Scanner?

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Traditional Uses of a Scanner

- Making Copies
- Faxing
- Converting to digital images:
  - Old photos
  - Slides
  - Negatives

Derivation

- Photography – from the Greek :

  – "Photo" = "Light"

  – "Graph" = "Drawing"

  OR   "The Act of Drawing with Light"

How Does a Scanner Work?

- There are numerous types but we will focus on desktop flatbed scanners of today

- Uses a "Light" source to illuminate an object above a movable head

- CCD captures this information and sends it through a number of processes to convert those signals into a digital signal which can be stored and processed by a computer (TIFF, BMP, JPEG, PDF, etc.)

How Does a Camera Work?

- Light passes through a lens
- A shutter opens for a prescribed length of time
- Which allows light to be passed through an aperture opening of a prescribed size
- This information is captured on a digital sensor
- Converted by an internal microprocessor into a digital image and stored on the card in your camera
- Which is ultimately transferred onto your computer (Raw, JPEG)

Same or Different?

- At the end of the day both processes ultimately end up with:

  Light being recorded using digital technology and delivered to a computer for further processing.

So Can a Scanner become a Camera?

- Yes

- In fact an extremely great camera, why?
  – Uses an even light source which is both soft and diffused
  – Lens (CCD) is very close to the object being photographed
  – The object is not moving
  – The depth of field is approximately 1-inch (may vary)
  – Focus is always fixed and tack sharp

So Then What Else Could We Use a Scanner for in our World of Photography?

- Taking Extremely High Resolution Macro or Close-up Photos

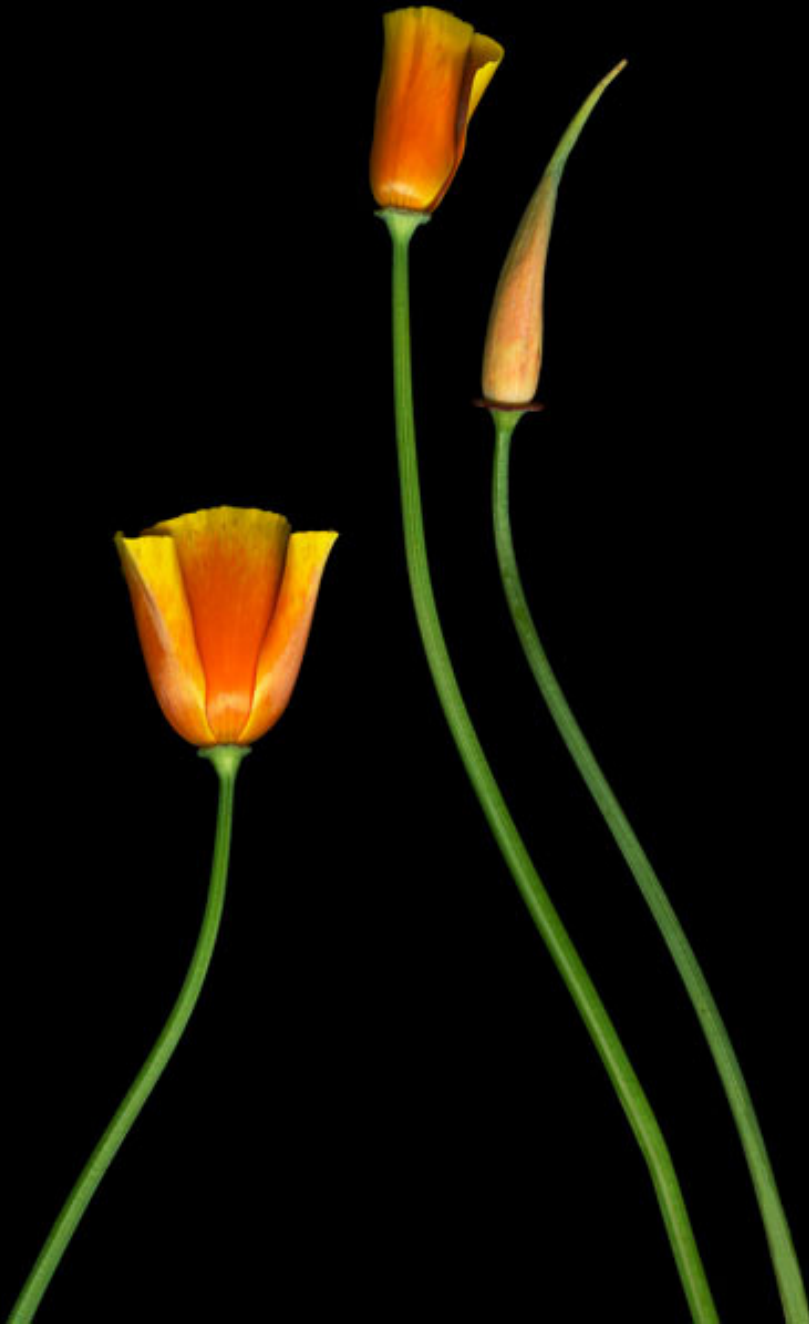- Enlarging Printed Photographs at multiples difficult to achieve via Photography Software

