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Digital Imaging Basics

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Why Digitize?

What is Digitization?

Creation of a faithful representation of an analog object in digital format.

Digitization may…

- Broaden access
- Preserve
- Enhance functionality/potential uses
- Meet changing expectations
- Bring attention/prestige to institution
- Build new relationships
- Attract funding

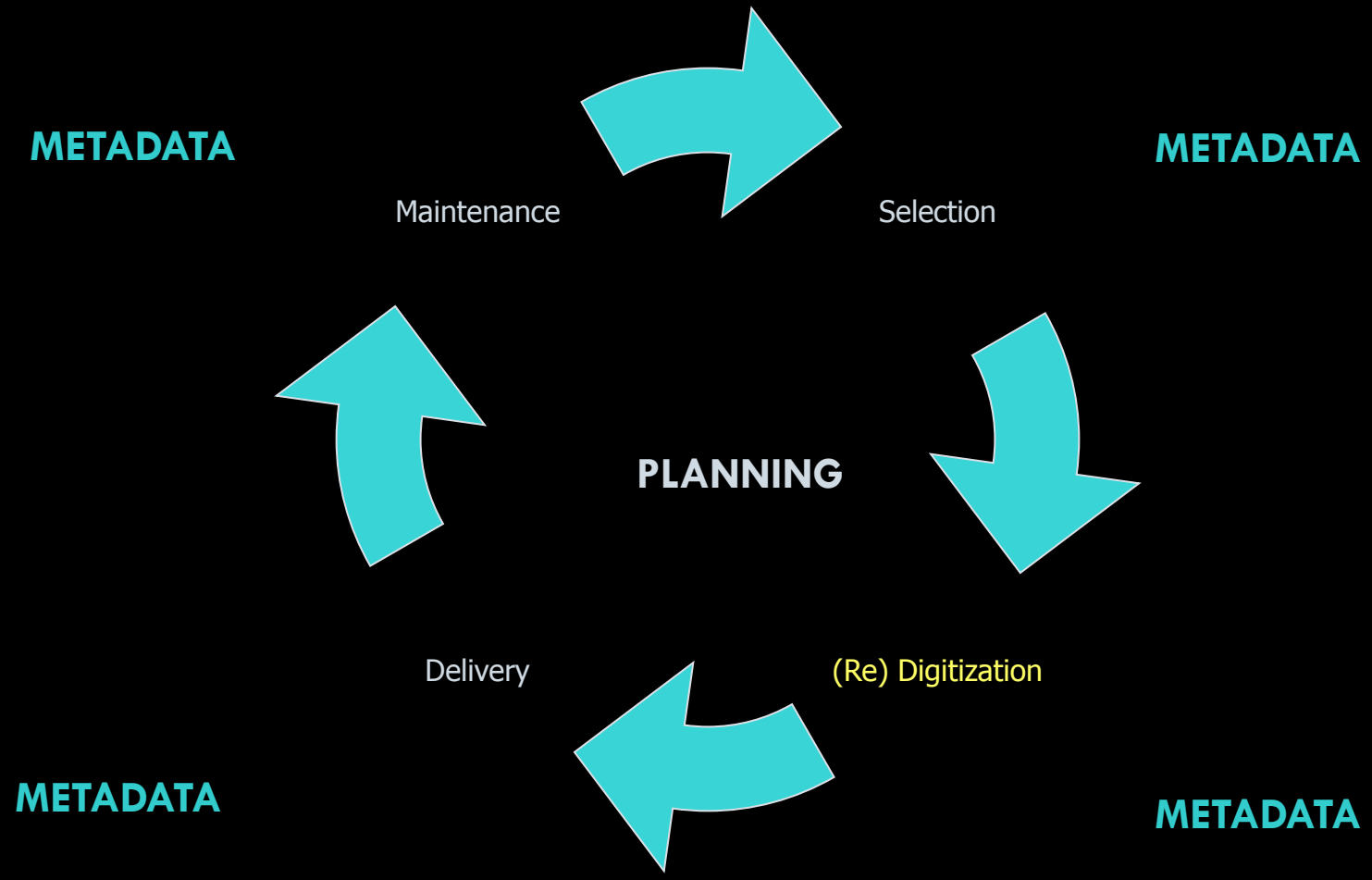
Digitization may…

- Require special skills
- Challenge established structures
- Require sustained institutional commitment/funding to succeed
- Deemphasize items not digitized
- Change user expectations

