

Taking Pictures Without a Camera

Fun During The Time of Covid!

Introduction

Photography is a process of recording images using the action of light on a light sensitive surface. This surface was paper, or a glass or metal plate, and later film, coated with a light-sensitive emulsion. Today, of course we can also make images through the action of light on a matrix of photo-receptors, as in a digital camera.

We are talking tonight about capturing images without a camera and refining them in a digital dark room using PS or LR.

Types

There are a number of ways to produce an image without a traditional camera: Cameraless Photography:

- Chemigrams
- Luminograms
- Digital C Prints
- Dye Destruction
- Gelatin Silver Prints
- Cyanotype
- Photogram
- Scanography
- Creating Art in Photoshop (Don)

Photograms are made by placing an object in contact with a photosensitive surface in the dark, and exposing both to light. Where the object blocks the light, either partially or fully, its shadow is recorded on the paper.

The term 'photogram' seems to have appeared around 1925. The photogram artist is not able to predict the results in the viewfinder of a camera, and often works in the dark. The final image is only apparent after physical and chemical manipulation or development.

Overview

Today we look at something a little different. How to use your flatbed scanner as a digital camera, a process sometimes called scanner photography or a photogram or scanography. If you have a flatbed scanner you essentially have another camera, although one with a few restrictions.

A flatbed scanner creates an image slightly differently than a camera. The clue's in the name. The imaging head of the scanner gradually builds up an image by scanning backwards and forwards below a glass plate, moving the head incrementally down the plate to. Scanners are typically used to convert flat documents into digital images. This means that that they don't need a great depth of field, which they don't. Essentially the only bit of the image that's sharp is the part that touches the glass. This makes it difficult to scan three-dimensional objects. Difficult, but not impossible. Part of the appeal of scanning three-dimensional objects on a scanner is the fact that depth of field is so restricted. This gives the image of the object an appealing softness.

Another distinctive feature is the quality of the light. It will be frontal in direction with a limited range. Portions of the object(s) that lie directly on the glass will be well lit, but there is a rapid fall-off of light

for portions that are above the glass. Tonal corrections that will even out the lighting can be done afterwards in Photoshop or Lightroom.

Artists like Man Ray and Picasso experimented with camera-less photography, which produces an image called a photogram. They are traditionally made by placing objects on photographic paper and then exposing the paper to light. Sometimes they would simply lay the paper and objects out in the sun, or expose it with an enlarger in the darkroom.

I think using a scanner as a camera is a way to approach photography in a more playful manner, perhaps, as there really are no “rules” to break.

Directions

To make a scanner photograph, you arrange objects on the scanner’s glass flatbed with the lid propped open or removed. Literally you are using the scanner as your camera to image whatever you place on the glass. However, photograms have some unique attributes and advantages especially when compared to shooting with a camera.

Because objects are sitting on a transparent glass surface, they can seem to float, suspended in space. The rose petal example looks like an exploding flower captured by high-speed flash and is actually the result of careful placement of each tulip petal onto the flatbed glass. Gravity is defied giving some subject matter a surrealistic effect.

Depth of Field is limited to less than half an inch from the glass surface. Think of the glass as your macro focus point. As you get farther from the flatbed glass the focus gets softer. Use this to your advantage by placing the subject you want to be sharpest right on the glass flatbed.

This can be a challenge with complex 3D objects. One solution used with flowers is to remove petals to reveal the interior parts. This allows the inside of the flower to be in contact with the glass therefore visible and sharper.

Tonal differences, lighting, leading lines, arrangement of space can work along with the amazing resolution to give scanner photographs more depth.

Use any scanner you have on hand. TIP: Check for dust when scanning. Everything will be enlarged along with your subject matter, including dust specks. Begin by thoroughly cleaning your scanner glass. Otherwise, you will become very good friends with Photoshop’s Stamp and Healing Brush tools.

Unless you are planning to scan something very thin, you will need to prop the scanner lid out of the way or remove it to accommodate your 3D subject matter. Some non-removable lids adjust for the thickness of a book but the weight of them pressing on fragile objects like flowers would be an issue. For a solid black background try working in a darker room, covering the objects with a black cloth or build a black box around the edge and top of your scanner. Black adds contrast and drama, you see this background used frequently with flowers. A different look can be achieved by suspending other background materials above your objects.

