

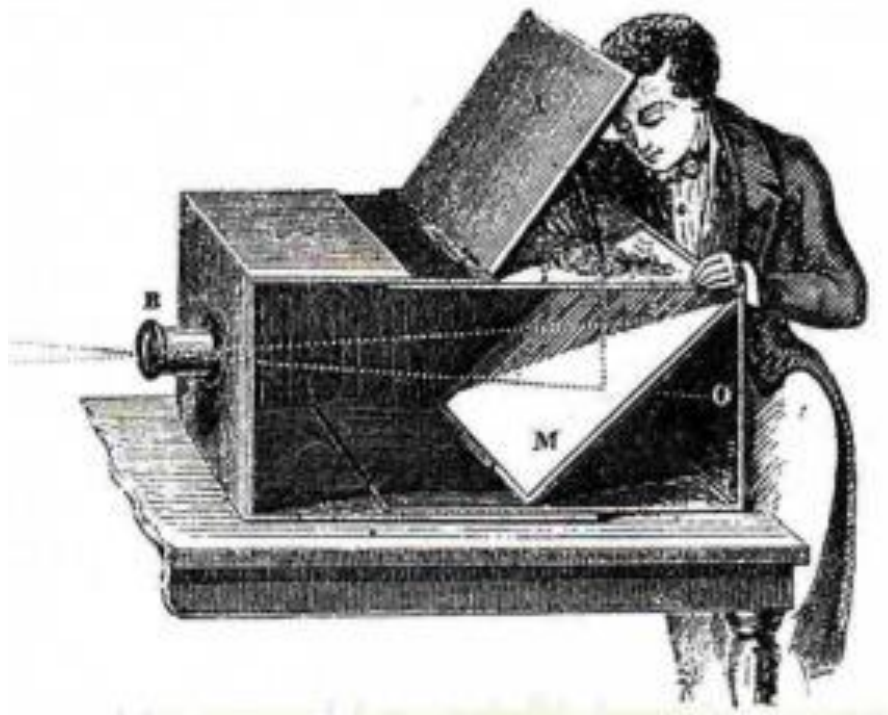
# History of Photography

## LESSON 1 - The History of Photography (Part A)

When one begins to study any of the traditional "arts" disciplines such as visual art, music, drama/acting or filmmaking, the starting point is usually the history of the particular craft. Understanding the roots and pioneers of photography gives us better insight into various aspects of the overall culture and progress of image making. So, where did it all begin? Would you believe that cameras were invented many hundreds of years before photographic film or recording media was brought onto the scene? Why, then would someone build a camera if there was no such thing as photographic film and, similarly, no way of using it to produce a photographic image? Read on and find out.

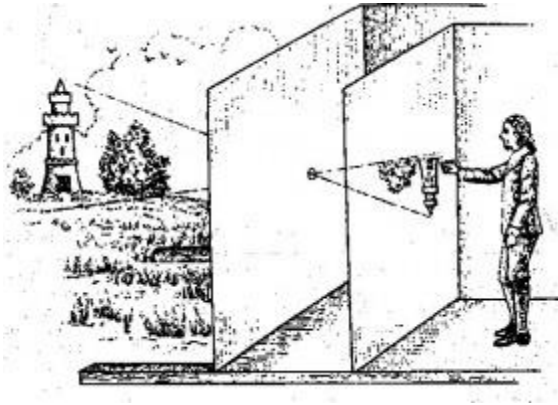
### Camera Obscura

The world's first camera was not invented with photography in mind! In latin, the two words camera and obscura words mean "room" and "dark". The *camera obscura* was an idea that Chinese philosopher Mo-Ti documented during the 5th century BC. Aristotle wrote about it over 300 years BC and it eventually came to be used with artistic purpose as early as the 1200's.



Some history books credit the artist Leonardo DaVinci with its invention in the 1500's. Whoever actually made the first one is less important than the actual use. The camera obscura, in its simplest form, was a light-tight box or small room built for the purpose of allowing light in through a tiny pinhole. This early version of a camera projected an

image through a pinhole (or later on, through a lens) onto the back inside wall.



