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Digital Imaging Basics

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Digital Imaging Basics

Eleta Exline

June 28, 2006

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

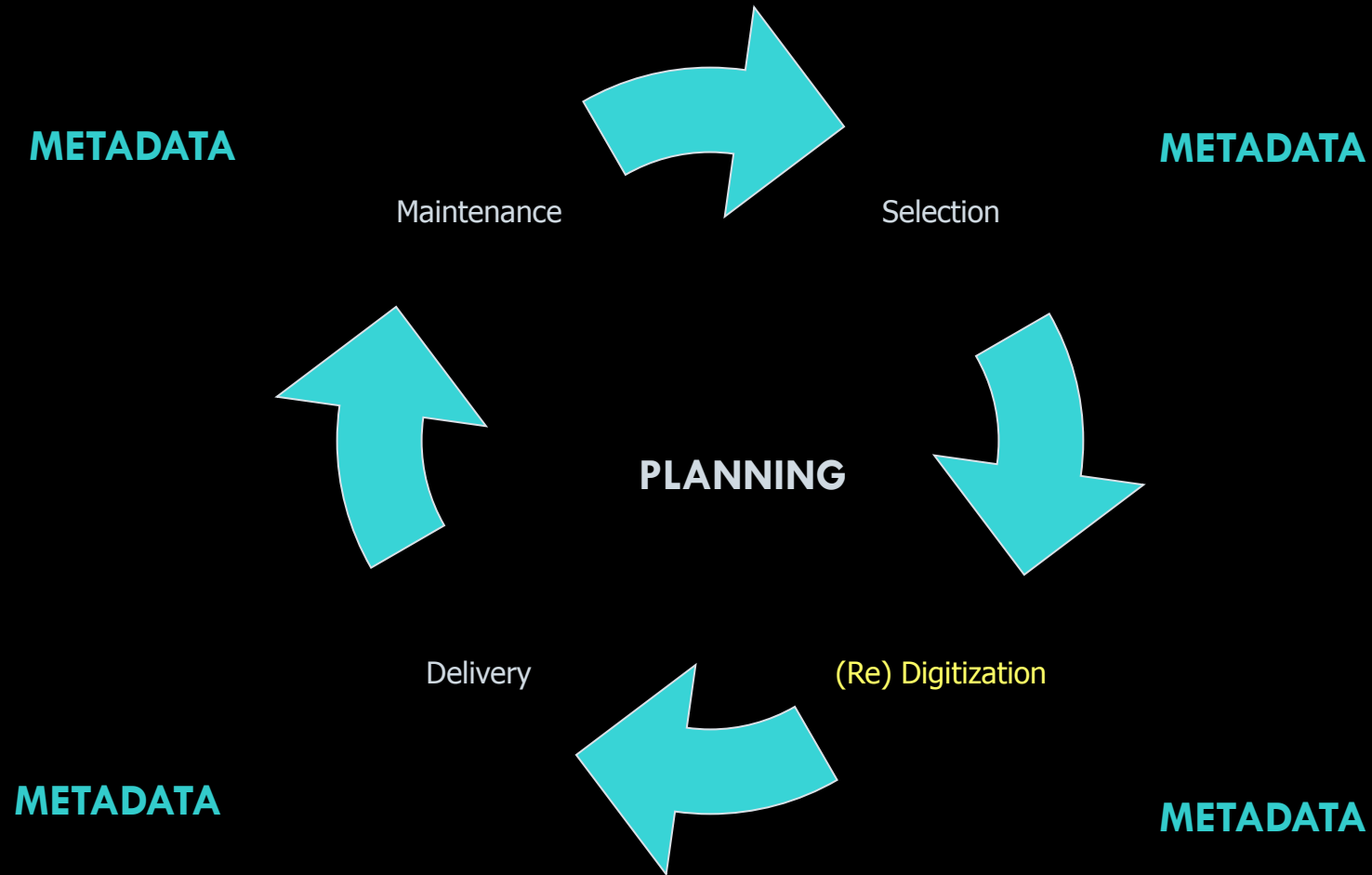
Digitization may...

