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: Niepce combines the camera obscura with photosensitive paper

1826: Niepce 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 Tournachon) 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: Camera obscuras in frequent use by artists and made portable in the form of sedan chairs

1855-57: 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: Duchas de Haarou 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.

1872: 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.

1876: 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

1899: George Eastman, age 44, named president of Eastman Kodak Company.

2006: Sony introduces the first digital camera. New: digital photography is possible with the new image sensors.
1890: Jacob Riis publishes *How the Other Half Lives*, images of tenament 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, manufactured by Lumiere brothers in France.


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; Eugéne 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 reproducing 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: *Brassai* publishes *Paris de nuit*.

1934: Fuji Photo Film founded. By 1938, Fuji is making cameras and lenses in addition to film.


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.


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 Nikonas.


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.


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.


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); *Oyaide* begins making portraits with the 20x24" Polaroid.
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.
1997: Rob Silvers publishes Photomosaics
1999: Nikon D1 SLR, 2.7 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 3D, first consumer-priced full-frame digital SLR, with a 2,4536mm CMOS sensor for $3000;

Portraits by Rineke Dijkstra

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Article revised January 2007.

Readers’ Comments

Jay J. Pulli, October 26, 2000; 07:31 A.M.
First auto exposure mode camera? Pentax maybe?

TT, October 27, 2000; 05:34 P.M.
Check out this URL for a more comprehensive study of the very beginnings up until 1920: A HISTORY OF PHOTOGRAPHY

Kristian Elof Sxrensen, October 28, 2000; 02:23 P.M.
An interesting if somewhat spotty listing.
There’s a timeline called Pentax History that lists the introduction years for important Pentax products. Quite a few of the listings predates what’s in philg’s listing or seems to be missing from his list.
• 1954 - Asahiflex II, world’s first SLR with an instant return mirror
• 1957 - Asahi Pentax, world’s SLR with a penta prism thus allowing eye-level viewing with correct perspective
• 1960 - world’s first automatic diaphragm
• 1964 - TTL metering, the Spotmatic is the world’s first SLR with ttl metering
• 1971 - SMC coating for lenses, the world’s first effective lens coating system.
• 1980 - ME-F, the world’s first 35 mm SLR Auto Focus camera
• 1986 - world’s first 35 mm compact with a built in zoom lens
• 1997 - 645N, the world’s first autofocus medium format SLR
I’m sure that if someone took the time to properly research this subject, many more corrections and missing pieces of historical evidence could be brought forward.

ranjeet utikar, March 01, 2001; 07:56 A.M.
1993: photo.net started .... also check out Masters of photography for short intro to great photographers and A History of Photography -from its beginnings till the 1920s.
Brad Walker, August 23, 2002; 06:43 P.M.

Since Disc is included, should we also add the current (debatable?) flop APS. I believe it was introduced in May 1996 (could have been June). Perhaps one of the biggest marketing and inter-company attempts at industry revitalization in the past 20 years?

Agfa-Gaevert?

1st modern One-hour photo?

Tegan Halliday, September 01, 2002; 01:22 A.M.

This timeline seems to be missing basic facts. for example it’s “Joseph” Nicéphore Niépce and there is no mention of him teaming up with Louis Daguerre or that his son sold the families rights to the process which is how it got to be called Daguerreotype. perhaps this timeline should be replaced with one that actually shows the correct history of photography.

Jason Hudson, October 23, 2002; 02:51 P.M.

Maybe someone should predict the future of photography! Like when will film no longer be sold in stores? When will the Nikon D600 be released? Thoughts about how PhotoShop 17 will be any different than PhotoShop 7?

Chapin Young, March 05, 2003; 09:41 A.M.

In reading through the timeline of photography it seems that the initial intent was to document or record history/information. As photography progressed it seems that the purpose was maybe two-fold...first a purpose of compassion, documenting poverty and social injustice so that something might be done to help...second a purpose of anthropological voyuerism, documenting how others lived or died, war, famine, prostitution, homeless...Could this be accurate? Does this pose implications for modern photography?

