

Digital Imaging (stills)



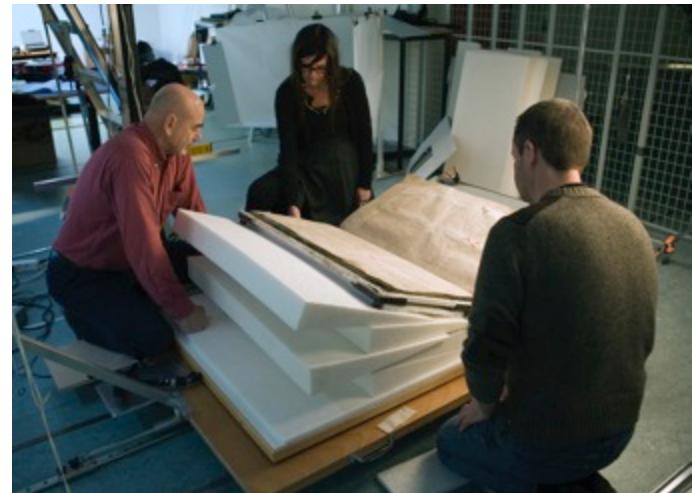
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Introduction

1. Digital Imaging workflow
 - Pre-production
 - Image Capture (Camera & Scanner)
 - Post-processing

2. Workshop
Assignment:
 - 10 images that, together, describe the object
 - Naming & sequencing
 - Detail management
 - End use



PART 1 - Pre-Production

Why are you digitizing?

1. Conservation / Preservation
2. Content availability

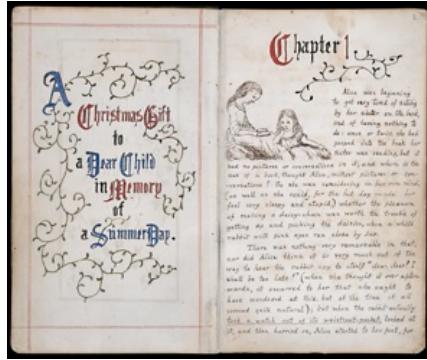
Pre-Production

Building a work-station for digitizing

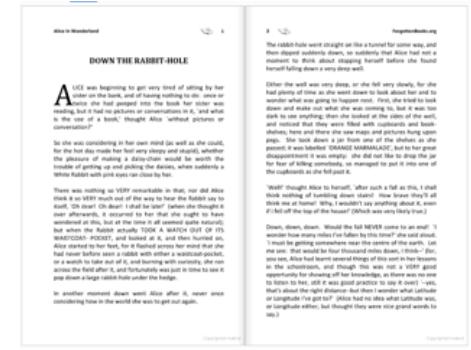


Issues to think about

1. Levels of funds available
 2. End use
 3. File formats
 4. Metadata
 5. Equipment
 6. Lighting
 7. Exposure
 8. Background
 9. Image Shooting aids



http://tttdownload.bl.uk/app_files/silverlight/default.html?id=86825520-a671-11db-a264-0050c2490048



<http://books.google.com/books?id=ID5P7xbmcO8C&lpg=PP1&dq=alice%20in%20wonderland&pg=PA1#v=twopage&q&f=false>

Levels of funds available

This will determine an important issue:

Quality vs. Quantity

Small-scale vs. Large-scale digitizing

- Are you building up a project for an exclusive, limited collection?
- Is Conservation Assessment a necessity?
- Do you need a repetitive workflow for an unlimited amount of material?
- Keep in mind that the actual image capture is only one part of your digitization budget.
- Is there a time constraint?
- What is realistic for you?

End use

What do you want to do with your digital files?

How much information do you need to impart? Do the files need to be use-neutral?

End use affects how you approach image capture:

what and how much detail resolution you need to capture,
e.g. OCR-ready vs. paper texture

*TIP: The quality of the file you have before you get to post-processing is very important.
Photoshop is not the answer to everything. You can't fix what you don't have.*

File formats

- tiff Non-compressed TIFF is the current International archival standard.
- jpeg large file
- jpeg 2000 more storage space
 more reliable and stable than jpeg
- pdf
- dng
- gif
- png
- ?

Metadata

What types of metadata do you need to record?

3 basic types:

- Technical – information from and about your image capture device
- Descriptive or Bibliographic – information about the physical object
- Administrative – information about the digital object

Equipment

How to convert analog to digital?