Why did artists such as DaVinci want to project an image inside a box or room? The image could be traced by hand onto paper or canvas to give accurate perspective in drawings of natural scenes, landscapes or other features. For many artists of the day, use of a camera obscura was a fairly well-guarded secret. But, while it seems like a bit of a cheat, similar to painting over a photograph, it was simply one of many artistic tools.

In relation to photography's history, the camera obscura paved the way for images to be focused onto materials such as paper, metal or glass that were coated with light-sensitive materials. In a sense, it was much like the invention of horse carts before the existence of internal combustion engines. When the engine came along, the idea of a vehicle body, two axles and four wheels was already in place.

## Johann Heinrich Schulze (1687-1744)



This Chemistry and Anatomy professor at the University of Altdorf in Germany noticed that a normally white powdery chemical in a bottle on a shelf of his lab had turned black, but only on the side that faced a sunny window. The chemical was silver nitrate ( $\text{AgNO}_3$ ).

Schulze initially presumed that heat was responsible for the physical change, but after conducting experiments by heating the chemical he found that this had no effect. Remember that electric lighting did not yet exist, so the interiors of most buildings were far darker than today. As a result, Schulze's bottle of silver nitrate would not have been exposed to strong light, except on the side that was facing a window. Light was the answer.

In 1727, Schulze isolated **light** as the catalyst. Thus, he had confirmed the existence of a chemical that was sensitive to light ("photo-sensitivity"). This was a monumental discovery because the central aspect of all photography is light; therefore the identification of a photo-sensitive substance makes the recording of light images possible.

## Thomas Wedgwood (1771-1805)



Wedgwood was a chemist and a physicist. He was also the son of the pottery icon who founded the world-famous Wedgwood pottery and china company. After reading Johann Schulze's documentation of experiments from almost 70 years prior, Wedgwood began looking into the feasibility of using silver nitrate to create images.

Wedgwood made a solution of silver nitrate and, under very dim light, painted it onto various media, such as paper, wood, fabric, etc. He created reverse silhouettes by placing various objects, such as a watch or scissors on the sensitized surface, then exposing it to sunlight. Through his own experimentation and consultation with others, Wedgwood found a way to 'develop' the image using chemicals that would turn the exposed part of the media black, while leaving white the unexposed shape of the object. He called the resulting creations "photogenic drawings".

He also experimented by putting the coated paper inside back of a basic camera obscura, but the images were very faint. The main stumbling block of his early photographic discovery was that he had no way of removing the remaining unexposed silver nitrate from the coated media. In order to see the image one would have to look at it under light. That light would expose the white part of his reverse silhouettes or of his early photos, which, then, would eventually turn black as well. Thus, although

Wedgwood may well have produced the world's first photograph, he is not credited with such because all of his images eventually turned black.

***Hmmm. "They have good chemistry."***

As research into photographic light-sensitivity progressed, it was found that various other compounds of silver were also photosensitive; some to much greater degrees. The precipitate produced by dissolving elemental (metallic) silver in nitric acid produces silver nitrate ( $\text{AgNO}_3$ ). Silver nitrate can undergo further reactions to produce halides which are even more photo-sensitive. These halides are produced through reactions with bromine (silver bromide -  $\text{AgBr}$ ), iodine salts (silver iodide -  $\text{AgI}$ ) or in the presence of chloride ions (silver chloride -  $\text{AgCl}$ ). Most of these silver compounds are not readily soluble in water, so a particularly challenging task for these early pioneers was to figure out ways of "sticking" the silver compound onto surfaces such as paper, glass, metal or early forms of 'organic plastic' known as celluloid.

## **Joseph Niepce(1755-1833)**



The world's first permanent photograph was created in 1826 and Joseph Niepce was the man behind the camera. This French chemist discovered what he called "heliography" (literal translation from greek: "drawing with the sun") using an unlikely substance; asphalt! Called Bitumen of Judea, this dark tarry substance had a special feature that Niepce thought he could use photographically. Pure Bitumen of Judea - asphalt - hardens when exposed to light.

Here's what he did. He coated a highly polished plate of pewter with a layer of pure asphalt and placed it inside the back of a camera which was mounted on a tripod. (He also mixed-in some silver nitrate but it's unlikely that it played any role in producing an image.) Next, Niepce pointed the camera out of his apartment window. The view showed the sloping roofs of his building with a tree and pasture in the background.

