Before the Restoration

Reto Kromer • AV Preservation by reto.ch

Deterioration and conservation of photochemical material

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Table of Contents

- principles
- preparation
- digitisation
- conservation

Principles

Conservation

Conservation encompasses all activities for the care of an object, which delay its further decay and ensure that it remains in the most intact condition for the future.

Restoration

Restoration includes all interventions and treatments that serve to retrieve a certain historical state and contribute to the legibility, aesthetic integrity or reuse of an object.

Restorative actions may be irreversible and require great care in planning, justification, execution and documentation.

File Formats

- The archive must be able to handle the file formats it holds.

- open source
- simple to use and well documented
- widely used by the community

Different Purposes

archive master format:

➔ for preservation

mezzanine format:

➔ for professional use in post-production

dissemination formats:

➔ for widely spreading and easy access

Film

- film as document or work of art
- elements of the film
- actual reel

Sources

- splices repair
- perforation repair
- film cleaning
- chemical treatments
- … and beyond

Splices

- cement
- tape
- re-splicing

Perforation

- tape bridges
- film bridges
- acetone
- notches
- V-cuts

Cleaning

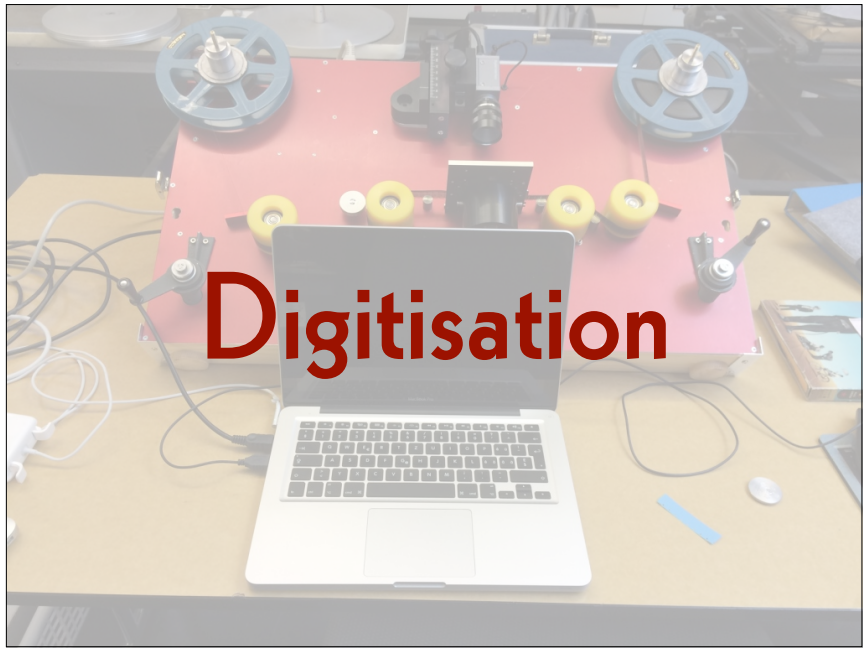
- PTR
  - manual cleaning
  - machine cleaning
  - dry
  - using a solvent
  - re-washing

Chemical Treatments

- drying
- humidifying
- mould fungus
- swelling the emulsion
- re-development
- hardening the gelatine

… and Beyond

- transfer the emulsion onto a new base
- keep only the emulsion



Scanner

- film transport
- light source
- camera
- image section
- wet scanning
- file format

Film Transport

- sprocket
- PTR

- tension
- film path, guide and gate
- reels
- continuous vs. step-by-step

Light Source

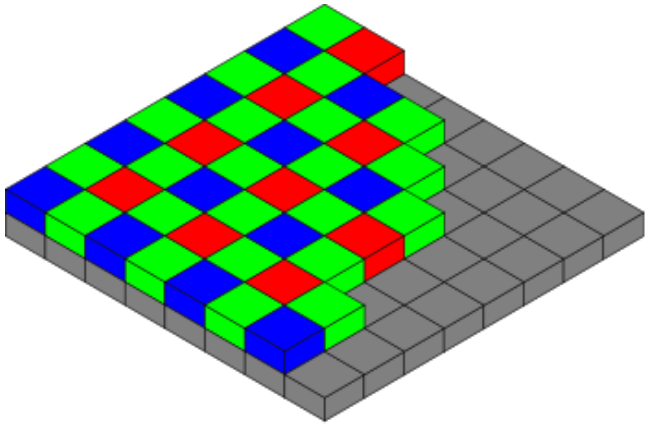
- diffuse
- white
- direct
- coloured

- illuminant

Camera

- image sensor
- resolution
- bit depth
- «raw» data
- lenses

Bayer



21

Image Section

- camera
- projector
- safe area

- over-scan
- edge to edge

22

Wet Scanning

- wet transfer
- full immersion
- pre-wet

- solvent

23

Data is anything
but «raw».

24

Audio Raw Data

- pcm_s16le
- pcm_s24le
- pcm_s32le

Video Raw Data

- rgb48le
- rgb24
- rgb72le
- yuv444p16le
- yuv422p10le
- uyvy422
- yuv420p
- bayer_bggr16le
- bayer_bggr24le

File Format

single image:

- DPX
- TIFF
- JPEG 2000
- OpenEXR

stream:

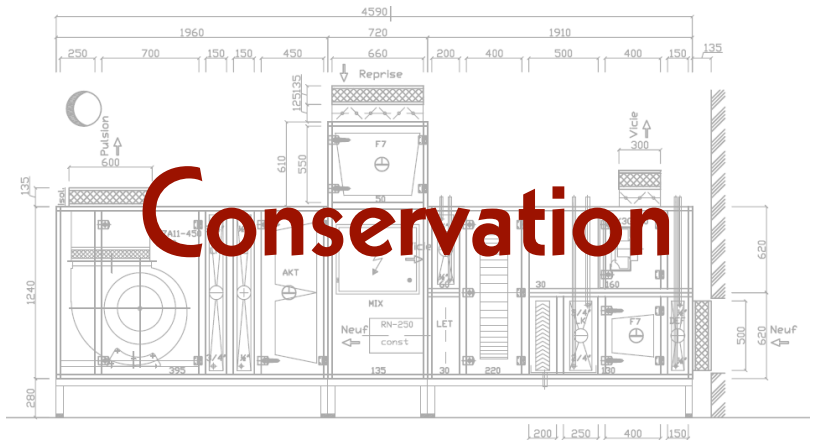
- $Y'C_BC_R$ 10-bit uncompressed
- FFV1

What is inside my DPX?

- log neg encoding
- log RGB encoding, quasi-log encoding
- gamma encoding, power function encoding
- scene-linear encoding

Aux îles Philippines

American Kinema (Pathé)
France 1914



Conservation

Source

- de-restoration
- cleaning
- preparation

AV Preservation by reto.ch

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