Types of image capture devices: Scanners or cameras

Which you choose depends on the material, size and handling restrictions of your originals

Lighting

Continuous or flash?

Continuous

- less disturbing for long-term use

Flash

- faster exposure time
- less chance of camera shake influencing the sharpness of the image

Exposure

Light & Exposure

Incident vs. Reflected light reading

Incident – independent of the individual properties of the object and only takes into account the amount of light falling on the object

Reflected – amount and quality of light reflected from an object changes depending on the color, texture and background

It is better to read the light falling on the object instead of light reflected as this gives consistent exposure reading; allows for more control and is more repeatable

Background

White, black, gray or color?

White

- brings out subtleties in paper color
- good for thin paper



Black

- increases perceived contrast
- gives a sense of floating object



Neutral gray

- usually recommended as it tends to not influence exposure and perceived contrast
- less bleed-through with thinner paper



Color

- usually used for exhibition purposes



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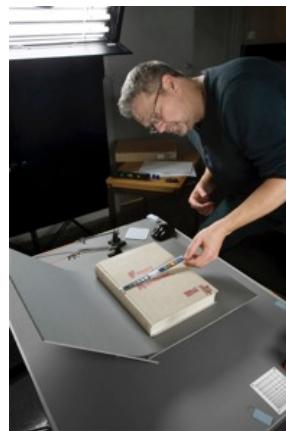
Background

The ideal background shooting environment should also be as neutral as possible in order to limit it's effect on image capture.



Shooting aids

- Camera stand
- Colorchecker or gray card
- Ruler
- Book support
- Page holder
- Focusing aid
- Spectrometer
- Bits & bobs



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PART 2 - Image Capture (Camera)

Creation of master or archival files



Image Capture (Camera)

Basic steps of Image Capture



Image Capture (Camera)

- 1. Calibration
- 2. Color space & ICC-profile
- 3. Lighting
- 4. Working out 1:1
- 5. Framing & Cropping
- 6. Focusing
- 7. Preview
- 8. Neutralizing
- 9. Shooting & Sequencing
- 10. File naming

Image Capture (Camera)

1. Calibration Monitor



Image Capture (Camera)

1. Calibration. Use a spectrometer and calibration software, e.g. EyeOne, Spyder, Color Navigator

Calibrated capture and viewing equipment is important for optimum visual accuracy

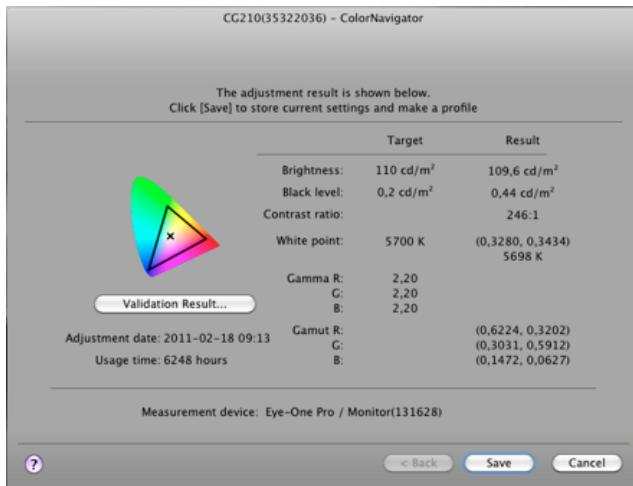
- Monitor
- Camera

Tip: Gamma 2.2; Luminance 85-140 Cd; 5700K; Black point target 0.2 Cd (Candela)

- http://www.drycreekphoto.com/Learn/Calibration/monitor_black.htm

Image Capture (Camera)