Niepce left the lens open for the entire day and he did not move the camera. Niepce "developed" the image using an equally unusual process. Because pure asphalt hardens when exposed to the sun, the plate would have a latent image when removed from the camera. The "bright" areas of the outside scene would be hard, while the dark parts of the scene would remain soft.

He then wiped the plate with a rag that was coated in Oil of Lavender; a popular solvent of the day. The oil dissolved the soft, unexposed bitumen, revealing the metallic pewter underneath. He then bathed the plate in strong acid, which pitted and darkened the exposed pewter. After drying, Niepce then chipped off the remaining hard asphalt. It revealed a permanent image of the original view out his window. Parts that were bright in the original scene remained bright and shiny, but whatever was dark in the original scene was dark from the acid.

It is said that Niepce also experimented with "prints" by pressing paper on the plate immediately after wiping with oil, which also produced an image on paper much like that of a lithograph. In doing this, the still soft, unexposed dark asphalt transferred conveniently onto paper when pressed on the plate.

Niepce went on to join in a partnership with Louis Daguerre, but died before he could profit from his further research into photography.



World's First Photograph

## **LESSON 1 - The History of Photography (Part B)**

Welcome to Part 2 of this lesson on photography's historical origins! History may not have been your favourite subject back when you were in school, but when you consider the various historical stages of invention and progress resulting in what

we now use and understand as "photography", you may wonder about a few things.

First of all, why would Niepce have ever even had the inkling to use something as unlikely as "asphalt" to create his (and the world's) first ever photograph? Secondly, did these men have any concept of just how BIG photography would eventually get?█

One thing for sure is that even though the technology did not yet exist, people as far back as you can imagine in human civilization, had desire to record the visible. Through countless years, perhaps millenia, people who lived before the men portrayed on these pages, wanted to be able to somehow record a more realistic representation of what is seen than could be drawn or painted. Imagine having to sketch or paint a portrait of your spouse or child in order to help remember how they look at any particular point in time! For those with financial resources, the task was less daunting, as they could and did hire artists for this very purpose. Yet the average individual living anywhere on the globe had no way of recording the likeness of their loved ones, homes or possessions, other than putting pencil or brush to paper. How sad to see ones' family members grow old and lose the memory of how they looked in years past!

Yes, the will to create a visual record was very strong. But just how would the next set of photographic pioneers make it happen? Read on!



## Louis Daguerre (1787-1851)



Louis Daguerre was the first pioneer of photography to produce photographs that were commercially viable, in-turn, creating the new occupation of "photographer" around the world. He was an apprentice architect and stage designer in Paris when he began his photographic experimentation.

Daguerre joined forces to partner with Niepce in 1829, but Daguerre continued to work privately on his own photographic discovery, so that when Niepce died of a stroke in 1833, there was no solid foundation for him to give anything to Niepce's heirs. In 1839, Daguerre presented his new method to the world; the Daguerreotype.

He, like Niepce, used a metal plate, but instead of using pewter, used a silver-plated piece of copper. He knew that if pure iodine crystals are heated, they sublime and give off a gas that reacts quickly with various metals. When the iodine gas comes in contact with the silver plate, it reacts and turns into silver iodide, which is more photosensitive than silver nitrate.

The process would require Daguerre (or any new photographer anywhere in the world using this system) to suspend the silver plate over a small ceramic cup filled with iodine crystals. The cup was suspended over a candle flame. The entire set-up was contained within a pail and would be done in darkness.

After the iodine and silver reacted to form a coating of silver iodide, the plate was placed into a light-proof bag and transferred into the back of a camera.

The photo exposure time ranged from 8 to 20 minutes, which meant that portrait



subjects would need to keep extremely still for a long, long time! People learned to avoid smiling, in order to reduce movement, thus preserving focus.

The photographer would remove the plate from the camera in total darkness, then suspend it again over the cup. This time, the cup being heated contained pure mercury vapour which would develop a visible image. The image would need to be 'fixed' so that the entire picture didn't turn black with time (that was Thomas Wedgwood's nemesis). Daguerre used regular table salt and water to remove any remaining unexposed silver iodide, so that the photo would be preserved permanently. While the Daguerreotype caught on immediately around the world, Daguerre himself did not make much money off his invention, as he sold his patent for a small sum to a French government official, who in turn, gave it away to the world. The job title "Photographer" was born and for the first time ever, people were able to have their photographic portrait taken for less than it would have cost to have a portrait sketched or painted.