Special issues in digitizing archives

- Collection level description at odds with object level orientation of digital collections delivery systems
- Items may be viewed out of context of original collection
- Local descriptive standards implementations vary widely
- Users may narrow scope of research to what has been digitized

Life cycle of a digital object



Faithful digital surrogate*

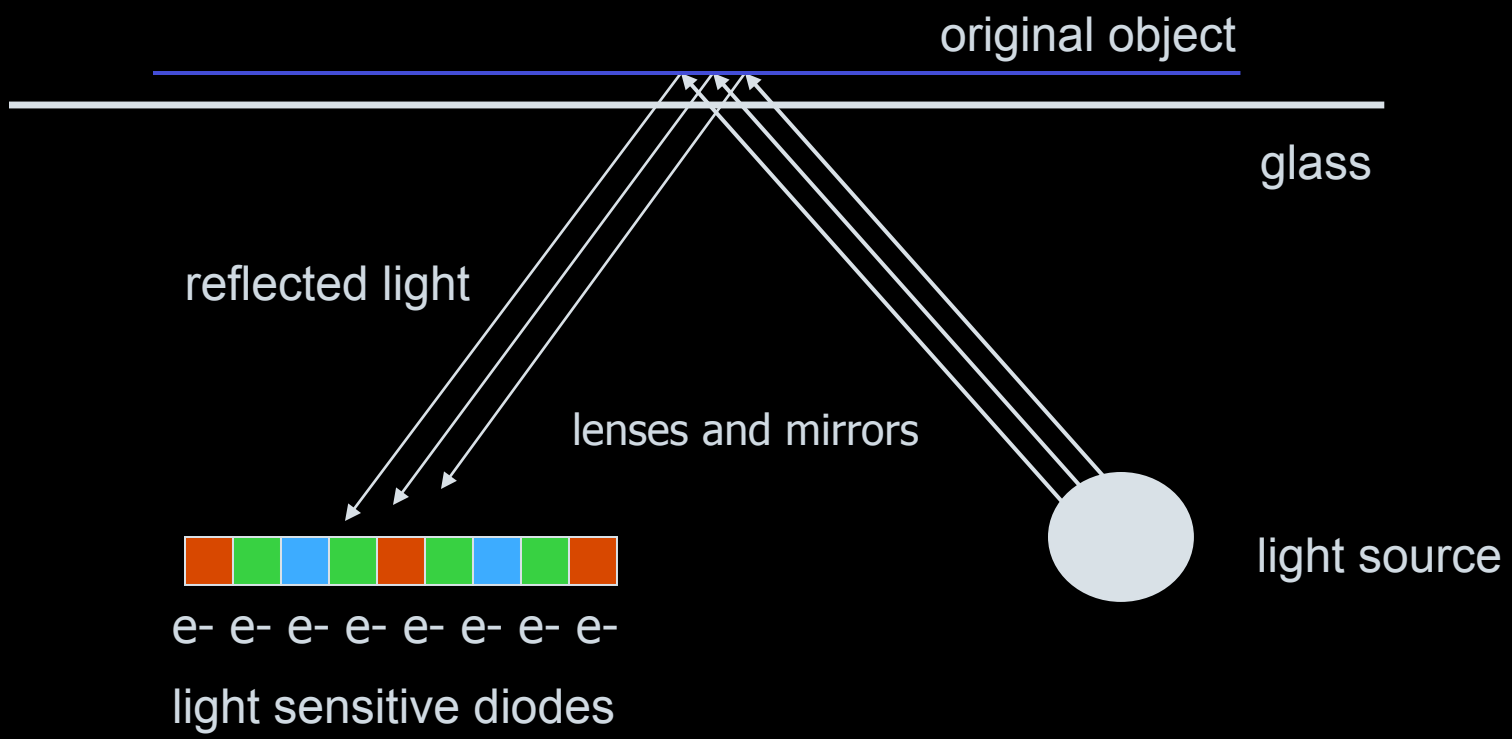
- Capture qualities of original accurately
- Capture at high quality
- Keep as much data as possible