1. Calibration Monitor



1. Calibration Camera

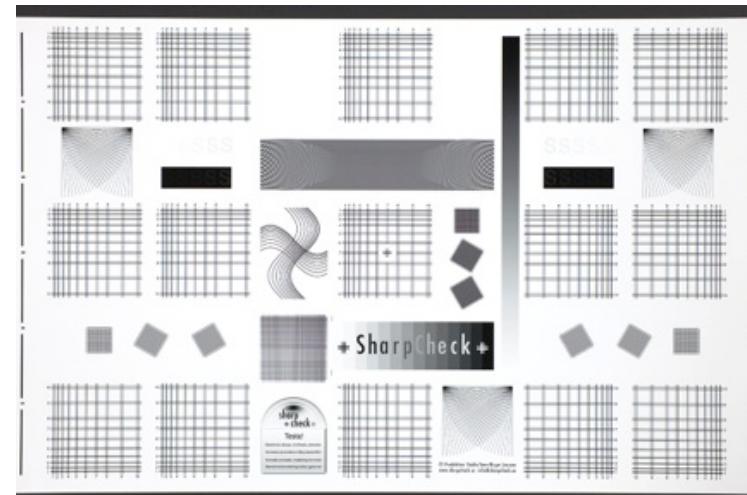
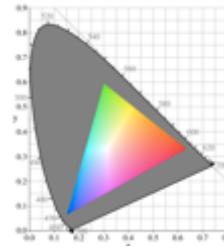
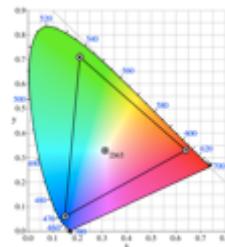
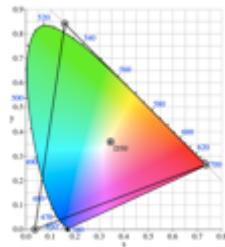


Image Capture (Camera)

2. Color space & ICC-profile

Color space is a mathematical description of how much difference is necessary between two similar colors in order to distinguish them as two separate colors

- ProPhoto
- Adobe RGB
- sRGB



ICC-profile is a description of how your equipment sees color

Don't forget to set a color space on your camera

<http://www.brucelindbloom.com/>

Image Capture (Camera)

3. Lighting quality

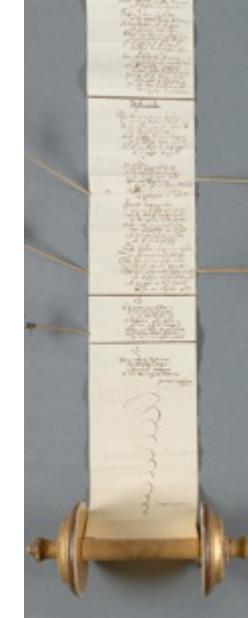
- Even. It is generally recommended to have even lighting across the entire area you are capturing. A broader light source gives more even light. E.g. think of the difference in light quality between a sunny and a cloudy day.
- Balanced. Lighting has different color temperature. Be sure to note the stated color temperature of your light source or use a color spectrometer to check.
- Don't mix light sources
- A consistent viewing environment is ideal for controlling color in image capture



Image Capture (Camera)

4. Working out 1:1

- Directly in camera: resolution & pixel array
Canon 5D Mark II
= 5616 x 3744 pixels
= 47,5x31,75cm @ 300ppi
= 35,6 x 23,77cm @ 400ppi
- In post-processing: Interpolation
- Digital stitching



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Image Capture (Camera)

- Digital stitching

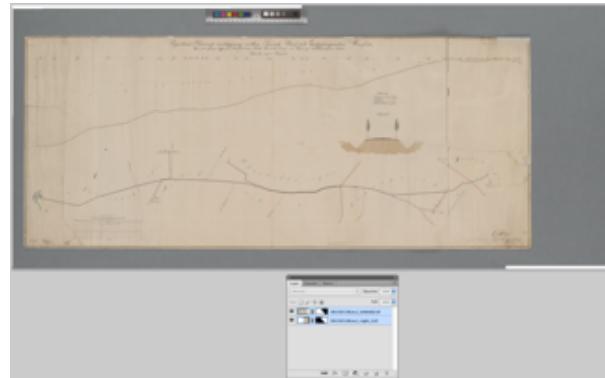
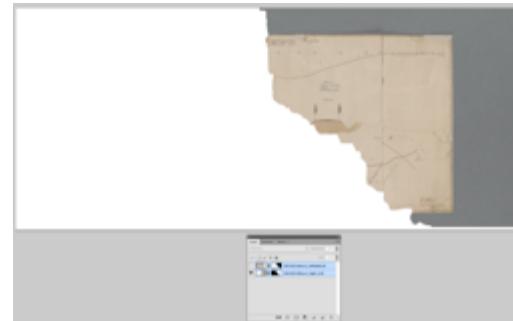


Image Capture (Camera)

5. Framing & Cropping

- Keep object straight and try to maintain the same position
- Take into account that the relative size of the page and the book spine can & usually change as you browse further into a book



Image Capture (Camera)

6. Focusing

When digitizing a book it is necessary to maintain the focal plane at the same distance from the lens in order to make automation in post-processing easier. i.e. the top page should always be at the same level



Image Capture (Camera)

7. Preview

- Check that everything is where you want it to be before shooting



Image Capture (Camera)

8. Neutralizing: White (Gray) Balance

Don't forget to white balance your camera.