- 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*

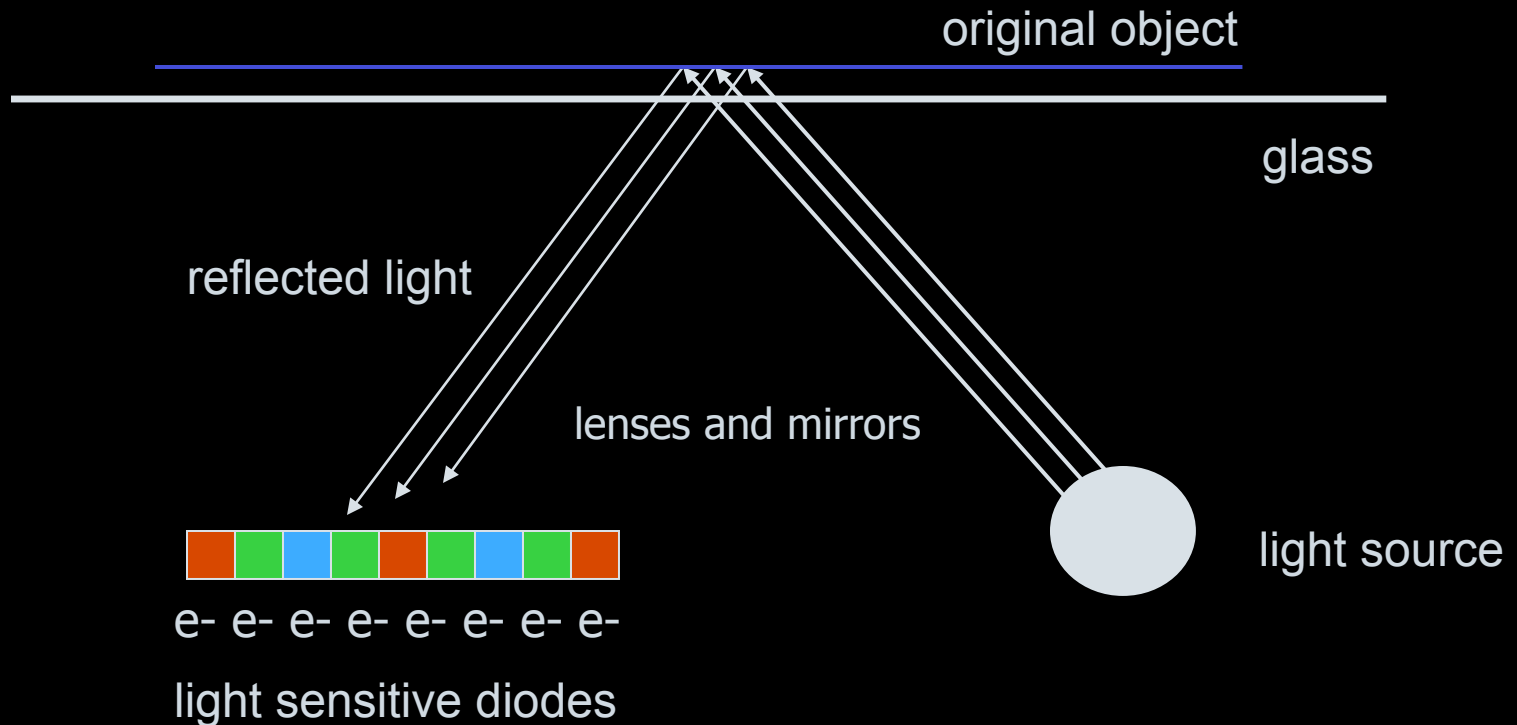
- Capture qualities of original accurately
- Capture at high quality
- Keep as much data as possible

