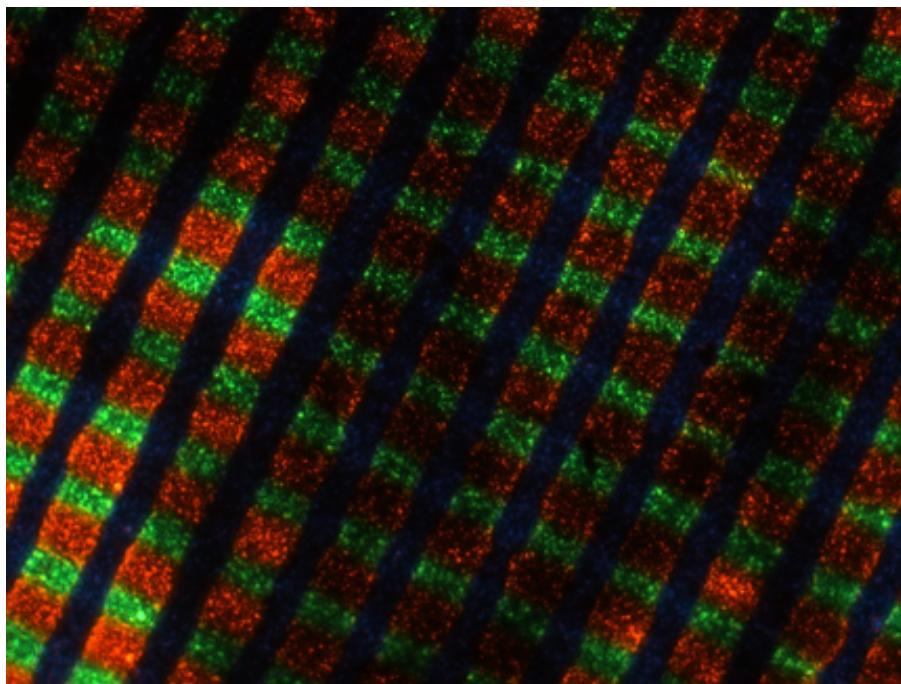


## DIASTOR Restores Dufaycolor Title PARURES/VON SPINNEN UND WEBEN

The restoration of PARURES (CH 1939, Werner Dressler) was an important case study within the DIASTOR project. It was a collaboration between project partners Cinémathèque suisse, cinegrell postproduction and members of the UZH research team under the supervision of Claudy Op den Kamp. PARURES was partly shot in Dufaycolor—an early additive color process, which utilises the combination of the three additive primary colors, red, green and blue, in a geometric pattern or mosaic of regular design (*réseau*). For an example, please see <http://zauberklang.ch/filmcolors/timeline-entry/1257>.



*Fig. 1: Dufaycolor line-screen pattern (réseau)*

Cinémathèque suisse had three 35mm copies of the title in their collection (as well as several 16mm copies, which were immediately dismissed for restoration purposes for quality reasons). After a comparison of the three elements (a German copy with Czech subtitles; a German and a French copy), it was decided that the German copy would function as the basis for the both the German and the French restorations as well as a reference for the colors. This was due to the superior state of the color part (the first part of the film is in black and white; the second part in Dufaycolor) and the absence of the ‘ex-MGM’ stamp, as seen in the French copy.

### Image

The German copy was used as a source for a photochemical copy as well as for the 4K digitization. Cinegrell postproduction duplicated the black and white part photochemically (with wetgate), which then was scanned at 4K, a process that produced surprisingly better results than a direct scan of the source material. Tests had shown that 2K would not be able to capture the *réseau* adequately without a disturbing image instability, so the color part was scanned directly in 4K. This was done through the base of the film as opposed to through the emulsion. As such, while using the manual focus settings on the ARRI scanner, an optimal setting was achieved between the sharpness of the *réseau* and the rendition of the colors. Scanning through the emulsion seem to not provide this option. In light of a ‘clean’ raw scan, it was, however, later decided to defocus in postproduction on the Baselight (at 1.3) instead of a defocus during scanning.



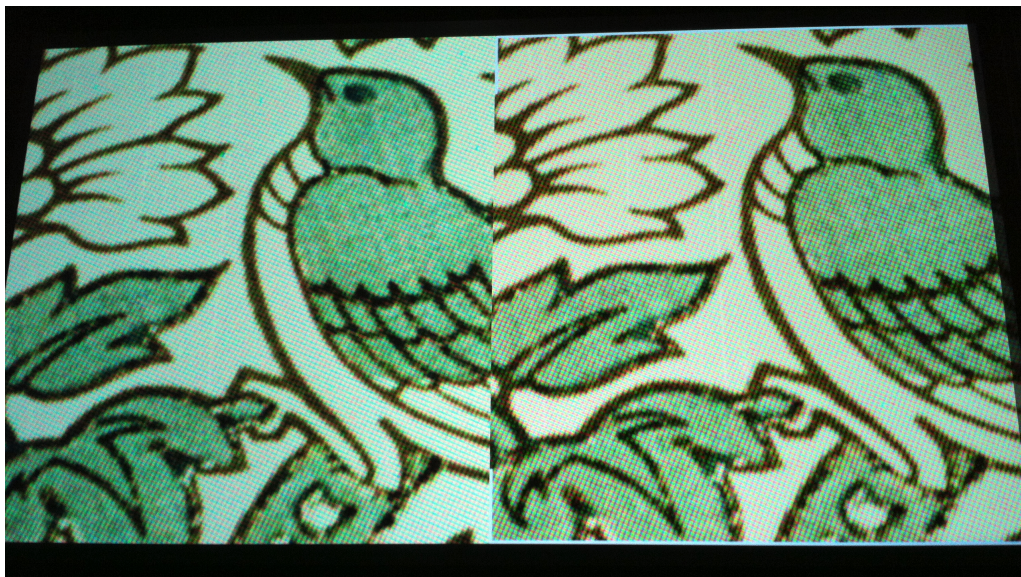
*Fig. 2: Comparison of the differently focused versions of Dufaycolor scans*

## Sound

The sound was transferred from the respective German and French copies on a Resonances scanner at DIASTOR partner Sondor and post-work was done at TonStudiosZ. The post-work on the sound was minimal, and included the removal of immediate large clicks and plops, but mainly consisted of eliminating the specific frequency at which the réseau produced an audible and disturbing hum. The French copy in particular had some sound bits missing in the reel change and additional sound sources (the 16mm copies, for instance) were consulted but to no avail. Simple cross-fades between the reels were used to make the jump between the two reels less jarring.

## New Elements

The opening ‘cartons’ and title sequences (which were lengthened) of both versions (where possible stretched to equal lengths in order to produce two ‘matching’ DCPs) were combined with the black and white as well as color image sequences and married with sound elements into two DCPs.



*Fig. 3: Comparison scan (left) and re-scan of the film-out (right)*

The defocused and color-corrected image data of the color part was written out on the ARRI laser onto color internegative stock, scanned back and compared in a screening (see fig. 3) with Cinémathèque suisse staff members Caroline Fournier and Carole Delessert.

The audio files were written to new sound negatives (now in one reel).

Both these image and sound elements were ‘re-scanned’ to check against the source material with a surprisingly ‘lossless’ result.

The final elements were checked by the Cinémathèque suisse during a screening in June 2015 at cinegrell postproduction. All source materials and the new elements (except for the sound), including raw scans, have been returned to the Cinémathèque suisse.

(Claudy Op den Kamp, Zurich, June 2015)