*With Daguerre's photo process, long exposure times required portrait subjects to keep still in every way. Smiling was highly discouraged, because it is very difficult to keep smiling lips steady for long periods of time. As photography caught on around the world, people learned that avoiding a smile was the norm when having a portrait taken. However, by 1880, newer processes provided for fast exposure times which made the smile-less photo unnecessary. Nevertheless, successive generations of people forgot why they sported a frown and kept doing so through the 1950's. What was thought for many years to be a socially acceptable custom was nothing more than an antiquated utility!*

The Daguerreotype had several disadvantages that led to its eventual replacement:

1. Very dangerous, toxic chemical fumes had to be used (iodine and mercury).
2. Heavy, metallic picture,
3. Could not hang picture on wall, because it looked like a negative from certain directions
4. Could not make duplicates, as there was no 'negative'
5. Required a very long posing time,
6. Required a horse cart to be brought to the outdoor shooting location, as the process required a portable lab and darkroom

### **William Henry Fox Talbot (1800-1877)**

Talbot was an intellectual; a mathematician, philosopher, classicist, Egyptologist, transcriber and translator. In 1840, Talbot wanted to get away from the idea of metal pictures and all of the fuss, disadvantages and dangerous chemicals associated with them. Instead, his idea was to coat a piece of paper with a light-sensitive silver compound and put it into a camera with the sensitized side facing the lens. Of course, the silver compound would have to be kept in darkness until used and, even then, would be applied to his photo paper in a very dim room. His sensitized paper would need to be kept in a light-tight environment. This is very much like today's true photographic print paper in that it, too, must be manufactured and stored in light-tight environments.

Talbot's process was very much like what Thomas Wedgwood did some forty years

prior. The difference was that Talbot gleaned from Daguerre and others, the new knowledge of the day. Talbot now knew how to remove the remaining unexposed silver compound from his prints after the image was developed. That, of course, was the stumbling block that Wedgwood found to be an insurmountable nemesis.

Talbot used paper not as an end product (a photograph), but rather, as a negative. In this way, he was able to use the paper negative to produce multiple copies of positive prints; something that Daguerre could not do. Talbot would treat another piece of paper with the silver compound and then place the first developed paper "negative" on top of the newly sensitized paper. He would sandwich the two papers in glass and then expose the frame to light.

Light would travel through the paper negative, giving greater exposure to the light parts and less exposure to the dark parts. Since the light parts of the negative represented dark parts of the original scene, these areas of the image would again turn dark on the finished print. Conversely, the dark parts of the negative represented bright parts of the original scene; because light could not travel as readily through these dark parts of the paper negative, the resulting areas of the finished print would appear bright once again.

Talbot also used a fixing solution after development, removing any remaining silver salt, so that the rest of the photograph would be permanent and not turn black. He coined a term for his product, calling it a "calotype".





This is a Calotype depicting a Calotype camera in use. Taken in 1845.



This is a Calotype from 1846. Note how the 'detail' is quite soft and looks rather like a sketch or painting. This was a hallmark of the Calotype, in that this soft focus appearance resulted from the somewhat transparent paper negative.

### **Claude Felix Abel Niepce de Saint Victor (1805-1870)**

Have you ever been the victim of a Halloween egg prank? If so, you know that once the egg dries, it is very difficult to remove from glass. It's likely that our ancestors in the mid-1800 knew about this as well.

A cousin of Joseph Niepce, Claude decided in 1847 to coat glass with a mixture of silver nitrate and egg whites. What a fantastic idea this turned out to be, because it very effectively jumped the hurdle that Talbot couldn't. Remember that Talbot was printing through the relative opacity and blurriness of a paper negative. With St. Victor's discovery/invention, the stage was set for full, crystal clarity; something that the world in coming years would demand.

He was able to produce very clear images both on his glass negative and the paper prints. (Light can be projected through the glass, the projected image falling onto a piece of paper that is also coated with a light-sensitive silver salt; this would produce a positive print image.) The dried glass negatives were permanent, which meant

that reprints could be made well into the future.

