

Digitalisierung von Filmen

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Conservation and Restoration of Moving Images

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ทฤษฎีการอนุรักษ์ภาพยนตร์
ฟิล์มนั้นยังคงมีอายุยืนยาวอยู่

๒. สิทธิของอนุชน

๒.๑ ด้วยตระหนักในความรับผิดชอบของตนในอันที่จะอนุรักษ์
ฟิล์มภาพยนตร์ให้ดำรงอยู่อย่างยั่งยืน หอภาพยนตร์จักยึ
หยุดต่อการบีบบังคับใด ๆ ที่จะกำจัดหรือทำลายสิ่งของ
ที่หอภาพยนตร์ซึ่งดูแลอยู่ ซึ่งจักไปเลือกที่จะปฏิเสธ
หรือรับส่งของใด ๆ ที่มีเส้นลือหรือเก็บสะสมด้วยเหตุผล
ใดซึ่งอาจอยู่นอกเหนือกฎเกณฑ์ว่าด้วยการอนุรักษ์หรือ
นโยบายการคัดเลือกที่ใช้อยู่ของหอภาพยนตร์นั้น

๓. สิทธิในการใช้ประโยชน์

๓.๑ หอภาพยนตร์ตระหนักว่า สิ่งของในความดูแล มีทั้งมูลค่าใน
เชิงพาณิชย์และคุณค่าในทางศิลปะ จึงมีภาระความรับผิดชอบ

Principles

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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.

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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**.

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An Ounce of Ethics

- The probability that a work is available in its integrity in the future is increased.
- All the options that existed before taking an action remain open after the action.
- Every step is carefully documented.

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Live in the real world!

There is only one efficient way:

- keep the source elements
- more prevention:
 - better insulation
 - more efficient air conditioning
- less handling of the source elements
- make dissemination copies

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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

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Different Purposes

archive master format:

→ for preservation

mezzanine format:

→ for professional use in post-production

dissemination formats:

→ for widely spreading and easy access

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Film

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

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Sources

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

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Splices

- cement
- tape
- re-splicing

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Perforation

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

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Cleaning

- PTR

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

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Chemical Treatments

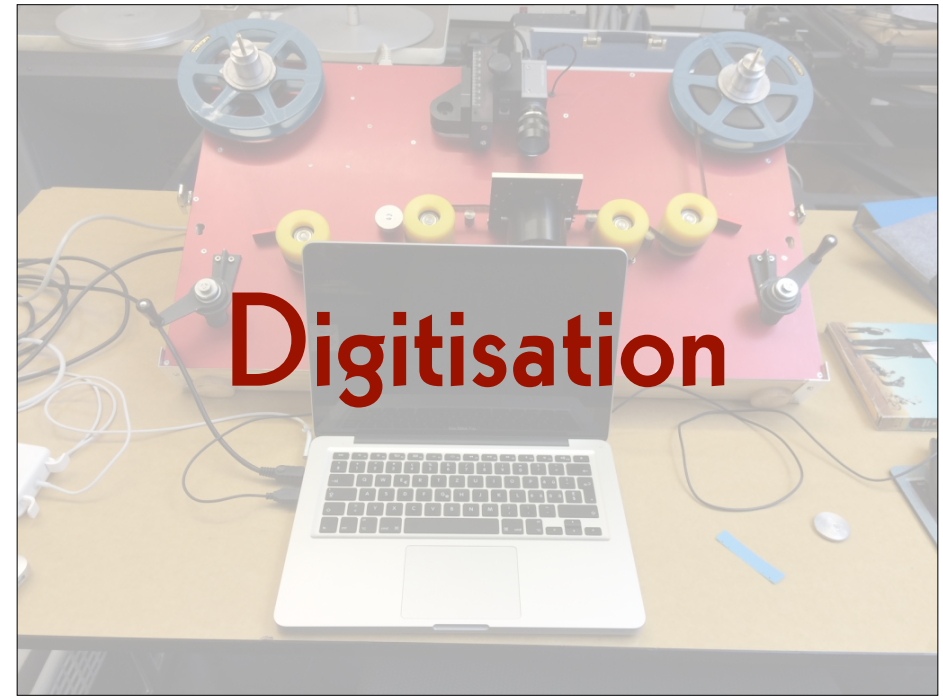
- drying
- humidifying
- mould fungus
- swelling the emulsion
- re-development
- hardening the gelatine