*Rich preservation master

Digital capture equipment

- Flatbed scanners
- Planetary scanners
- Drum scanners
- Digital cameras

How scanners work:

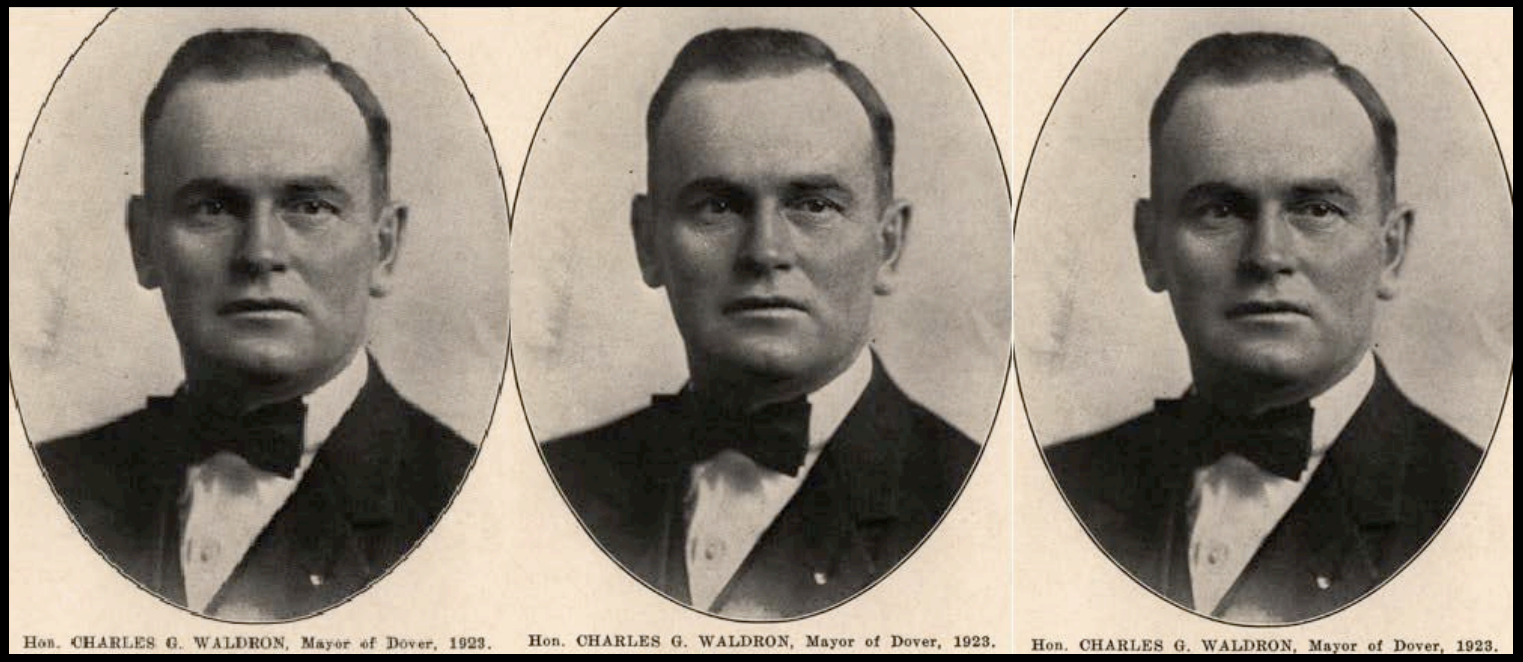


Resolution

How dense is the information captured?

DPI, PPI, SPI, pixels, lines

Optical resolution vs. interpolated resolution



Hon. CHARLES G. WALDRON, Mayor of Dover, 1923.