In order to make the gelatin-silver mixture stick to the glass better, Claude mixed in honey and syrup. While it certainly improved the stickiness, to his amazement, it also increased the photo-sensitivity! However, this required a "wet" process in order to maintain the higher light sensitive properties. In order for his "wet plates" to be sold worldwide to photographers, they would need to be kept in a gel-like state in transit. Claude did not jump on this opportunity, but a shrewd young American businessman certainly did... (read on!)

## **George Eastman (1854-1932)**

**AKA, the Kodak Man.** George grew up in the State of New York, raised by his single mother. Unlike all of the other pioneers of photo history that preceded him, George was not born into privilege and upper society. Perhaps this gave him the necessary 'fire in the belly' to make more money and success out of his photo business pursuits than his predecessors. He borrowed money from a boarder who was a travelling businessman staying at his mother's home. George used this money to start the photographic wet plate manufacturing company. His business was so profitable and so well patronized by photographers, that George was able to buy-out his former partner, the travelling businessman

In 1880, George developed and patented the "dry plate", which used a glass negative like his predecessor, but he mixed silver salts with gelatin instead of egg white, which meant that the plates could be dried. In doing so, the plates became MUCH more sensitive to light. Exposure time went from minutes to a fraction of a second. The plates were sold around the world to photographers, making Eastman a very rich man very quickly. He called his 'little' photo outfit the Eastman Kodak company (yes, the same one).

Then, in 1882, Eastman patented a process that would turn ordinary people into photographers, which meant massive profit. (Kind of like the Bill Gates of the late 1800's and early 1900's.) He coated paper with the gelatin and silver compound mixture. Paper was flexible and could roll. After development, the clear, dry gelatine negative would be stripped from the paper so that prints could be made.

**Imagine this scenario...**In 1888; Eastman sells the Kodak camera for \$25 (\$591 present value). It comes loaded with enough paper-backed film to take 100 pictures. The customer sends the camera back to the Eastman-Kodak company and receives the 100 photos in the mail, along with the camera. In order to retain business and a revenue stream, the customer pays an additional fee to have his or her camera returned re-loaded with another 100 exposures of film. Sounds familiar, doesn't it? (*THINK - DISPOSABLE CAMERAS OF TODAY*)

Eastman was a very shrewd businessman and became unimaginably successful, in terms of building a strong company with what one would modestly say, "robust revenue".

One year later, in 1889, Eastman patented a transparent roll film using celluloid

(similar to an early form of organic vegetation-based plastic). This replaced all paper film in the Kodak cameras and meant that people could get 100 pictures AND 100 negatives back, so that Eastman could make even more money on re-prints from the negatives.

Many decades after Eastman died, celluloid was found to deteriorate and its use in the motion picture and photo was replaced with polyester.

### **THE LEGAL BATTLE:**

*Hannibal Goodwin, a protestant preacher, also experimented with transparent roll film and some say he did so before Eastman. Goodwin did not have enough money to patent it properly or quickly enough and Eastman beat him to the punch. Goodwin eventually died penniless, while Eastman was enormously wealthy. Goodwin's heirs sued Eastman successfully in 1904 and won a court award of \$5 million (over \$118 million in today's dollars), which Eastman paid without appealing. His photography business must have been very successful indeed.*

### **History of Photography Timeline**

- **Ancient times:** Camera obscuras used to form images on walls in darkened rooms; image formation via a pinhole
- **16th century:** Brightness and clarity of camera obscuras improved by enlarging the hole inserting a telescope lens
- **17th century:** Camera obscuras in frequent use by artists and made portable in the form of sedan chairs
- **1727:** Professor J. Schulze mixes chalk, nitric acid, and silver in a flask; notices darkening on side of flask exposed to sunlight. Accidental creation of the first photo-sensitive compound.
- **1800:** Thomas Wedgwood makes "sun pictures" by placing opaque objects on leather treated with silver nitrate; resulting images deteriorated rapidly, however, if displayed under light stronger than from candles.
- **1816:** Nicéphore Niépce combines the camera obscura with photosensitive paper
- **1826:** Niépce creates a permanent image
- **1834:** Henry Fox Talbot creates permanent (negative) images using paper soaked in silver chloride and fixed with a salt solution. Talbot created positive images by contact printing onto another sheet of paper.
- **1837:** Louis Daguerre creates images on silver-plated copper, coated with silver iodide and "developed" with warmed mercury; Daguerre is awarded a state pension by the French government in exchange for publication of methods and the rights by other French citizens to use the Daguerreotype process.
- **1841:** Talbot patents his process under the name "calotype".
- **1851:** Frederick Scott Archer, a sculptor in London, improves photographic resolution by spreading a mixture of collodion (nitrated cotton dissolved in ether and alcohol) and chemicals on sheets of glass. Wet plate collodion photography was much cheaper than daguerreotypes, the negative/positive

process permitted unlimited reproductions, and the process was published but not patented.