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... and Beyond

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

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Scanner

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

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Film Transport

- sprocket
- PTR

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

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Light Source

- diffuse
- direct
- illuminant
- white
- coloured

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Camera

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

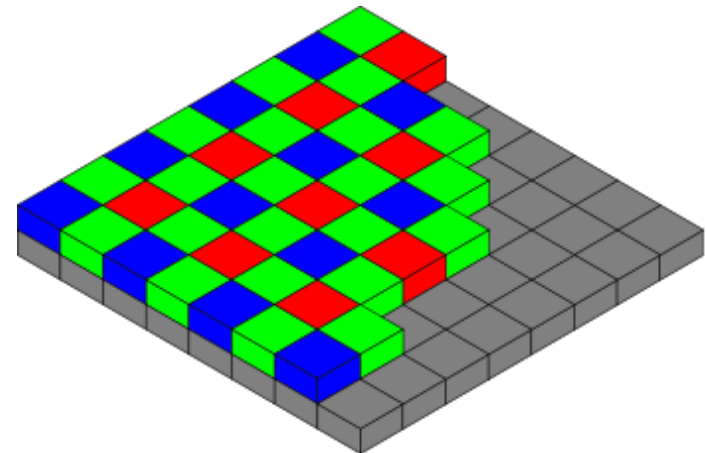
22

Uncomfortable Truths

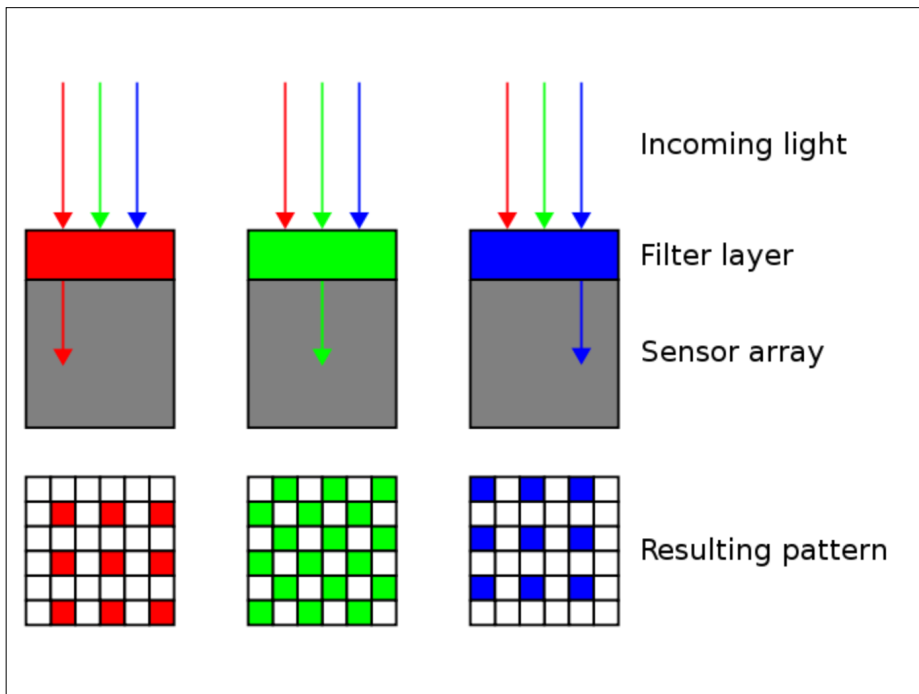
- sensors are colour blind
- Bayer sensors do not generate full RGB