Alberto Conde, September 22, 2003; 06:13 A.M.

I praise this attempt at summarizing the history of photography.

However, as a non-American fond and interested by the history of your country, I am saddened by the fact that, albeit your mentioning of a couple of photographic exploits related to your country (Lewis Hine and Walker Evans) you fail to even mention one of the most enourmous personal tasks, IMHO, in the entire history of American photography

I refer to the lifelong dedication of Edward S. Curtis (1868-1952) who gave his entire life and fortune to record on photographic film the memories of the last native nations of North America from the Apache, down in the South, to the Nunivak in Alaska.

I do feel sorry when so many modern photographers forget about such a great photographer and anthropologist. His task took him over 30 years -from 1895 to 1928- with an estimated cost in excess of 500,000 - $ (of the time) which was, partially, financed by JP Morgan ‘ironically’.

The work was published under the title of "The North American Indian,.....in twenty volumes”. It was published by the University Press of Cambridge, MA and of the 500 numbered sets originally planned to be printed (it is unknown how many were actually printed) only 272 copies were sold at a price of 3,000 $ each.

His work occupied some five feet of shelf space. Curtis visited 80 tribes and exposed some 40,000 negatives and, even, filmed the Snake Dance. He, also, recorded with a primitive Edison wax cilinder, songs and music as well as writing down stories, legends, customs, etc. The hugest task related to the American Indians ever done

Edward Curtis died unknown to all but some learned few. When he died, the New York Times published a 76 words obituary which ended with this terse statement: “Mr. Curtis was also known as a photographer”

Since the times when it was believed that the best Indian was the dead one have long passed (or have them?) I would like a site like this rending hommage -or, at least, a mention-to this great American photographer.

Should you be interested in knowing more about this great American photographer you can visit any of the following links:

Edward S. Curtis Collection at library of Congress

Smithsonian Institutions Frontier photographer Edward S. Curtis

The Curtis Collection Homepage
You are missing some inventions that should be included. Each of these can be documented by contemporary publication and use. Pillsbury used the films in his lectures, which were seen by people all over the world and six times at the National Geographic Society in DC and all other major forums including universities such as MIT.

1897 - Circuit panorama Camera, Arthur C. Pillsbury, Stanford University, his senior project. He used this to record the Gold Rush in the Yukon and the San Francisco Earthquake and Fire among other famous shots.

1909 - First nature movie, made by Arthur C. Pillsbury and shown at the Studio of the Three Arrows in Yosemite

1912 - First lapse-time camera to show growth of plants. Designed and built by Arthur C. Pillsbury, first film shown at the Studio of the Three Arrows in Yosemite.

1922 - Patented, first mass production photo postcard machine, Arthur C. Pillsbury.

1927 - First Microscopic Motion Picture Camera, developed at Berkeley by Arthur C. Pillsbury using a lab loaned for the purpose.

1929 - First X-ray motion picture camera, Arthur C. Pillsbury

1930 - First Underwater Motion picture Camera, Arthur C. Pillsbury

You have missed the "First Digital Image" in 1957.

The NIST (National Institute of Standards and Technology) celebrated in May ‘07 (24. May 2007) the "Fiftieth Anniversary of First Digital Image".

The first digital image made on a computer in 1957 showed researcher Russell Kirsch’s baby son and the ghostlike black-and-white photo only measured 176 pixels on a side.

In the 1800’s and 1900’s posers had to stand very still for long periods of time when they had their picture taken. Does anyone know if children were braced some how so they couldn’t move? This picture was taken around 1908.
Karl Brody, February 09, 2009; 07:17 A.M.

How did sally mann get on this list? If you put her on the list you better add the other thousands of people who have done work at least as good as hers.

Marc Brenner, May 13, 2009; 06:04 A.M.

Timeline - 200 Years of Photographie www.v-like-vintage.net

Farooque Yousufzai, July 16, 2012; 02:36 A.M.

For long lasting happiness, please visit www.almazhar.com

Dave G, August 30, 2012; 01:34 P.M.

Pentax didn’t exist in 1948, nor did they invent the automatic diaphragm.

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