

## Questions 11–15

In the eleventh century, people noticed that if a small hole were put in one wall of a darkened room, then light coming through the aperture would make a picture of the scene outside on the opposite wall of the room. A room like this was called a camera obscura. Artists later used a box to create a camera obscura, with a lens in its opening to make the picture clearer. But it was not possible to preserve the image that was produced in the box.

In 1727, Johann Heinrich Schulze mixed chalk, silver, and nitric acid in a bottle. He found that when the mixture was subjected to light, it became darker. In 1826, Joseph Nicéphore Niépce put some paper dipped in a light-sensitive chemical into his camera obscura, which he left exposed in a window. The result was probably the first permanent photographic image. The image Niépce made was a negative, a picture in which all the white parts are black and all the black parts are white. Later, Louis Daguerre found a way to reverse the black and white parts to make positive prints. But when he looked at the pictures in the light, the chemicals continued to react and the pictures went dark. In 1837, he found a way to fix the image. These images are known as daguerreotypes.

Many developments of photographic equipment were made in the nineteenth century. Glass plates coated with light-sensitive chemicals were used to produce clear, sharp, positive prints on paper. In the 1870s, George Eastman proposed using rolls of paper film, coated with chemicals, to replace glass plates. Then, in 1888, Eastman began manufacturing the Kodak® camera, the first “modern” lightweight camera that people could carry and use.

During the twentieth century, many technological improvements were made. One of the most important was color film. Color film is made from layers of chemicals that are sensitive to red, green, and blue light, from which all other colors can be made. Despite the fact that the space age has witnessed the creation of an array of technological marvels, until recently even the ability to take photographs of distant galaxies from above the Earth’s atmosphere via orbiting satellites was grounded in the basic principles of photography that Niépce used when he took his first fuzzy negative pictures.

11. The first camera obscura can be described as nothing more than
- (A) a darkened room in which an image was projected onto a wall
  - (B) a preserved image of a darkened room projected in a box
  - (C) a box with a lens, which projected an image onto a wall in a dark room
  - (D) a hole in a wall into which a lens could be inserted to project an image
12. According to the passage, what problem did Daguerre encounter?
- (A) His pictures were all negative images.
  - (B) He could not find a way to make positive images.
  - (C) His positive images would darken.
  - (D) He could not reverse the fixed image.
13. According to the passage, George Eastman built a camera that
- (A) used chemically coated glass plates
  - (B) produced light-sensitive prints
  - (C) used chemicals to produce clear, sharp, and positive prints
  - (D) was portable