

The History of Photography and the Camera: From Pinhole to SmartPhones

Whether you're hanging out with friends on the beach or reading about the history of the 1930s, photography will likely make an appearance. The oldest known photograph dates back to 1826, but the structure that would become the first camera was described by Aristotle. The process of taking pictures has become increasingly refined during the 19th century, transitioning from heavy glass plates to light, gelatin-coated flexible film. Today, once-innovative film cameras take a back seat to the convenience and ease of digital cameras.

Pinhole Cameras and Photography

The pinhole camera (also known as a camera obscura) was first envisioned around the 5th century BCE. The camera obscura was a box with a small hole in it, through which light (and the image carried by it) would travel and reflect against a mirror. The camera obscura was originally used to observe solar events and to aid in drawing architecture, though it became something entirely new in 1800. A young man named Thomas Wedgwood attempted to capture the image portrayed in a camera obscura with silver nitrate, which is light-sensitive. Unfortunately, the images didn't hold, and it wasn't until the French inventor Joseph Niépce attempted the same feat with bitumen (a kind of tar) that the first photograph was produced.

- [Lensless Photography: The Art of the Pinhole](#)
- [Single Hole Pinhole Camera](#)
- [History and Geometry of the Pinhole Camera \(PDF\)](#)
- [A Prehistory of Photography](#)
- [Historic Photographic Processes](#)
- [History and Evolution of Photography \(PDF\)](#)
- [Make Your Own Pinhole Camera](#)

Louis Daguerre and Modern Photography

Niépce, keen to refine his newly-discovered process for taking pictures, partnered up with artist and designer Louis Daguerre. When Niépce died in 1833, Daguerre pressed onwards with the project, experimenting with a polished silver plate, coated in silver iodide, which developed an image courtesy of mercury fumes. While Niépce's camera had required multiple hours of light exposure for a single image, Daguerre's innovation cut the time down to mere minutes. He made his invention public in 1839. In 1841, a man named William Henry Fox Talbot further refined the process by substituting Daguerre's silver plate for paper.

- [Daguerre and the Invention of Photography](#)
- [The Daguerreian Process](#)
- [Daguerre: The Man](#)
- [Louis-Jacques-Mandé Daguerre](#)
- [Towards Modern Photography](#)

The Birth of the Negative: Wet Plate Negatives, Dry Plate Negatives

In 1848, sculptor Frederick Scott Archer became frustrated with the stark definition offered by photographs at the time. He set out to create a process that would allow him to capture the more subtle variations in shade, since all photographs were, at this point, restricted to black and white. For his wet plate process, he applied a gelatin mixture of iodide or chloride to a glass plate. The plate would be dipped into a solution of silver nitrate and used to take a photograph while the gelatin was still wet. The photograph had to be developed almost immediately afterward, but the negative that formed on the glass was capable of capturing immaculate levels of detail. The one downside to this process was the time required to prep the glass plate, usually on-site, which made it extremely impractical for news photographs and field reporting. A few years later, in 1864, W.B. Bolton and B.J. Sayce created a one-step emulsion fluid with silver iodide. This process, which became known as the dry plate process, wasn't faster than the wet plate process, but it did produce photographs of better overall consistency.

- [How Glass Plate Negatives Were Made](#)
- [Eastman Invents a Dry-Plate Process](#)

- [Glass Plate Negatives Collection](#)
- [The Wet Collodion Process](#)
- [Harvard Wet Plate Collection](#)
- [Glass Plate Negatives](#)

Flexible Film and Photographic Films

For the next 20 years, daguerreotype photography remained the most popular form of taking pictures. However, as young George Eastman discovered when he took a trip to Santo Domingo, taking pictures was an expensive and heavy process. He set to work, building off the chemical finesse of the dry plate process, and gradually developed a flexible gelatin-paper film. In 1885, he created and patented a device to hold a roll of his new film, and in 1888, he introduced his first Kodak camera to the market.

- [George Eastman: Inventor of Photographic Film](#)
- [The Development of Celluloid Rollfilm \(PDF\)](#)
- [Goodwin vs. Eastman: The Celluloid Film Patent Battle](#)
- [Hannibal Goodwin and Flexible Film](#)
- [Flexible Negatives](#)

Camera Advancements: Daguerreotype Cameras, Box Camera, Flashbulbs, 35mm Cameras and Polaroids

The box camera was reinvented with Kodak's Brownie camera, which was released in 1900. The Brownie camera cost a scant \$1 and was marketed towards children, although it became a hit among servicemen when World War I began. Color photography became possible with the Autochrome plate in 1907, although it didn't take off until the release of Kodachrome film in 1936. Flashes of light, produced by burning magnesium, had long been used by photographers to enhance the light of a scene, but in 1930, The General Electric Company began producing flashbulbs specifically for use with cameras. The 35mm camera was created in 1913 by Oskar Barnack, who used existing 35mm movie film to capture still images. The first 35mm camera released was known as the Leica I, and once it hit shelves in 1925, the new compact camera became the standard for spur-of-the-moment snapshots. In 1943, Edwin

Land introduced the Polaroid camera after being asked by his 3 year-old daughter why she couldn't instantly see the picture he'd taken of her.

- [Daguerreotype Photography](#)
- [Flash Photography](#)
- [35mm Cameras and Irving Penn](#)
- [Compact 35mm Cameras](#)
- [A Brief Timeline of Polaroid \(PDF\)](#)
- [Polaroid and Land](#)
- [The Art of the American Snapshot](#)
- [The Early Days of Kodak](#)

Digital Cameras

In 1975, the field of photography morphed yet again with the introduction of a digital camera. Developed by Steven Sasson, a research engineer at the Eastman Kodak company, this rudimentary prototype weighed eight pounds and was as large as a kitchen toaster. Pictures were stored on a cassette tape, and capturing a photo could take up to 23 seconds. The first filmless camera was created by Sony in 1981. Their creation, the Mavica, could store pictures on floppy disks which would then be viewed on a television monitor.

- [Steven J. Sasson: Inventor of the Digital Camera](#)
- [The Challenge of Consumer Digital Cameras](#)
- [Bryce Bayer: Digital Imaging Pioneer \(PDF\)](#)
- [The History of the Digital Camera](#)
- [Digital Camera Turns 30...Sort Of \(PDF\)](#)
- [The End of Film Photography?](#)

Smartphone Cameras and Technologies

Today, the latest incarnation of the camera may be no farther than your fingertips. In 2002, the Nokia Lumia 7650 was released to the public. It was released at the same time as the movie *Minority Report*, and demand for camera phones multiplied. In 2005, the Sony Ericsson K750i introduced a memory card slot and a LED flash bulb, paving the way for photo sharing. In 2013, the Internet company Twitter introduced a service called Vine, allowing users to use their camera phones to record and share 6 seconds of color- and audio-enabled video with their

online followers. Only time will tell how cameras develop from here, but if it's anything like the past two hundred years, we're in for a pretty wild ride.

- Smartphone Cameras Into Cosmic Ray Detectors
- Defending Cameras from the Smartphone Revolution
- New Chemical Iris for Tiny Phone Cameras
- Why the Smartphone Changed Photography
- 3D Printing and Bug-eye Cameras
- 5 Major Moments in Cell Phone History

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