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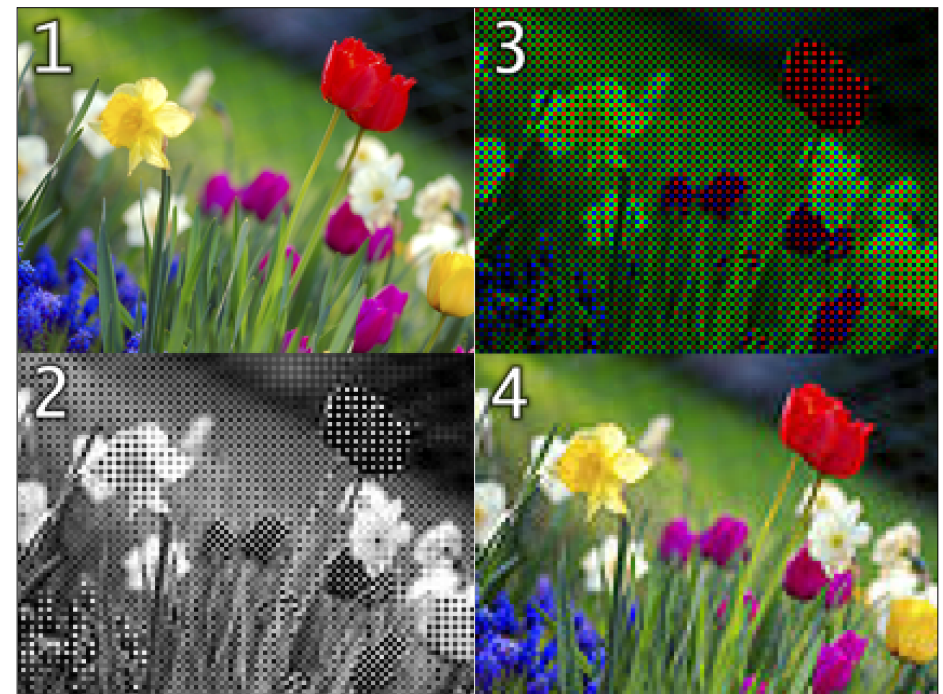
Bayer



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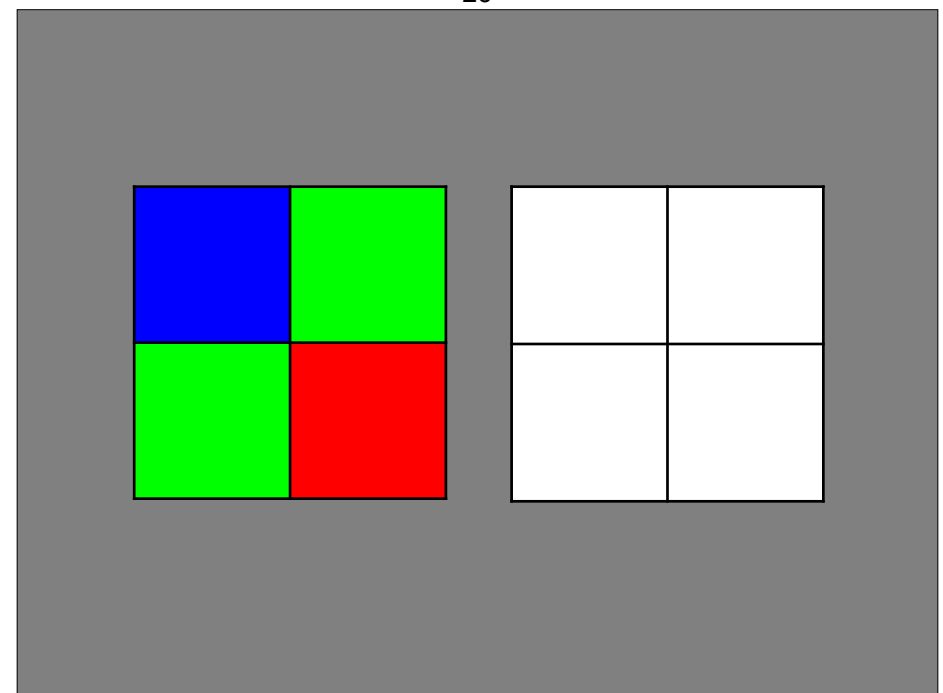
26