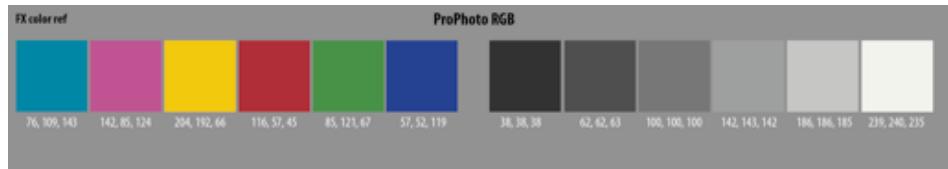
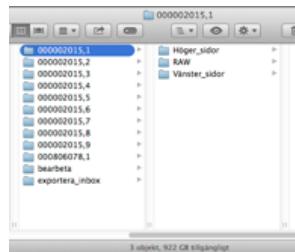


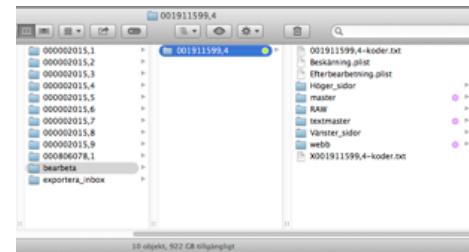
Image Capture (Camera)

9. Shooting & Sequencing

- all lefts / all rights
- at KB we started out manually sequencing 1, 3, 5... & 2, 4, 6... then one of our photographers developed a script and software to automatically sequence files



Before script



After script



Image Capture (Camera)

10. File naming.

- Important for organization, search and administrative functions

KB has a composite file naming system. Each position is separated by a comma, and corresponds to the retrieval of different metadata information from the object's catalogue post in Libris.

Gösta Berlings saga (manuscript, Selma Lagerlöf)

003164296,1,m,1,,fp.tif

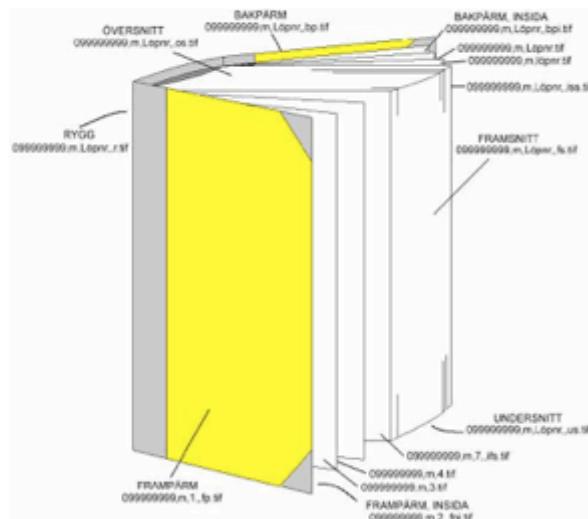
003164296,1,w,35,12r.tif

003164296,1,j,264,125v.jpg

003164296,1,p,1.pdf



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Exempel på namngivning av en inbunden bok [måste exemplet uppdateras?]

Filnamn	Förklaring i klartext
09999999,m,1,.fp.tif	Framfärgen
09999999,m,2,.fpi.tif	Framfärgens insida
09999999,m,3.tif	Försättsblad, opaginerad
09999999,m,4.tif	Försättsblad, opaginerad
09999999,m,5,.ifs.tif	Inlagans första sida
09999999,m,6.tif	Opaginerad sida
09999999,m,7,.t.tif	Titelsida
09999999,m,8,2.tif	Sidan 2
09999999,m,9,3,inh.tif	Sidan 3, innehällsförteckning
09999999,m,10,4,inh.tif	Sidan 4, innehällsförteckning
09999999,m,11,5.tif	Sidan 5
09999999,m,12,6.tif	Sidan 6
09999999,m,13,.pl.tif	Planschblad, opaginerad
09999999,m,14,.pl.tif	Planschbladets baksida, opaginerad
09999999,m,15,7.tif	Sidan 7
09999999,m,16,8.tif	Sidan 8

