Photography for Genealogists

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Agenda

- What to photograph: Have you considered…
- Photography Basics
- Differences between a Film & a Digital Camera
- Images: Resolution and Size
- Advantages of Digital Images
- Techniques for taking better photographs of documents
- iPhone Tips
- Image Enhancements

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How Much Light: **Film**

- Light Sensitive
- Requires processing after exposure
- Prints are made from the film
- Comes in varying sensitivity to light
- ISO speed range
  - 100 (bright light) - highest quality image
  - 200
  - 400
  - 800
  - 1600 (dim light) – more 'grainy' image

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How Much Light: **Shutter**

- Controls how long the film is exposed
  - Normally closed
  - Opens (Briefly!) when you press the button
  - How fast?
    - 1/2000 (0.0005 seconds) -> as long as you want

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How Much Light: **Aperture**

- Controls how the amount of light that reaches the film
  - Like the pupil in your eye
- Not much light => Small (f/32)

- Lots of light => Large (f/4.0)

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Equal Amounts of Total Light Energy

Less Depth of Field

Aperture	Shutter Speed
f/4.0 (Larger)	1/2000
f/4.5	1/1500
f/5.6	1/1000
f/6.7	1/750
f/8.0	1/500
f/9.5	1/350
f/11	1/250
f/13	1/180
f/16	1/125
f/19	1/90
f/22	1/60
f/27	1/45
f/32 (Smaller)	1/30

Less Time, More Light

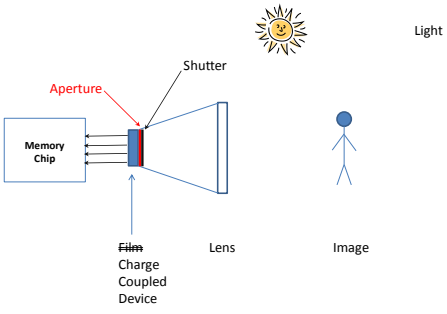
6 Greater Depth of Field

More Time, Less light

Light

- Light from the sun is actually made up of many different colors
- Film is calibrated for natural light
  - Fluorescent bulbs may make images appear green
  - Light from candescent lights (normal light bulbs) can make objects in pictures appear more red than they are
  - This can be corrected by using filters

Digital Camera

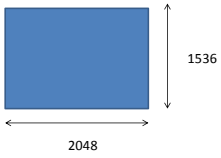


Digital Terms

- Pixel – Short for PICture ELement
- Each digital picture is a collection of thousands of Pixels arranged in rows and columns
- Characteristics of a Pixel:
  - Location
  - Intensity (light or dark)
  - Color

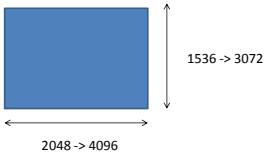
Making Sense Out Of All Those Pixels

- My iPhone camera records images in a 2048 by 1536 format
  - 2048 x 1536 = 3,145,728 Pixels
  - 3 MegaPixels



Twice the Resolution?

- How many more MegaPixels do I need to DOUBLE the resolution compared to a 3 MegaPixel Camera?
- 4096 x 3072 = 12,582,912 or 12 MegaPixels
- Four times the MegaPixels!



Resolution vs. Size

- When you make a digital picture larger, you are actually moving the pixels further apart from each other
- For any resolution, if you make the picture big enough it will begin to appear 'fuzzy' or 'pixelated'

How big is that picture?

- It depends on the resolution and what you are printing (or viewing) it on.
- Let's take a 3 MegaPixel example:
  - 2048 by 1536 pixels
- On your computer monitor
  - A Typical monitor has a resolution of 72 pixels per inch
  - 2048 / 28.4 = inches
  - 1536 / 21.3 = inches

How big is that picture?

- On a Printer at 300 dots per inch
  - 2048 / 300 = 6.82 inches
  - 1536 / 300 = 5.12 inches

How Big Can You Print?

- 100 to 150 dots per inch is generally acceptable
- 300 dots per inch is required for high quality pictures

- Long dimension (inches)
  - 4 x (square root of your Megapixels)
  - 4 x 1.7 = 6.92 inches

Why is Digital Better?

- No film!
- You get to see the pictures instantly
- The ISO speed setting can be changed for each picture
- The camera can be adjusted for different light sources (colors)
- Software tools allow you to enhance the quality of your pictures (adjust exposure and color balance)

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Things you can do to improve picture quality

- Keep the camera Parallel to the image
- Fill the frame with the image
- Darken the background
- Hold the camera steady
- Get more light on the image
- Increase the ISO setting on your camera
- Specify the light source on your camera

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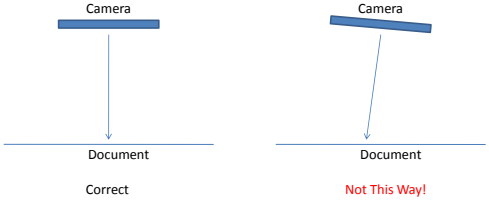
Hold the Camera Parallel



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Make The Background Dark

- This will allow the camera to adjust to the light on the document, not the surrounding background
- Just about anything will do as long as it is dark and non-reflective
- I have used a dark jacket, a shirt, towels, blankets…

Hold the Camera Steady

- Holding the camera steady will improve all of your pictures
- It is vital in low light situations
  - Use a Tripod
  - Brace yourself and/or the camera against something
  - Use a Timer or a Remote control to avoid moving the camera when you take the picture
  - Get Anti-Shake software for your iPhone

More Light

- Adding light to the image can allow your camera to take the picture at a higher shutter speed, which can minimize the effects of camera movement
  - Move the document to an area with better light
    - Better lights
    - Near a Window
  - Bring lights to the document

Why Not Use a Flash?

- Use it if you can!
- May not be allowed
  - The light can cause damage to fragile documents
- If the image is glossy (glass covered, for example) you may get reflections

Select a higher ISO setting

- If your camera has the ability, you can select a higher ISO setting.
- This allows you to shoot at a higher shutter speed (which reduces the effect of camera motion)
- Note that this will reduce the quality of your image…

Specify the Light Source

- If you camera has this as an option, tell it what kind of light source you are using:
  - Natural (a.k.a. 'sunlight')
  - Incandescent (old fashioned light bulbs)
  - Fluorescent
- This will make the colors in your picture appear more natural/correct

iPhone Apps

- Get an app that helps overcome the limitations of the camera
  - **Anti-Shake** – senses camera motion and takes the picture when it senses that the camera is not moving
  - **Timer** – allows you to place the camera on a steady surface and then set a timer to take the picture
- Applications:
  - CameraSharp
  - Darkroom

Summary

A knowledgeable and skilled photographer who applies good technique can create better quality images than a poor photographer using a fancier camera!

- Keep the camera parallel to the image
- Fill the frame with the image
- Darken the background
- Hold the camera steady
- Get more light on the image
- Increase the ISO setting on your camera
- Specify the light source on your camera

Technology SIG Meeting

- August 4
  - Bring your camera(s) Night
  - Practice some of what we just discussed
  - 6:30 pm
  - 8th Floor of the Dallas Public Library