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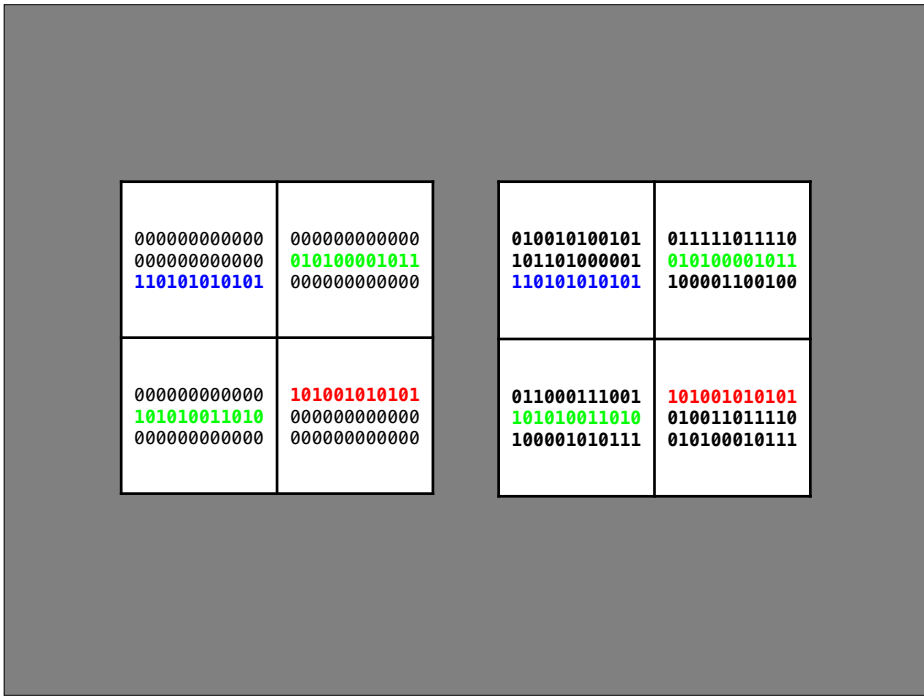
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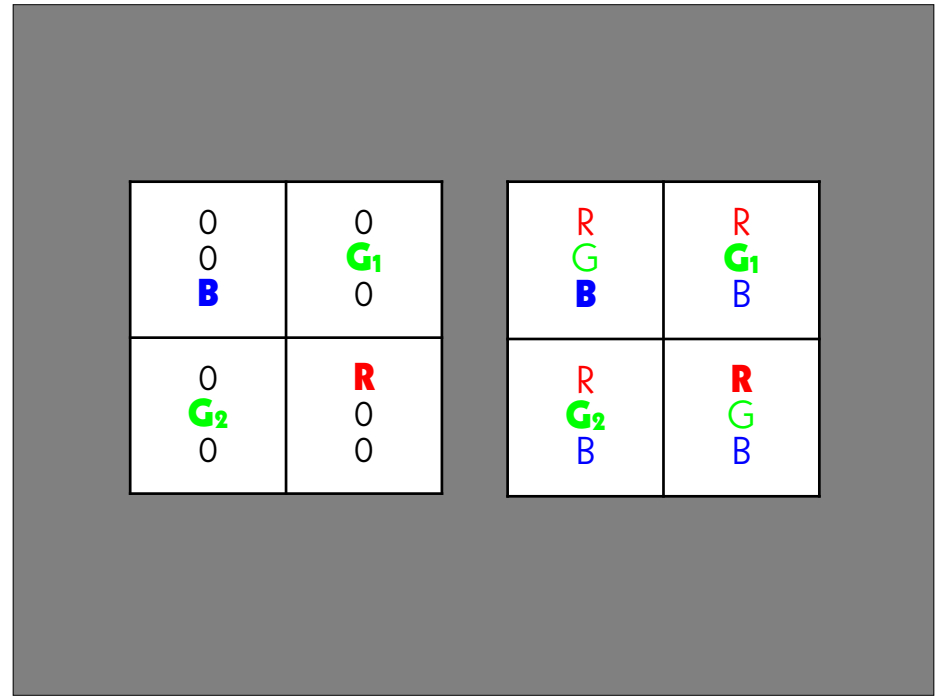
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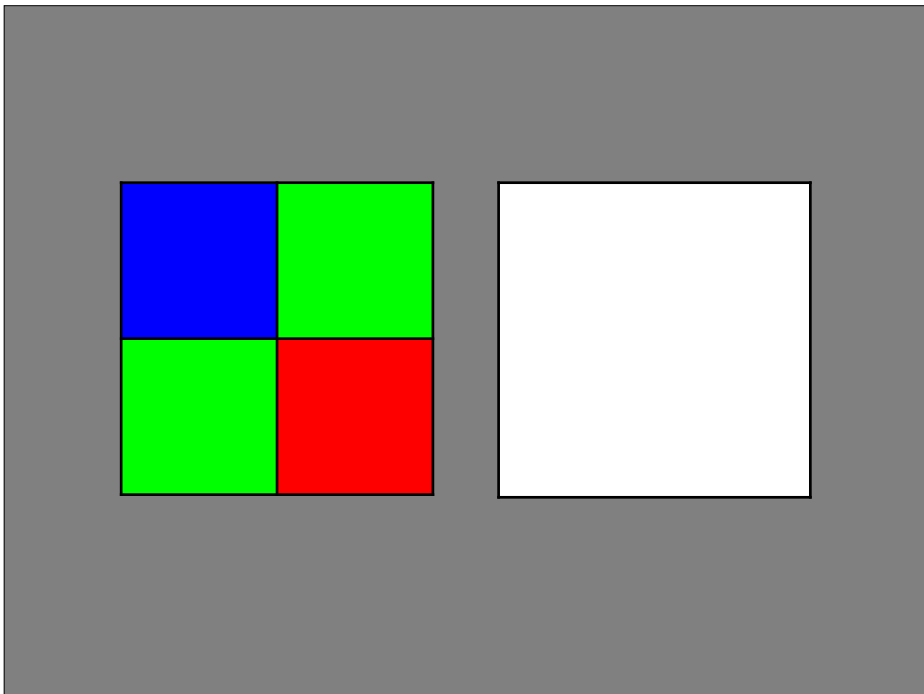
