Smile and Say, 'Cheese!'

The camera's development has been nothing short of remarkable

BY MARY ELLEN MILLER

Vintage Polaroid camera

Anyone with a cellphone can take instantaneous pictures today. But it wasn't always so. Although the idea of capturing and holding images goes back centuries, it wasn't until relatively recently that humans could actually pull it off.

The first casual reference to the optic laws that made the first pinhole cameras possible dates back to around 330 B.C., when Aristotle questioned why the sun could make a circular image through a square hole.

The Persian scientist Ibn al-Haytham wrote in his "Book of Optics" (1021) about the camera obscura, an optical device that serves as a sort of projector. The earliest of these, which became practical in the 17th century, were room-sized and used a pinhole to project an inverted image of a brightly lit scene onto a viewing surface. An artist could then trace the outlines of the image.

Niepce teamed up with Louis Jacques Mande Daguerre in 1829 to develop the process for creating permanent photographs. But by the time the process succeeded eight years later, Niepce had died, passing in relative obscurity.

In the end, those first pictures became known as daguerreotypes. To produce them, Daguerre first coated a copper plate with silver, then sensitized it to light by treating it with iodine vapor. Daguerre developed the image by using mercury vapor, then fixed it with a strong solution of salt.

The American inventor George Eastman helped transform photography from an expensive hobby to an immensely popular pastime. In 1884, he patented the first film in paper form and by 1888 offered his first camera, the "Kodak." The Eastman Kodak Co. was established in Rochester, N.Y., in 1892, and its flexible transparent film proved vital to the subsequent development of the motion picture industry. By 1900, Eastman introduced the Brownie, a simple box camera that gave birth to the snapshot.

The American inventor George Eastman helped transform photography from an expensive hobby to an immensely popular pastime.

Still, there was no way to preserve the images until the invention of photographic processes. And with a growing middle class in the 19th century, there was a demand for pictures, as evidenced by the popularity of silhouettes.

Around 1827, the French researcher Joseph Nicephore Niepce created the first photograph by copying a copper etching directly onto a bitumen glass plate. Although the image gradually faded, the concept of photography was born.

In the 20th century, technological advances to the camera continued at an accelerated pace: in 1913, the 35 mm camera was created; the flash bulb was introduced in 1927 by General Electric Co.; Kodak started marketing Kodachrome film in the 1930s; and in 1947, the concept of the Polaroid camera was introduced. With its self-developing film, "instant" photos became possible. By this point, cameras and family snapshots had become ubiquitous and a staple of every household.

In 1975, Eastman Kodak engineer Steven Sasson built the first digital camera as a side project. The invention, about the size of a toaster that held .01 megapixel and used 16 batteries, was patented and forgotten—more a technical exercise than anything else.

Expensive to operate and poor in image quality, the first digital cameras were used mainly by the news media. But by the 1990s, advances in technology made it possible for high-resolution, relatively low-cost digital cameras to hit the commercial market.

Consumers, smitten by the opportunity to see, save and transmit images with ease, turned their back on film and never looked back. Today, an estimated 80 percent of U.S. households own digital cameras. And worldwide, digital camera sales are expected to surpass 138 million cameras by 2015—giving camera makers good reason to smile wide.