

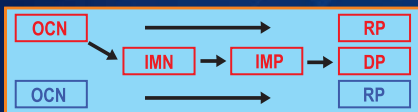
# ORWO region – Methodology of the national film heritage digitization

„Digitization Methods of the National Film Fund“ Project (NAKI, No. DF13P01OVV006)

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## 1. INTRODUCTION

- ❑ In the past 1953 - 1998, laboratory and creative techniques were applied in Central and Eastern European region in past where the cinematographers have to record the films on Eastmancolor camera negative, but present them on low cost and variable quality ORWO positive film stock manufactured in Wolfen (East Germany).
- ☞ The name Agfa was changed to Original Wolfen (ORWO) after trial with West Germany producer Agfa in Leverkusen in 1964.
- ☞ Film for cinema distribution were printed in the Eastern European Bloc directly from original camera negative, not from intermediate films as common in Western Europe or USA.



- ☞ Slightly desaturated colours (green colors appear bluish and faces had purple tint) had to use altered lightening, make-up or set design adjustments.
- ☞ Different positive color dye layers order (vs. Eastman) degraded optical sound quality.



- ☞ Fuzzy and low resolution negative ORWO film stock allowed shot cinemascope films on Eastmancolor negative.
- ☞ ORWO was used in Central Europe (Czech Rep., Slovakia, Poland and Hungary), Southeast (Romania, Bulgaria) or Baltic countries (Estonia, Latvia and Lithuania).
- ☞ a fifth population of EU;
- ☞ 98.5% of 1.03 million hours of European film heritage is still not digitized, locked away in cans in the archives;
- ☞ digitization costs exceed 1.5 billion €;
- ☞ analog film ends in Europe in 2014!

## 2. OBJECTIVES

- ❑ Five-year research in cooperation with Czech National Film Archive (NFA) in Prague:
  - ☞ image and sound quality improvement;
  - ☞ digital restoration costs and job time decrease;
  - ☞ authors' moral right to the visual and audible integrity of the work preservation.

### CASE REPORT

- ❑ ASPHALT JUNGLE (1950)
  - ☞ dir. John Huston, dp Harold Rosson



## 3. TECHNICAL METHODS

- ❑ Subjective experiments evaluates difference between reference and distorted image based on:
  - ☞ Brightness, Contrast, Color saturation and Color balance parameters;
  - ☞ modified Double Stimulus Impairment Scale method (DSID) as in ITU-R BT.500-13.

## 4. TECHNICAL GOALS

- ❑ Design a system for objective assessment of image differences based on the analysis of the images captured by means of a digital camera (D-SLR) from the D-Cinema projection screen.
- ☞ Calibrated by spectroradiometer Photo Research SpectraScan PR-740.

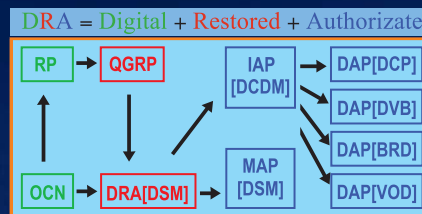
### CASE REPORTS

- ❑ FRENCH CONNECTION (1971)
  - ☞ dir. William Friedkin, dp Owen Roizman

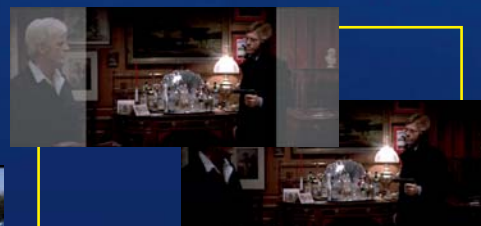


## 5. PROPOSED PRINCIPLES

- ❑ IMAGO (federation of 47 national cinematographers associations) approved on 16/02/2013 in Mons (Belgium) the Declaration of the Digital Restored Authorize (DRA).



- ❑ Six criteria for film heritage digitization:
  - ☞ image and sound processed under appropriate technical conditions;
  - ☞ with supervision of recognized restorer;
  - ☞ with collaboration of directors, cinematographers and sound masters;
  - ☞ Expert group (restorer, authors, archivists) should mutually approve DRA master to avoid digitally restored multiversions;
  - ☞ difference between DRA and Qualified Guess of the Reference Film Print (QGRP), due to color dye fading and film base deterioration, should be unrecognizable by normal perception;
  - ☞ from DRA generates Intermediate Access Package (IAP) for any kind of media (D-Cinema, TV, home-video, internet).



- ❑ THREE DAYS OF THE CONDOR (1974)
  - ☞ dir. Sydney Pollack, dp Owen Roizman

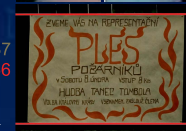
### THREE NUTS FOR CINDERELLA (1974)

- ☞ dir. Václav Vorlíček
- ☞ dp Josef Illík



### FIREMEN'S BALL (1967)

- ☞ dir. Miloš Forman
- ☞ dp Miroslav Ondříček



## 6. RESULTS AND CONCLUSIONS

- ❑ Four Czech films digitally restored:
  - ☞ MARKETA LAZAROVA (1967)
  - ☞ FIREMEN'S BALL (1967)
  - ☞ ALL MY GOOD COUNTRYMEN (1968)
  - ☞ CLOSELY OBSERVED TRAINS (1966)
- Associations of directors and screenwriters (FITES), cinematographers (ACK), sound masters (OAZA), art directors (OOA-S) and digitization producer (NCB) adopted DRA in Czech Rep. by the Memorandum of Understanding.
- ❑ Samplings of the 6 to 9 key scenes that characterize color and tonality to improve quality and speed of digitization and digital restoration process.
- ❑ Answer the question how to obtain close perception of the motion pictures and sound presented at the D-Cinema as at the time of first film release.

### FIREMEN'S BALL (1967)

- ☞ dir. Miloš Forman, dp Miroslav Ondříček

