

Images and Scanning Part 1

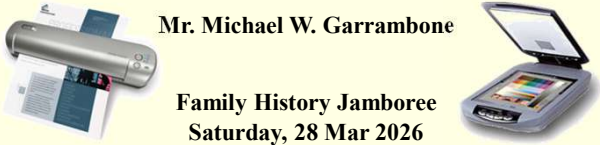
Instructor Mike Garrambone

Interesting Genealogy Topics

Images and Scanning Part 1: The Poop, Scoop, and Skinny

Mr. Michael W. Garrambone

Family History Jamboree
Saturday, 28 Mar 2026
Kettering, Ohio




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1

What Is this About

Everyone wants images in their genealogy documents

- Family Photos
- Historical Documents
- Paper Narratives
- Maps and Charts
- Graphic Treasures




Uncle Charlie

We are going to talk about what you need to know about to capture and keep these items

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2

Agenda



- Introduction
- Scanning: Getting the Dots
- Scanning Machines
- Those Wonderful Images
- Types of Images
- Image Density
- Fixing Images
- Batting Clean Up

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3

What is Scanning

Capturing Pixels

Scanning: Using a device (a scanner) to detect and record the information, arrangement, color, or text contained in a document and store this information in a computer graphics file of some format




Image → Scanner → Computer File


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4

“Everybody Needs a Scanner, Sometime”

Scanning is good for


- Grabbing images to put in documents
- Adjusting, fixing, editing, or enhancing photos
- Spicing up newsletters and other publications
- Creating lively presentations and other visual aids
- Converting documents into editable text (w/ OCR software)



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5

Several Types of Scanning Machines



- Combo Printer & Sheet Scanner
- Book Scanner
- Flat Bed Scanner
- High-Speed Sheet Scanner
- Portable Scanner
- Hand Scanner

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6

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How Scanners Work

1. Lay paper on the glass
2. Lights shine and reflect color to sensors on roller
3. Sensors detect the dot colors
4. Sensors report the dots to the Computer
5. Computer creates an image file

01010001101110111

Inside the Scanner

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7

The Computer Does Four Things

1. Operates the Scanner
2. Records the Dots
3. Turns dots to computer code
4. Saves files --image files (jpg, png, etc) or text files (doc, txt, pdf, etc)

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8

We Scan for Dots per Inch (DPI)

Density: The number of dots in the space of an inch

Big Dots or Squares Small Dots or Squares

15 dots per inch

15 dots per inch

40 dots per inch

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9

Density Example (Dots Per Inch = DPI)

Density: Number of dots in the space of a linear inch

50 DPI 170 KB	100 DPI 473 KB	300 DPI 2, 798 KB	600 DPI 10, 318 KB
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10

Scanning What ?

We take samples of what there is to see

Digest: 4 1/4 x 5 1/2

Letter: 8 1/2 x 11

Legal: 8 1/2 x 14

Tablet: 11 x 17

Electronic: 12 x 18

35 mm Film

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11

Example Online Screen Capture

Use Ctrl + Prnt Scrn To get this image Now use Ctrl + V to poke in into a PowerPoint slide

The Castle Garden at <http://www.olivetreegenealogy.com/ships/nship19.shtml>
 World Vital Records at <http://www.worldvitalrecords.com/indexinfo.aspx?ix=ellisland>

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12

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Example Passenger Ship Record using the Crop Tool

The screenshot shows a web page titled "PASSENGER RECORD" for Matteo Porcello, an Italian immigrant who arrived in 1913. The page includes a navigation menu, a sidebar with links like "Original Ship Manifest" and "View Annotations", and a main content area with a form containing personal details such as name, ethnicity, date of arrival, and ship of travel. A "Crop Tool" icon is visible in the top right corner of the browser window.

13

The Crop Tool ✂

Capture (Ctrl C), then use the Crop Tool ✂

The diagram illustrates the process of cropping an image. On the left, a full portrait of Thomas A. Edison is shown with a yellow box around it and the text "Don't need those words!". An arrow points to the right, where the same portrait is shown but with the text removed, and the text "Just the portrait".

