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**Picture This**

This month's editorial was inspired by a Google doodle. Today (Nov. 18, 2011), Google is honoring Louis Daguerre on what would have been his 224th birthday (and my grandmother's 111th birthday) with a framed black-and-white family photograph. The father's and mother's heads are *G* and *g*, the children's are *o*, *o*, and *e*, and the *l* is an oil lamp on an end table.

Daguerre, a French physicist and artist, invented the first commercially successful form of photography, known as daguerreotype. In this process, a copper sheet is plated with silver and then polished to a high gloss. The coated plate is exposed to iodine vapor, converting the silver to light-sensitive silver iodide. After the plate is loaded into a camera, the lens cap is removed, exposing the plate and forming a latent image. The exposed plate is then suspended over a heated mercury bath, and the mercury vapor forms an amalgam with the exposed silver iodide. Unexposed silver iodide (which is not amalgamated with mercury) is washed off the plate with a salt solution. The remaining mercury/silver amalgam and original silver create a permanent image.

The daguerreotype process was expensive and had numerous disadvantages. The image was very delicate and could be damaged by even a slight touch. The photograph could be viewed only in good light and at the proper angle, and most daguerreotypes were mirror images of the original scene. Because there was no negative, copies or enlargements could not be made. And, exposure times were very long, making it almost impossible to obtain sharp images of people with early lenses and cameras.

For nearly two centuries, photographic processing relied on chemicals to treat an exposed substrate and create a permanent image, although the chemicals and substrates, and the cameras used to capture the images, evolved over the years.

George Eastman pioneered the use of film in the late 1880s. His Brownie camera, introduced in 1900, was extremely popular, and various models remained on the market into the 1960s. This was my first camera, which, coincidentally, I used when I was a Brownie (Girl Scout).

Polaroid instant cameras were popular in my family as I was growing up. My dad would snap a picture and pull the film set out of the camera, and we would wait in anticipation while the photo developed (usually arguing over who would get to open the picture). We held our breath as the positive and negative were peeled apart to reveal an image, which the person holding the picture waved gently and blew on to make it dry faster. Later Polaroid cameras used an integral film that contained all the components (negative, developer, fixer, etc.) in one packet; each picture emerged automatically from the camera and the image turned from a blank space to a color photo before our eyes.

The digital age has altered the very essence of a photograph — which should more accurately be referred to as an image, a series of ones and zeroes.

How does this relate to chemical engineering? Chemistry is at the heart of photography (as we knew it); chemical engineers designed the processes that made the film and the developing chemicals; and a new generation of chemical engineers will create innovative materials for the electronic devices that store and display digital images, as well as the processes to make those materials.

How does it relate to CEP? I hope you will look at the photographic images in this issue with a new appreciation. I'll bet Daguerre would be amazed if he could see how we handle them. I know my grandma would be.

Cynthia F. Mascone, Editor-in-Chief



► With my brothers, proudly showing off my Brownie camera.