- **1853:** Nadar (Felix Toumarchon) opens his portrait studio in Paris
- **1854:** Adolphe Disderi develops *carte-de-visite* photography in Paris, leading to worldwide boom in portrait studios for the next decade
- **1855:** Beginning of stereoscopic era
- **1855-57:** Direct positive images on glass (ambrotypes) and metal (tintypes or ferrotypes) popular in the US.
- **1861:** Scottish physicist James Clerk-Maxwell demonstrates a color photography system involving three black and white photographs, each taken through a red, green, or blue filter. The photos were turned into lantern slides and projected in registration with the same color filters. This is the "color separation" method.
- **1861-65:** [Mathew Brady](#) and staff (mostly staff) covers the American Civil War, exposing 7000 negatives
- **1868:** Ducas de Hauron publishes a book proposing a variety of methods for color photography.
- **1870:** Center of period in which the US Congress sent photographers out to the West. The most famous images were taken by William Jackson and Tim O'Sullivan.
- **1871:** Richard Leach Maddox, an English doctor, proposes the use of an emulsion of gelatin and silver bromide on a glass plate, the "dry plate" process.
- **1877:** [Eadweard Muybridge](#), born in England as Edward Muggridge, settles "do a horse's four hooves ever leave the ground at once" bet among rich San Franciscans by time-sequenced photography of Leland Stanford's horse.
- **1878:** Dry plates being manufactured commercially.
- **1880:** George Eastman, age 24, sets up Eastman Dry Plate Company in Rochester, New York. First half-tone photograph appears in a daily newspaper, the *New York Graphic*.
- **1888:** First Kodak camera, containing a 20-foot roll of paper, enough for 100 2.5-inch diameter circular pictures.
- **1889:** Improved Kodak camera with roll of film instead of paper
- **1890:** [Jacob Riis](#) publishes *How the Other Half Lives*, images of tenement life in New York City
- **1900:** Kodak Brownie box roll-film camera introduced.
- **1902:** [Alfred Stieglitz](#) organizes "Photo Secessionist" show in New York City
- **1906:** Availability of panchromatic black and white film and therefore high quality color separation color photography. J.P. Morgan finances Edward Curtis to document the traditional culture of the North American Indian.
- **1907:** First commercial color film, the Autochrome plates, manufactured by Lumiere brothers in France
- **1909:** Lewis Hine hired by US National Child Labor Committee to photograph children working mills.
- **1914:** Oscar Barnack, employed by German microscope manufacturer Leitz, develops camera using the modern 24x36mm frame and sprocketed 35mm movie film.
- **1917:** Nippon Kogaku K.K., which will eventually become Nikon, established in Tokyo.