*Rich preservation master

Digital capture equipment

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

How scanners work:

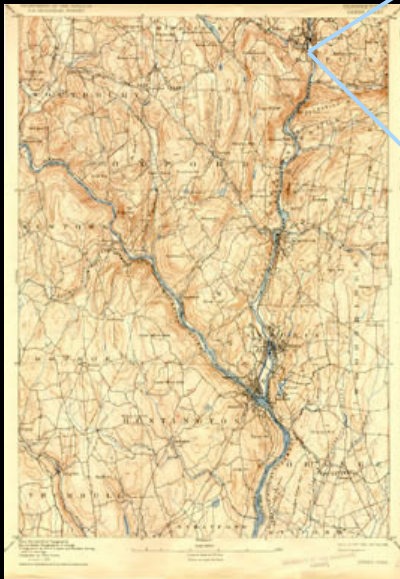


Resolution

How dense is the information captured?

DPI, PPI, SPI, pixels, lines

Optical resolution vs.
interpolated resolution

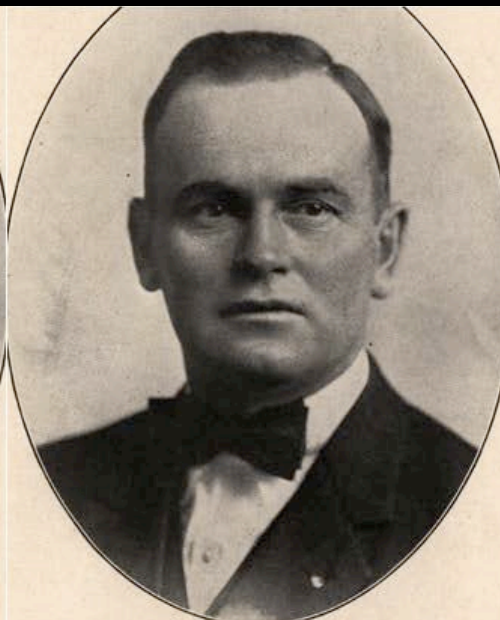




Hon. CHARLES G. WALDRON, Mayor of Dover, 1923.



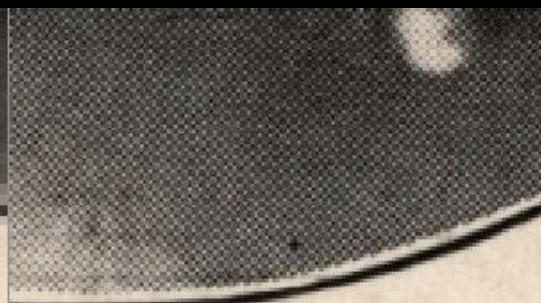
Hon. CHARLES G. WALDRON, Mayor of Dover, 1923.