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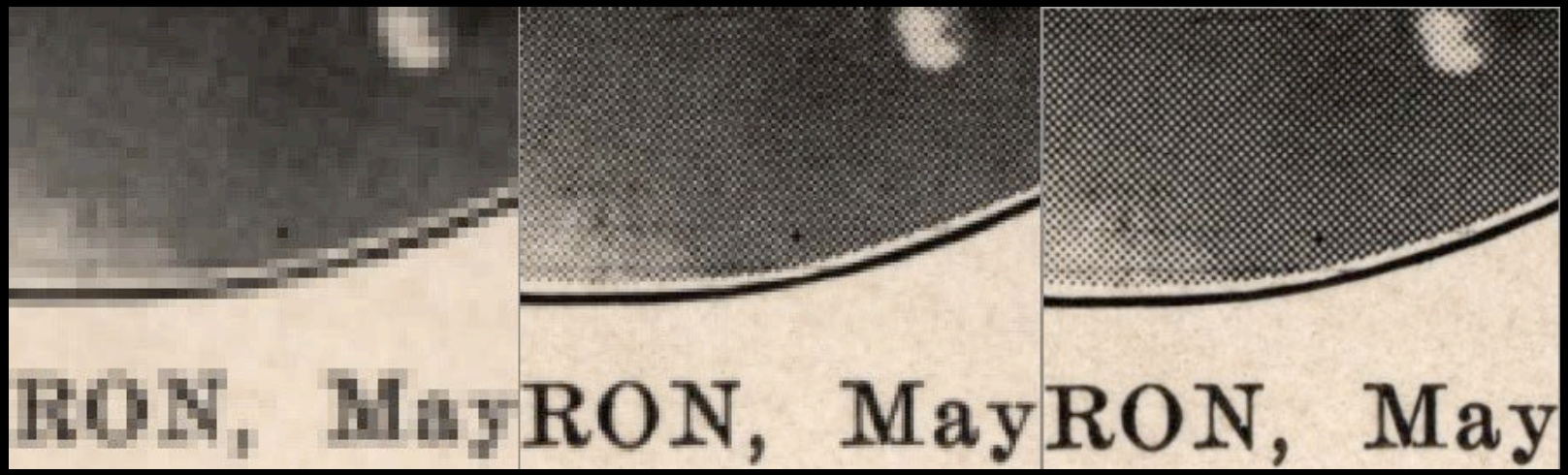


Color Depth

What range of colors are captured?

1 bit – two colors (black and white)
8 bit – 256 colors (grayscale)
16 bit - 65536 colors (grayscale)
24 bit - 16777216 colors
48 bit – 2^{48} colors

File formats

Raster, Vector, or Wavelet

Lossy or lossless compression

Open standard or proprietary

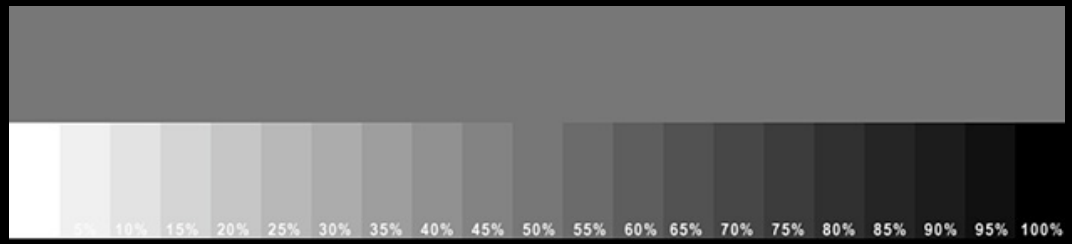
Different file formats for different uses

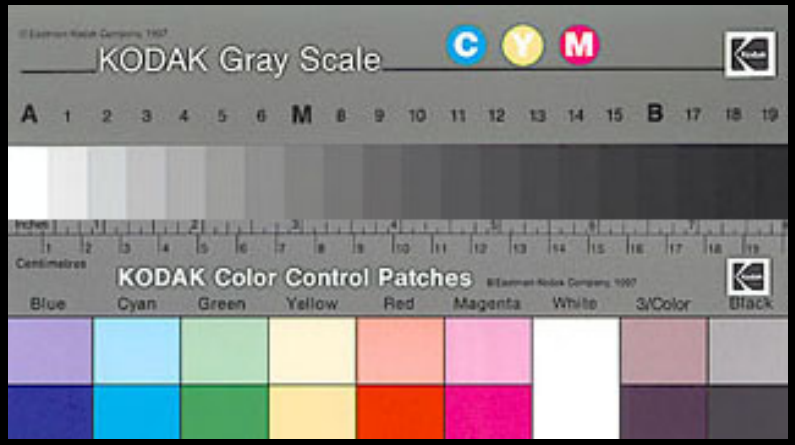
File size

$$\frac{(\text{height} \times \text{width} \times \text{bit depth} \times \text{dpi}^2)}{8}$$