	Etc., fram till:
099999999,m,90,182.tif	Sidan 182
099999999,m,91,183.tif	Felpaginerad 83
099999999,m,92,184.tif	Sidan 184
099999999,m,93,185.tif	Sidan 185
	Etc., fram till:
099999999,m, sekvensnr,321,reg.tif	Sidan 321, register
099999999,m, sekvensnr,322,reg.tif	Sidan 322, register
	Etc., fram till:
099999999,m, sekvensnr,326,reg.tif	Sidan 326, register
099999999,m, sekvensnr,,reg-iss.tif	Register-inlagans sista sida
099999999,m, sekvensnr.tif	Försättsblad, opaginerad
099999999,m, sekvensnr.tif	Försättsblad, opaginerad
099999999,m, sekvensnr,,bp.tif	Bakfärgens insida
099999999,m, sekvensnr,,bp.tif	Bakfärgen
099999999,m, sekvensnr,,os.tif	Översätt
099999999,m, sekvensnr,,fs.tif	Framsätt
099999999,m, sekvensnr,,us.tif	Undersätt
099999999,m, sekvensnr,,r.tif	Rygg
099999999,m, sekvensnr,,fb.tif	Föremålsbild
099999999,m, sekvensnr,,sgl.tif	Sigill
099999999,m,1,.bil.tif	Sidan 1 av medföljande häfte (bilaga)
099999999,m,2,.bil.tif	Sidan 2 av medföljande häfte (bilaga)
099999999,m,3,.bil.tif	Sidan 3 av medföljande häfte (bilaga)
099999999,m,4,.bil.tif	Sidan 4 av medföljande häfte (bilaga)

Bläddra igenom paginerat tryck i sin helhet för att kontrollera att pagineringen inom sviten håller rätt ordningsföld. Har pagineringen rättats med blyerts och stämmer med sekvensen gäller ändringen. Eventuella avvikelse i pagineringens nummersviter angeres i bildfängstanvisningen och meddelas till katalogisatören som gör en anmärkning i LIBRIS-posten.

Exempel om föremålsbilder

1. En volym, två poster

Ett verk har fyra delar i två volymer. Varje del är särkatalogiserad och det finns en huvudpost. Delarna har alltså egna Regina-nummer. Eftersom webbvisningen baseras på Regina-nummer, ska varje del visas som ett eget objekt på webben även om de i verkligheten är bara två volymer. För att alla delar ska få likadan visning, dokumenteras föremålsbilder (pärmar etc.) med varje del. Volumens föremålsbilder namnges alltså två gånger, med båda delarnas Regina-nummer.

Image Capture (Scanner)

More or less the same steps as with a camera. You are however limited by the size of your scanner and your material.

- Built in:
 - interpolation
 - lighting
 - focus

 1. Calibration
 2. Prescan
 3. Framing
 4. Scanning
 5. File naming

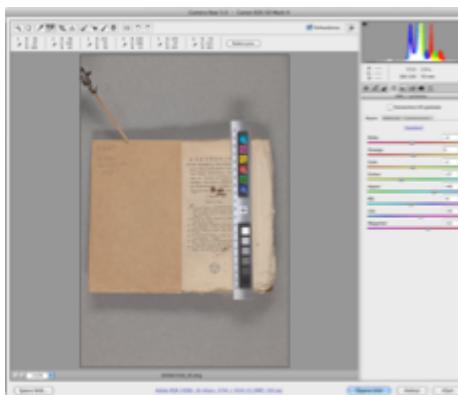
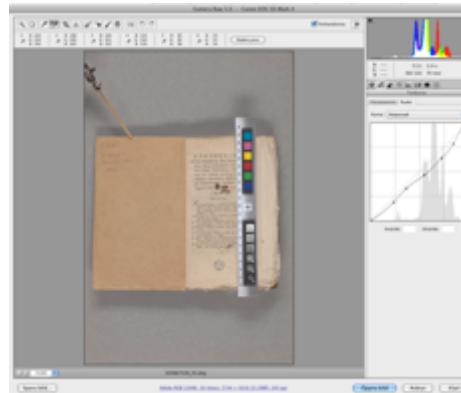
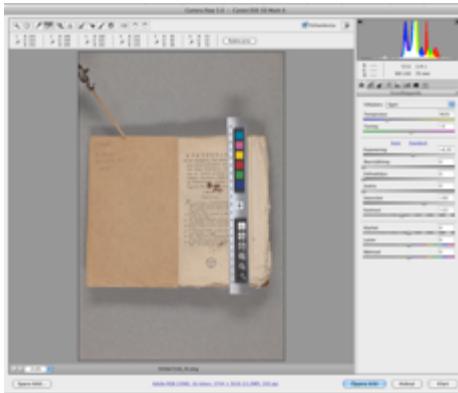
PART 3 - Post-Processing

This is where you create user files for your end use. All color adjustment takes place in 16-bit.