14

13

14

The Magic Brush

The diagram shows a yellow brush icon pointing to a logo. The logo is a shield-shaped emblem with wings and a star, with the text "AIR FORCE MATERIEL COMMAND" below it. A red arrow points from the logo to a second, identical logo, with the text "This Becomes This" above it.

15

15

Welcome to Images

Use images to enhance your genealogy

- IMAGE:** a visual representation of something: as (1): a likeness of an object produced on a photographic material (2): a picture produced on an electronic display (as a television or computer screen)

The collage includes a map of the United States with colored regions, a photograph of a man in a military uniform, a photograph of a woman, and a line graph titled "Number of Italian Immigrants to the U.S." showing a sharp increase in the late 19th century.

16

16

There Are Four Popular Image Types

Each image type has different characteristics

- Raster:** Made of various dots
- Vector:** Made of various lines
- Character:** Made of a standard type-set (font) and size (points)
- Compound:** One or more of the above (images or characters)

The examples include a row of colored dots, a set of parallel lines, the text "ABC - #\$\$ - 123" in a green box, and a small screenshot of a website.

17

17

Raster (also called bitmap)

Just a bunch of dots

- Popular Formats**
 - BMP (Bitmap)
 - JPEG (Joint Photographic Expert Group)
 - GIF (Graphics Interchange Format)
 - PNG (Portable Network Graphics)
 - TIFF (Tagged Image File Format)

The grid shows a square area filled with a pattern of small, colored circles in various colors, representing a raster image.

18

18

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More about Raster

Scanners Produce only Bitmap Images

- Great for fixes and repairs
- Good for only limited stretching/expanding
- Most popular
- Easily found on web
- Use Google Images

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19

Vector

Just a Bunch of Lines

- Popular Formats
 - WMF (Windows Meta File)
 - Works with windows
 - AI (Adobe Illustrator)
 - Great for Graphics
 - CDR (Corel Draw Illustrator)
- Strong Points
 - Lots of lines with endpoints
 - Great for line drawings
 - Great for stretching
 - Great for artwork

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20

More about Vector Images

Just move the end points

- Great for magnification
 - Used in most magazines
 - Works with windows
 - Used in PPT images
 - Favorite of artists
 - Great 3-dimensional attributes

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21

Character Codes, Text, and PDF

Each character has a symbol code

Example This is text

- Character Files
 - .TXT (Text)
 - Works with windows
 - .DOCX (Word Files)
 - Great for printing
- PDF (Portable Document File)
 - Can contain both text and images
 - Makes a very small file size

T = Char (084)
 h = Char (104)
 i = Char (105)
 s = Char (115)
 sp = Char (032) a space
 = Char (105)
 s = Char (115)
 sp = Char (032) a space
 t = Char (116)
 e = Char (101)
 x = Char (120)
 t = Char (116)
 . = Char (046)

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22

Scanners can use an OCR (Optical Character Reader) program to change images to text

Scans a document and produces characters

It takes this image

Dots

and makes this text

Characters

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23

What OCR Does for You

It takes words in this brochure

And makes this document

They're game pieces. Ancient Egyptians loved toys and games. The hounds and jackals were game pieces that fit into the holes on the shell of the wooden turtle. The rules of the game are unknown but researchers believed that the game gave magical powers to the player who won!

Think About: How do you think ancient Egyptians played this game?

To Do: At home create a board game using cardboard. Create rules for your game and make spaces on the board. You can use small toys or pop bottle lids for playing pieces.