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



RON, May



RON, May



RON, May

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

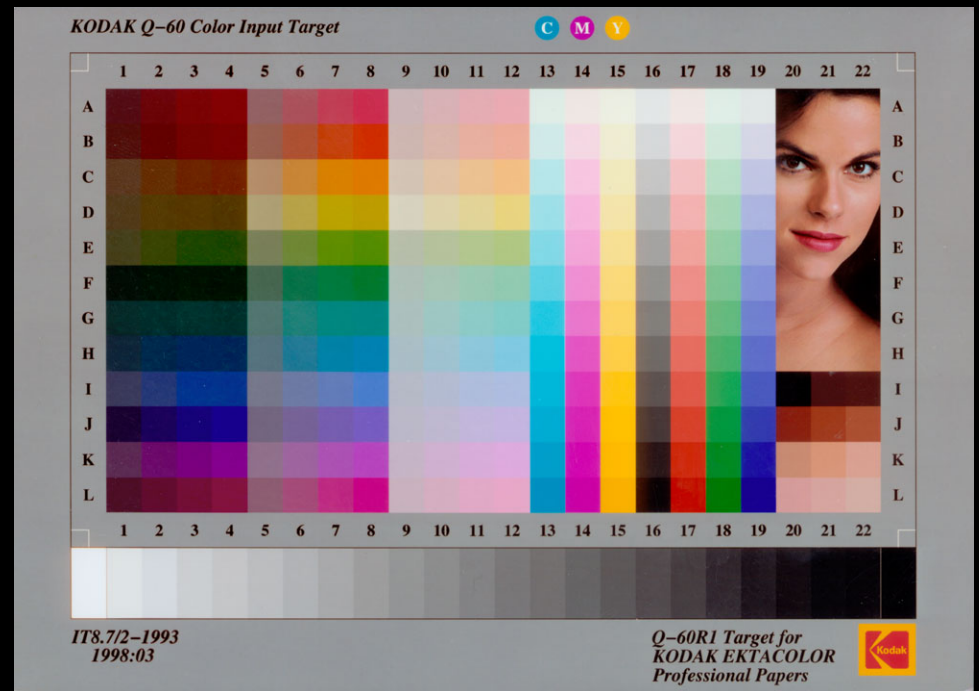
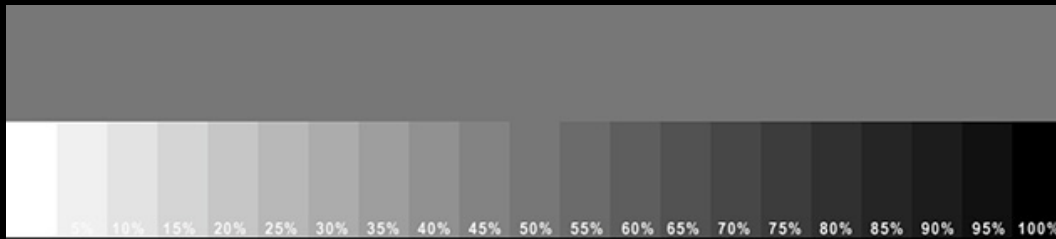


Image editing

All things in moderation

- Contrast
- Sharpening
- Color correcting
- Straightening and cropping

Image editing

All things in moderation

Contrast



Image editing

All things in moderation

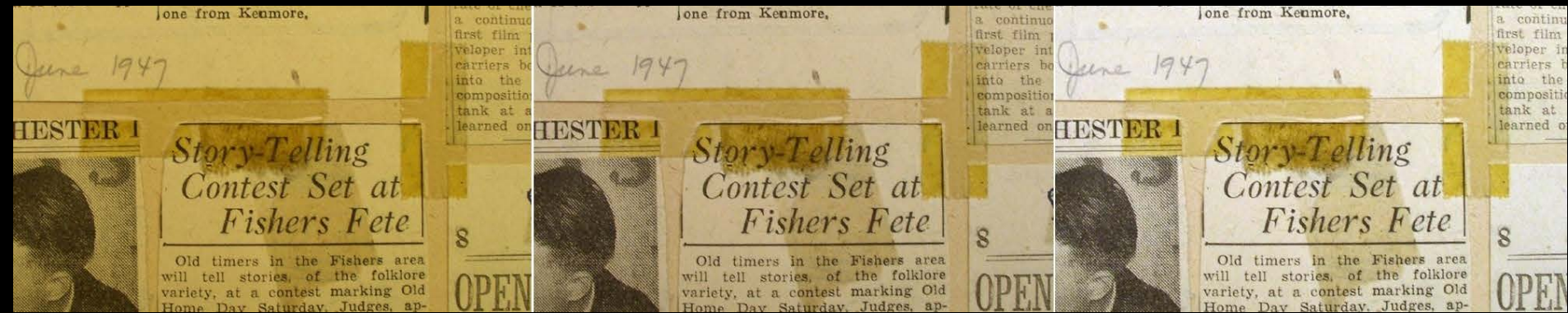
Sharpening



Image editing

All things in moderation

Color correcting



Questions?

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