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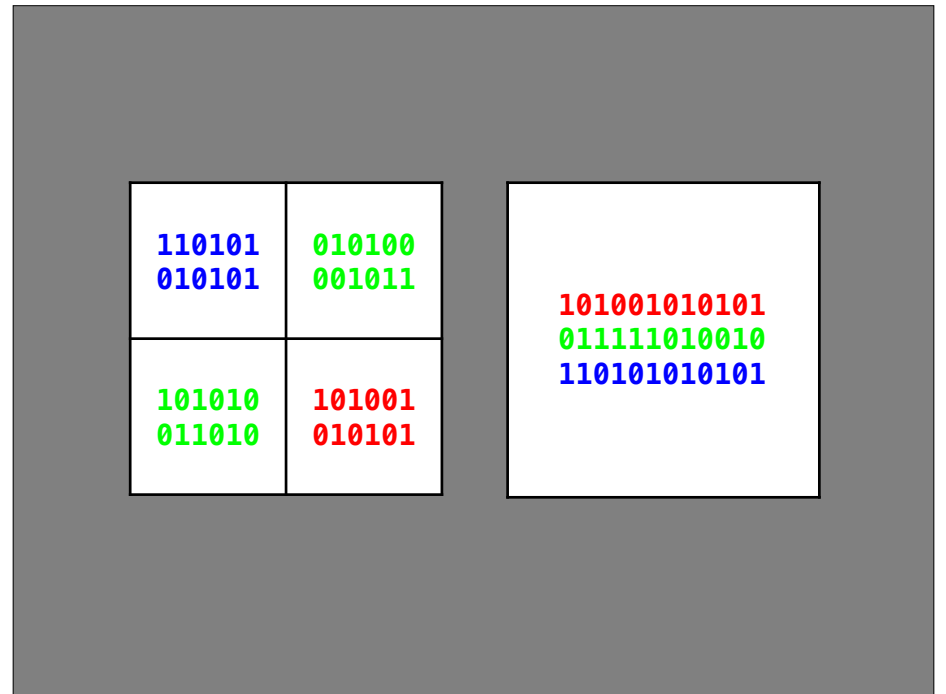
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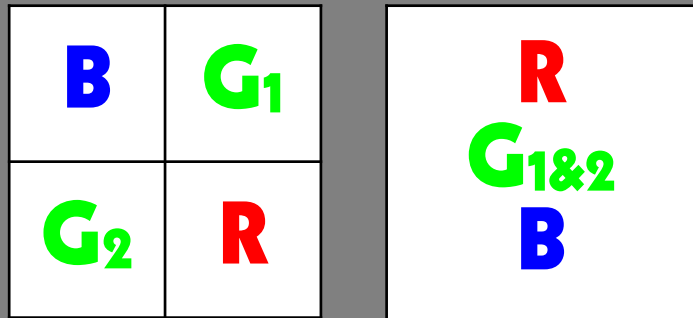
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Two ways to use Bayer data