  So this $99 device could produce quality photographs that would cost much more to achieve otherwise (DSLR Cameras)

  AND that scanner is probably collecting dust

My Inspiration

by Tim Fleming

by Jim Fleming

Other Ideas

"Crocus in Ice" by Janet Dwyer

"desire" by Janet Dwyer

"Maple Leaf in Black" by Sharon Talson

Dropping Paint on a Glass Slide
by Rebecca Wild

Not enough time to go
into even more techniques

Make sure objects and glass are clean ⟶

Depth of Field

&

Color Test

Taking Extremely High Resolution Macro Photos

- What's Required?
  - Scanner (I use an Epson V500 Photo Scanner)

  - A USB cable to connect the Scanner to Your computer (usually supplied with the scanner)

  - Scanning Software (usually supplied by the scanner company; although you may purchase more sophisticated software). I use the vendor supplied software "Epson Scan"

Taking Extremely High Resolution Macro Photos

- Before Scanning
  - Carefully clean the glass on your scanner with eye glass quality cleaner and a lint-free soft cloth
  - If you are going to place scratch-able surfaces on your scanner consider a clear plastic / laminate sheet to protect glass surface
  - Build a light tent or obtain different covers to place over objects to be scanned to trap light; NOTE: this will also become the background color
  - Some objects (ones that crush when laid on the glass) may need to be suspended with monofilament fishing line so they barely touch the glass
  - Open (maybe even remove) lid

Taking Extremely High Resolution Macro Photos

- On the table next to the scanner:
  - Collect objects you wish to use to create a composition
  - Create the composition on the table next to the scanner
  - Move one object at a time, placing it upside down on the scanner glass
  - Continue moving objects until your composition is complete (but upside down) on your scanner's glass

Taking Extremely High Resolution Macro Photos

- Scanner / Computer
  - Power Up Your Scanner
  - Connect it to your already powered Computer
  - Execute the Scanning Software
  - Set the following Settings in Your Software:

Taking Extremely High Resolution Macro Photos

- Scanner Software
  - Document Type: Reflective (not film)
  - Document Source: Document Table (not feeders)
  - Auto Exposure Type: Photo (not document)
  - Image Type: 24 or 48 bit Color (16 bit grayscale for black & white)
  - Resolution: 1200 or lower PPI (Pixels per Inch)

Taking Extremely High Resolution Macro Photos

- Preview and Fix Your Composition
  - Click on the "Preview" button
  - Examine and fix Composition
  - Repeat until you are satisfied

  - Once satisfied, outline (select) the area you wish to be included in the photo – this will save time and storage

Taking Extremely High Resolution Macro Photos

- Your Scanner may have additional controls you may use prior to taking the final photo/scan:

  - Sharpening
  - RGB and Tone Curve Corrections
  - Brightness & Contrast
  - Saturation
  - Color Balance

  You will see the effects in your Preview Window

Taking Extremely High Resolution Macro Photos

- You are Ready to Create Your Image
  - Click "Scan" button
  - Enter a filename & path
  - Select .TIFF (.JPG) as your file type

  - Note: Scan may take 2 – 10 minutes
  - The resulting file will be very large (could be 70-300 MB)

Taking Extremely High Resolution Macro Photos

- TIFF Image now stored on your computer
  - Load your Photo Editing Software
  - Open the TIFF File you just created
  - Edit until you are happy; including CROPPING and SIZING
  - Store as TIFF (with layers) or JPEG (flattened)
  - Downsize photo to store on web, email or projection

Sample High Resolution Macro Photos

Enlarging Printed Photographs

- Same equipment we just discussed

- Same Scanner Settings

- Same Scanning Process

- Use a high resolution photograph to begin

- Using photographs printed on matte paper work best (less reflective)

Enlarging Printed Photographs

- Load resulting TIFF Image on to your computer

- Note: the size will be whatever your original photo was BUT at or near 1200 DPI

- Let's look at an example

Enlarging Printed Photographs

- Name Tag Original Size = 3.5 inches X 1.8 inches

- Printed at 300 DPI on Matte Paper

Enlarging Printed Photographs

- Then resampled the image in Photoshop a number of times: [original 3.5 inches X 1.8 inches at 1170 ppi]

  - 7 inches X 3.6 inches (doubled) | Resolution reduced to 585 ppi

  - 14 inches X 7.2 inches (quadrupled) | Resolution reduced to 292.5 ppi

  - 17 inches X 8.8 inches | Resolution reduced to 240 ppi
    - I try to keep my images printed at no less than 240 ppi

  - That is approximately a 500% magnification

Resulting Printed Photograph

Will not fit on the screen – needs a little post processing

So here are 2 more uses for your scanner;
GET CREATIVE!!!

By Tim Fleming

Questions ???