- Export from shooting format (RAW) to TIFF
- Final neutralizing
- Render accurate color & contrast
- Sharpen
- Generate derivative user files



Post-Processing



Post-Processing

Small-scale production, suitable for:

- special
- heterogeneous
- delicate
- complicated
- limited quantity
- more manual labor



[http://commons.wikimedia.org/wiki/
File:Carte_des_%C3%A9tats_d%C3%A9sunis_d%27Europe_-
_Kungliga_Biblioteket_-_10348540-
thumb.png](http://commons.wikimedia.org/wiki/File:Carte_des_%C3%A9tats_d%C3%A9sunis_d%27Europe_-_Kungliga_Biblioteket_-_10348540-thumb.png)

Post-Processing

Small-scale production:

Tools:

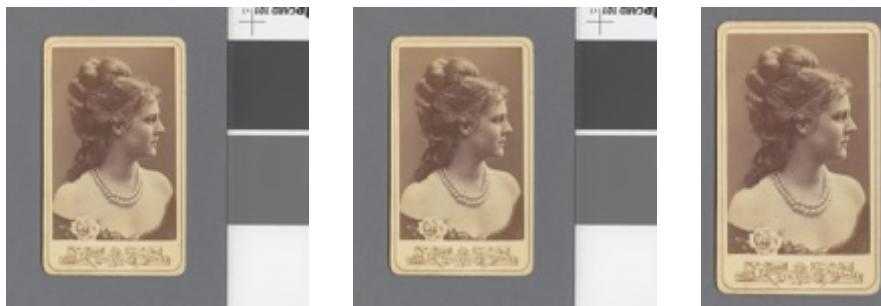
- commodity software such as Photoshop
- Macros
- Droplets
- simple Scripts
- customized viewing solutions



Post-Processing

Large-scale:

- mass digitizing
- homogeneous
- less delicate collections
- greater need for repeatability and reliability
- standardized workflow
- automation desired



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Post-Processing

Large-scale:

Tools:

- Scripts
- Commercial high volume solutions
- Specialized hardware
- Specialized software

Post-Processing

Small-scale:

Suecia

Kungliga biblioteket

<http://www.kb.se/samlingarna/oversikt/suecia/forsta-bandet/>

[titelblad-volym1/](#)



Post-Processing

Small-scale:

Vie et miracles de saint François d'Assise

Bibliothéque nationale de France

<http://gallica.bnf.fr/ark:/12148/btv1b6000237d.r=.langEN.swf>



Post-Processing

Small-scale:

the Diamond Sutra

British Library

<http://www.bl.uk/onlinegallery/virtualbooks/index.html#>



Post-Processing

Large-scale:

Digitaliserad dagspress

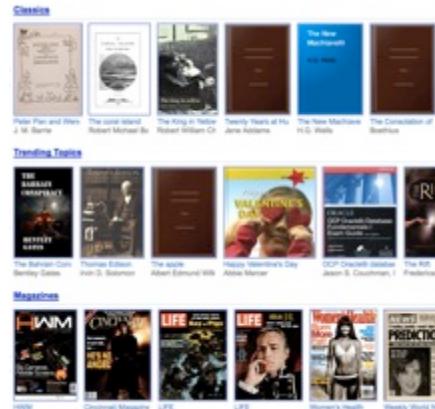
Kungl. biblioteket

<http://www.kb.se/samlingarna/digitala/Digitaliserad-dagspress/>



Google books

<http://books.google.com/books>



WORKSHOP ASSIGNMENT

10 images that, together, describe the object

Keep in mind:

- Naming & sequencing
- Detail management
- End use
- Lighting – Even (flat) vs. uneven (textured)
- Effect of shooting on a white, black or gray background
- Reflective vs. Incident light reading
- Working out 1:1 – Interpolation vs. Non-interpolation
- Framing
- Focusing
- Neutralize & Color Correct
- Naming & sequencing

Photo credits

- Andrea Davis Kronlund
- Jens Östman
- Ann-Sofie Persson
- Birger Larsson
- Per B Adolphson
- Claes Jansson
- Istvan Borbas
- Bibliothéque nationale de France
- British Library
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