digital blow-up to RGB

- 3 times the amount of the generated data
- the file has the full sensor resolution
- only $\frac{1}{3}$ of the data are real

digital reduction to RGB

- $\frac{3}{4}$ the amount of the generated data
- the file has $\frac{1}{2}$ of the sensor resolution
- all data are real

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Image Section

- camera
- projector
- safe area

- over-scan
- edge to edge

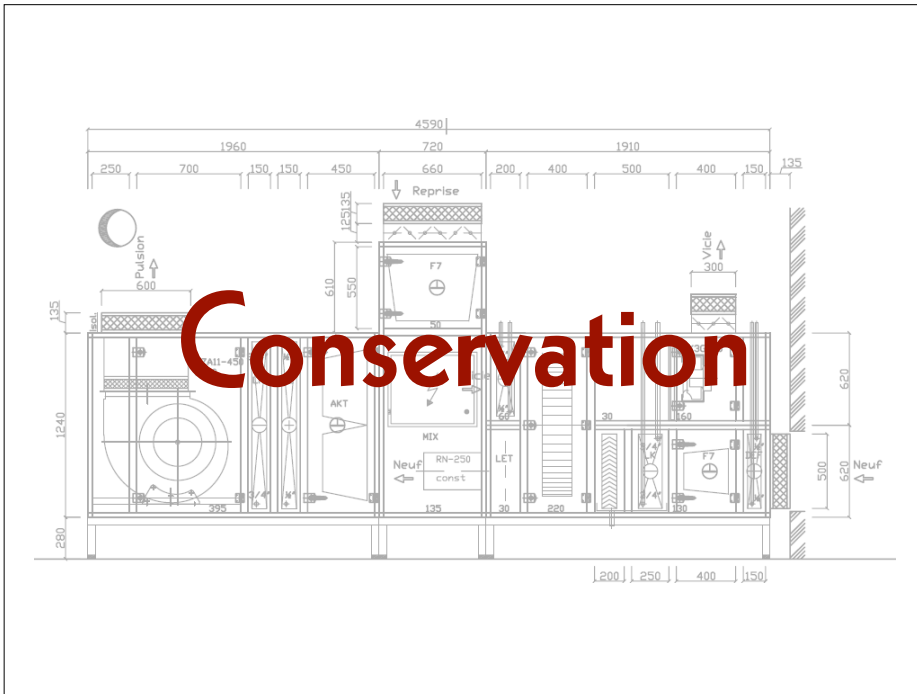
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Wet Scanning

- wet transfer
- full immersion
- pre-wet

- solvent

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Source

- de-restoration
- cleaning
- preparation

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