable and more pleasant to the viewer's eye, great care was also taken to ensure the characteristics of the original artefact were respected. The nitrate print was also duplicated ›one-to-one‹ photochemically, to make sure that this unique print of the film could be preserved as it was found, even if the nitrate original would be damaged beyond recovery.

BEYOND THE ROCKS is also a good example of the practical application of the Nederlands Filmmuseum's progressive policy for presenting and distributing historical films. The film has been shown within a reconstructed original setting (i.e. in the 1921 Tuschinski theatre in Amsterdam) but with a newly composed musical score and not-original *apparatus* (i.e. a sound print instead of live music accompaniment); as a digital projection in several cinemas across the Netherlands; as a DVD with two different soundtrack options (i.e. with and without sound effects); as a television broadcast; and, finally, as a silent film with live accompaniment at festivals and cinémathèques worldwide.

Finally, the case of *BEYOND THE ROCKS* shows how users, with the turn to digital, are gaining a growing level of inclusion in the film archival technological frame. A film like *BEYOND THE ROCKS*, thanks to the great popularity of its leading actors, especially that of Valentino, belongs to the audience. Once the retrieval was announced, the expectation of being able to see the film instantly rose everywhere. This clearly influenced the restorers, also with respect to the choice of using multiple presentation platforms (traditional film projection, digital cinema projection, television and DVD). And, in turn, it is thanks to this choice that the restoration of *BEYOND THE ROCKS* has reached many more users than restored silent films usually do.

Authorised, abridged extract from: Fossati, Giovanna (2009). From Grain to Pixel. The Archival Life of Film in Transition.

Amsterdam: Amsterdam University Press, 235-245.

Changing Perspectives. DAS EINKÜCHENHAUS* as an Example of Film Historiography and Contemporary Restoration

In 1923, the film *DAS EINKÜCHENHAUS* was produced under the direction of Leopold Niernberger, a pioneer of Austrian documentary and educational filmmaking. The film's centrepiece is a social architecture project of the same name, realised during the interwar period by the architect Otto Polak-Hellwig in the 15th district of ›Red Vienna‹. Construction of the single-kitchen house, ›Heimhof‹, began in 1922 and was completed five years later. The main element of this new housing model was the controversial idea of centralised housekeeping. The building in Pilgerimgasse was thus equipped with facilities such as a central kitchen, a kindergarten, a service lift, a laundry, a vacuum-cleaning system, central heating, waste chutes and more besides. If requested, domestic chores such as cooking, cleaning and laundering were taken over by centrally employed staff paid for by the tenants.¹ Thus, the multi-story apartment complex did not amount to a mere accumulation of conventional residential units, but was much rather an attempt at a socio-political restructuring of human living space.²

DAS EINKÜCHENHAUS covers numerous aspects that lend themselves to investigations in the context of spatial theory. After a brief summary of the film's contents, this will be attempted in three points, as follows:

1. a localisation of the film within aesthetic and film-historiographical space;
2. a content-level analysis of social spaces undergoing transformation, as featured in the film;
3. an examination of the transformative processes at the material level of the film, which cover a range of different media and their respective spaces.