- **1921:** [Man Ray](#) begins making photograms ("rayographs") by placing objects on photographic paper and exposing the shadow cast by a distant light bulb; Eugène Atget, aged 64, assigned to photograph the brothels of Paris
- **1924:** Leitz markets a derivative of Barnack's camera commercially as the "Leica", the first high quality 35mm camera.
- **1925:** [André Kertész](#) moves from his native Hungary to Paris, where he begins an 11-year project photographing street life
- **1928:** Albert Renger-Patzsch publishes *The World is Beautiful*, close-ups emphasizing the form of natural and man-made objects; Rollei introduces the Rolleiflex twin-lens reflex producing a 6x6 cm image on rollfilm.; Karl Blossfeldt publishes *Art Forms in Nature*
- **1931:** Development of strobe photography by Harold ("Doc") Edgerton at MIT
- **1932:** Inception of Technicolor for movies, where three black and white negatives were made in the same camera under different filters; Ansel Adams, Imogen Cunningham, Willard Van Dyke, Edward Weston, et al, form Group f/64 dedicated to "straight photographic thought and production".; Henri Cartier-Bresson buys a Leica and begins a 60-year career photographing people; On March 14, George Eastman, aged 77, writes suicide note--"My work is done. Why wait?"--and shoots himself.
- **1933:** [Brassaï](#) publishes *Paris de nuit*
- **1934:** Fuji Photo Film founded. By 1938, Fuji is making cameras and lenses in addition to film.
- **1935:** Farm Security Administration hires Roy Stryker to run a historical section. Stryker would hire Walker Evans, Dorothea Lange, Arthur Rothstein, et al. to photograph rural hardships over the next six years. [Roman Vishniac](#) begins his project of the soon-to-be-killed-by-their-neighbors Jews of Central and Eastern Europe.
- **1936:** Development of Kodachrome, the first color multi-layered color film; development of Exakta, pioneering 35mm single-lens reflex (SLR) camera
- **World War II:**
  - Development of multi-layer color negative films
  - Margaret Bourke-White, Robert Capa, Carl Mydans, and W. Eugene Smith cover the war for LIFE magazine
- **1947:** [Henri Cartier-Bresson](#), Robert Capa, and David Seymour start the photographer-owned Magnum picture agency
- **1948:** Hasselblad in Sweden offers its first medium-format SLR for commercial sale; Pentax in Japan introduces the automatic diaphragm; Polaroid sells instant black and white film
- **1949:** East German Zeiss develops the Contax S, first SLR with an unreversed image in a pentaprism viewfinder
- **1955:** Edward Steichen curates Family of Man exhibit at New York's Museum of Modern Art
- **1959:** Nikon F introduced.
- **1960:** [Garry Winogrand](#) begins photographing women on the streets of New York City.
- **1963:** First color instant film developed by Polaroid; Instamatic released by Kodak; first purpose-built underwater introduced, the Nikonos
- **1970:** [William Wegman](#) begins photographing his Weimaraner, Man Ray.



- **1972:** 110-format cameras introduced by Kodak with a 13x17mm frame
- **1973:** C-41 color negative process introduced, replacing C-22
- **1975:** [Nicholas Nixon](#) takes his first annual photograph of his wife and her sisters: "[The Brown Sisters](#)"; Steve Sasson at Kodak builds the first working CCD-based digital still camera
- **1976:** First solo show of color photographs at the Museum of Modern Art, [William Eggleston's Guide](#)
- **1977:** Cindy Sherman begins work on *Untitled Film Stills*, completed in 1980; [Jan Groover](#) begins exploring kitchen utensils
- **1978:** [Hiroshi Sugimoto](#) begins work on seascapes.
- **1980:** Elsa Dorfman begins making portraits with the 20x24" Polaroid.
- **1982:** Sony demonstrates Mavica "still video" camera
- **1983:** Kodak introduces disk camera, using an 8x11mm frame (the same as in the Minox spy camera)
- **1985:** Minolta markets the world's first autofocus SLR system (called "Maxxum" in the US); *In the American West* by Richard Avedon
- **1988:** [Sally Mann](#) begins publishing nude photos of her children
- **1987:** The popular Canon EOS system introduced, with new all-electronic lens mount
- **1990:** Adobe Photoshop released.
- **1991:** Kodak DCS-100, first digital SLR, a modified Nikon F3
- **1992:** Kodak introduces PhotoCD
- **1993:** Founding of photo.net (this Web site), an early Internet online community; Sebastiao Salgado publishes *Workers*; [Mary Ellen Mark](#) publishes book documenting life in an Indian circus.
- **1995:** *Material World*, by Peter Menzel published.
- **1997:** Rob Silvers publishes *Photomosaics*
- **1999:** Nikon D1 SLR, 2.74 megapixel for \$6000, first ground-up DSLR design by a leading manufacturer.
- **2000:** Camera phone introduced in Japan by Sharp/J-Phone
- **2001:** Polaroid goes bankrupt
- **2003:** Four-Thirds standard for compact digital SLRs introduced with the Olympus E-1; Canon Digital Rebel introduced for less than \$1000
- **2004:** Kodak ceases production of film cameras
- **2005:** Canon EOS 5D, first consumer-priced full-frame digital SLR, with a 24x36mm CMOS sensor for \$3000