For a softer look, handmade paper or natural materials work well as backgrounds. Other backgrounds include tiles and slate, large leaves and other flowers, photographs, aluminum, large pieces of bark, translucent mylar, glass mirrors and reflective objects.

Also consider the foreground. You could place a translucent material like lace or thin rice paper directly on the glass and your subject on top. Scanning through can add interesting textures and depth.

When choosing subject matter, you will want to keep the focus and lighting issues in mind. I would not recommend placing anything that may cause scratches or anything wet on the scanner glass. Some materials may cause the glass to become dirty. Flowers tend to drop a lot of pollen, for example. I keep a container of glass cleaner wipes nearby, for keeping the glass clean. You can scan with the lid up for a black back ground, or add a background cover. Remember, the light falls off quickly, so even white background will darken.

Think of a scanner as an 8.5 x 11 inch sensor – even today's DSLR's cannot compete.

Use a piece of card or build a box to cover 3 dimensional objects

The scanner creates its own light so you don't need to worry about illumination. However, if you're scanning a three-dimensional object you won't be able to close the scanner lid. This means that light will leak into the scanner, reducing the image quality. The solution is to either scan at night when it's dark or build a box that can be placed over your object. The box should be a plain color on the inside. Black or white work well, though aluminum foil produces an interesting effect.

Scanning three-dimensional images gives them an appealing softness.

The time taken to scan your object will largely depend on the size of the scanning area and the resolution that you scan at. The larger the area and the higher the resolution the longer the scan will take. Although this can be frustrating at times it also allows more scope for creativity. Usually it's the scanning head that moves, not the object. However, interesting effects can be had by moving the object during the scan. Moving the object in the opposite direction to the scanning head will compress the shape of your object, moving it in the same direction will stretch it.

You can use tweezers and chopsticks, Qtips, gently and carefully moving things so they don't smear or scratch the glass. Some folks have suggested caulking the edges of the glass with clear silicon to keep dust and pollen out of the inside.

Look for focus, is there dust that could be cleaned off without moving your subject matter?

Now step back from your computer screen and view the entire image onscreen from 5 feet away.

Does the image have a good flow to it? Any distracting elements? Does the composition work? Is there a stronger way to arrange the elements for more impact?

Flowers and plants are popular subject matter for photograms, everyone appreciates their beauty, color and interesting details. Obviously you must handle flowers with care. They are very fragile, and the petals will crease easily. Try to prop them up by the stems so that the foreground petals are not flattening out pressing into the scanner surface.

Have everything you might need on hand (scissors, tape, props, lighting, background material etc) and the scanner ready to go before you start placing the flowers.

Best also to have a starting composition worked out in your mind.

You can use just about anything one can imagine as their subject matter – rocks, body parts, animals, moving subjects or ink on glass. Food, flowers, pets, equipment needed for various hobbies, etc.

Options

Using live critters in photograms work for effects that break into new photographic territory. When living insects move during scanning, they create colorful digital tracks.

If you keep your live insects in the fridge for a few minutes before scanning it slows them down. A small brush works well for gentle wrangling.

DO NOT put ice directly onto a scanner or you will be cleaning condensation from the interior of the glass. The potential for icy textures is appealing. While the ice is melting its texture is constantly changing. Almost always the ice is lit from below for a more transparent look. Composition is tricky when scanning ice. The flowers can move somewhat as they freeze, and you have to hurry because it's melting.

Lighting

The light coming from the scanner bar has a unique quality to it. It's different than lighting something with a single burst of flash or natural light coming from the sun on a clear sky day.

It's more akin to that softer light you experience on an overcast day from many different angles. Your subject matter is being lit by a moving bar of light and the light seems to wrap itself around objects as it passes by.

The farther these objects are from the scanner glass, the darker they will be. White objects placed right on the glass can turn out too light and lack details, things farthest away from the glass will be quite dark. It's possible to recover some of the blown out highlight detail after scanning but best to capture maximum highlight detail in the original scan.

Scanned objects also may look too flat, lacking in contrast. To enhance depth, dimension, texture and color, you can balance additional lights with the wraparound soft scanner lighting. Try using various light sources sometimes directly but often diffused/filtered through color gels.

Any continuous light source will work, even flashlights. Tungsten will tend to give a warmer reddish cast, LED cooler color.

Conclusion:

Perhaps there is an imaging tool on your desk masquerading as a document scanner that calls to your imagination?

Don't forget it is the artist who makes the picture, not the printer! Be the fine photographer!