You can edit and search

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24

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Some Information about Color

Color makes a more interesting image

- Only black and white**
 - Like a printing press
 - Makes the smallest file size
- Shades of black and white (gray tones)**
 - Eight shades
 - 16, 32, and more shades
- Color**
 - Eight color
 - 16, 32, 64, 128, 256, to millions

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25

Saving Images

Each dot uses a number to indicate color

- Only black and white**
 - 0 = white, 1 = black, takes only one space Called a Bit (0 or 1)
 - A space in the computer
- Shades of black and white (grayscale)**
 - Eight shades takes 3 bits
 - Sixteen shades takes 4 bits
- Color**
 - Eight colors
 - Sixteen colors
 - Thirty-two colors
 - 256 different colors 8 Bits is called a Byte

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26

Printer and Computer Monitor Notes

- Inkjet Printer Output**
 - 300-600 dpi
 - Printer ink colors are usually Cyan, Magenta, Yellow, and Black (CMYK) from which they make all the colors
- Laser Printer Output**
 - 1200-2400 dpi
 - Ink colors are usually (CMYK)
 - cartridges are used to make all the colors
- Normal Screen Output**
 - Usually 72 dpi
 - Screens are made of picture elements (pixels)





• These are set for the device so many pixels (e.g., 1920 x 1200) and use the colors of Red, Green, and Blue (RGB) to make all the other colors

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27

How Much Density (DPI) Do You Need

Density: Number of dots in the space of a linear inch

	Computer Monitor 72 DPI		Real Good Photos 300 DPI
	PowerPoint Presentations 100 DPI		Outstanding Photos 600 DPI
	Draft Printing 200 DPI		Good Magazine 300 - 600 DPI
	Standard Printing 300 DPI		High Quality Magazine 1200 - 2400 DPI

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28

Number of Screen Pixels Affect Viewing

1 4 25 100 400 2,500 10,000

Low number of pixels High number of pixels

Grainy Higher Resolution

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29

Electronic Displays and Devices

Electronic

- 7 inch
- 10.1 inch

Aspect Ratios

- 15 inch monitor
- 600 x 600 (square)
- Aspect Ratio is 1:1

Monitors

- 12 inch =
- 14 inch
- 15 inch
- 19 inch
- 25 inch
- 32 inch

- 19 inch monitor
- 864 x 648
- Aspect Ratio is 4:3

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30

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Scanning Machine Software Settings


Item	Example Choices
What do you want to scan from?	Flat bed scanner, my printer
File type to create	PDF, OCR, BMP, JPG, TIFF, etc.
Scan Mode	Black and white, grayscale, color
Image Quality	75, 150, 300, 600, 1200 DPI
Final Filename	Make one up (or save in date file)
Save Image to	Some folder name
Name of External Pgm	Photoshop, MS Paint, etc., to open

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31

Changing File Type and Density

This → Becomes → This



BMP, 640x480, 901 KB



JPEG, 640x480, 148 KB

Use PPT or PhotoShop Elements

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32

Names of Some Image Editors

Notable Editors	Things to do
<ul style="list-style-type: none"> Raster Graphics Editors <ul style="list-style-type: none"> Adobe Photoshop (CSS) Photoshop Elements MS Paint Paint Shop Pro Many others Vector Graphics Editors <ul style="list-style-type: none"> Adobe Illustrator CorelDraw Xara Xtreme Vector Software Many others Adobe Acrobat 	<ul style="list-style-type: none"> Open and save image files Crop an image Sharpen an image Resize an image Change colors Add special effects Add text or headers Fix different pixels Clone parts of an image Change contrast or brightness Add a picture frame Rotate an image Correct gamma levels Create a mirror or flip an image Remove a red eye Convert to grayscale Convert to another format

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33

Passenger Ship Records

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

They just didn't swim!

Ellis Island Foundation

S. S. San Giorgio
Sailing from Palermo
28 Jan 1913
Arrived Port of New York
15 Feb 1913

U.S. NATIONAL ARCHIVES & RECORDS ADMINISTRATION

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34

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- Laser Printing http://en.wikipedia.org/wiki/Laser_printing
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Images & Scanning 1 35

35

Point of Contact Information

Mr. Michael W. Garrambone

☎ : Home 937-233-3255

📄 : 4138 Quail Bush Drive
Dayton, Ohio 45424

✉ : mgarrambone@aol.com

Images & Scanning 1 36

36