$$\frac{(\text{pixel dimensions} \times \text{bit depth})}{8}$$

Color management





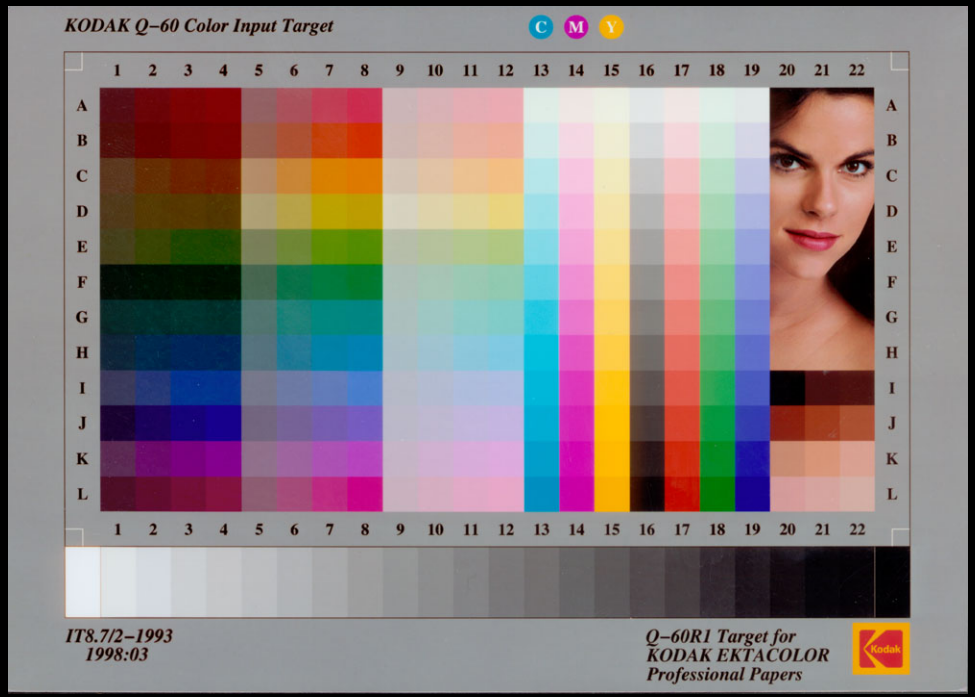


Image editing

All things in moderation

- Contrast
- Sharpening
- Color correcting
- Straightening and cropping

Image editing

All things in moderation

Contrast

Image editing

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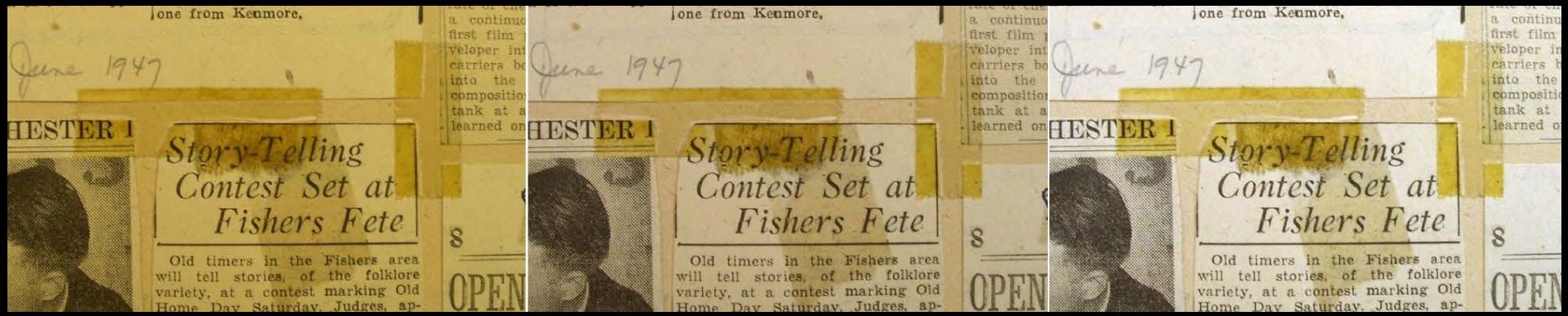
Sharpening

Image editing

All things in moderation

Color correcting



Questions?

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