Special exhibition labels

Making Science Visible

Berenice Abbott’s Photography

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Berenice Abbott’s Photography

“A good photograph is, above all, a good document.” With these words, Berenice Abbott (1898–1991) summed up her philosophy on photography: a philosophy that extended beyond technique and into her choice of subject matter and that allowed her work to be enrolled in both the worlds of art and science.

Abbott’s artistic work is well known, but the scientific images she created later in her career also reflect her philosophy and, when viewed in relation to her fine art images, can help us see Abbott’s body of work afresh. Abbott’s science photographs, which depict both natural and scientific processes, move beyond simply showing scientific objects or imposing a scientific gaze on the natural world. In Abbott’s “Science Manifesto” she wrote: “Surely scientific truth and natural phenomena, in their infinite variety, are as good subjects for art as man and his emotions.”

Abbott worked with both artists and scientists. She trained in New York as a sculptor, and left for Europe in 1921. In Paris, she became Man Ray’s photographic assistant. There, she saw Eugène Atget’s photographs. Later she was credited with solidifying Atget’s legacy by reproducing his work from negatives. In 1929, Abbott returned to New York and began work on her social documentary Changing New York for the Works Progress Administration. By the early 1950s, Abbott, still interested in political and social issues, declared, “We live in a world made by science,” as she set about making photographs of what she identified as the power of her time.

In this exhibition are images Abbott prepared for scientific contexts; such works provide an opportunity to compare the scientific and aesthetic qualities of the photographs. Abbott’s images appeared in a variety of scientific textbooks and her style of photography continues to influence images in current scientific publications.

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Berenice Abbott
American, 1898–1991

George Washington Bridge, c. 1937
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1981.98.11

While Abbott’s most famous documentary project, Changing New York, was created under the auspices of the WPA’s Federal Art Project between 1935 and 1939, she first began taking “notes” in the form of photos of the city in 1929 and concluded her collection of images in 1956. Abbott admired Atget’s style of city photography in which sparsely populated images encourage the viewer to attend to high contrast architectural details. Abbott’s photographs of New York are not only important as a historical record of changes in the city, but also because of their influence on documentary photographers who followed her.

In this image of the George Washington Bridge, Abbott explored perspective. Like many of Abbott’s images of iconic New York sights, the photograph is an experiment in perspective with almost every detail in the image (e.g., power poles, multiple bridge arches, walls along the road and even the cars) serving to give reality to the concept of “vanishing point.”

In 1956, the Physical Science Study Committee (PSSC) began studying and revising the physics curricula across the United States. National Science Foundation funding made it possible to create a variety of new teaching materials including films, curriculum for various physics topics, and the textbook Physics, which was designed to encourage excitement and interest in the subject rather than emphasizing memorization. Abbott’s photograph of a bouncing ball appeared on the cover. As Abbott explained: “The science made its own design, but just patterns and just beautiful design wasn’t it at all. The principle had to come through first and foremost.”

Science Illustrated, July, 1946
Abbott’s photograph of the bubble pattern was created with the Supersight camera and illustrated the article “Suds in Action,” which explained the mechanism by which soap works.

Physics, Physical Science Study Committee, Boston: C.C. Heath and Company, 1960

Magnetism & Electricity I, Cambridge, Massachusetts
from the series Science, 1958–1961
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1981.98.21

Untitled, n.d.
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1985.47.12

Magnetism with Key, Cambridge, Massachusetts
from the series Science, 1958–1961
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1985.47.5
Abbott’s photographs illustrated Evan Valens’ explanatory science book *Magnet* [1964]. Her photographs demonstrate the use of magnets in a number of configurations. In *Magnetism & Electricity I*, she illustrated basic “diamagnetism” or magnetic repulsion. In *Magnetism with Key*, Abbott explored magnetic dipoles on the main magnet, with interference from the more complicated field structure of the key.

In 1941, Abbott wrote *A Guide to Better Photography* in which she critiqued Pictorialist photographers. According to Abbott, what was in front of the camera was of secondary importance for these photographers who selected subjects primarily to showcase and experiment with photographic processes. Abbott critiqued what she saw as a display of dark room techniques over subject matter. For her, “photography is for communicating the realities of life.” The highly staged images emphasize Abbott’s interest in what was in front of the camera, rather than processing techniques. In *Magnetism & Electricity I* the standard lighting (light coming from the upper left) is used to allow the viewer to disambiguate the magnet from its shadow and realize that the magnet is standing “on end,” which is crucial for the field lines to create the concentric circles visible in the filings. While in *Latch*, Abbott’s careful choice of camera position gives the impression of the latch-bar floating.

*Soap Bubbles, New York*
from the series *Science*, 1945–1946
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1985.47.4

*Untitled*, n.d.
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1985.47.11

For Abbott, photography was crucial to science, and she believed a specific branch of photography was needed to create the required images. Her science manifesto explains, “Photography fits in with the speed of our time.... It is a realistic medium appropriate to a realistic and scientific age.”

In this large format insect image, Abbott has removed all context through careful lighting that minimizes the visibility of any shadows cast by the subject. Yet the framing and orientation give the strong impression that the insect is large. The specimen is a giant water bug, genus *Lethocerus*.

*Untitled*, n.d.
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1985.47.10

*Untitled*, n.d.
Gelatin silver print
Gift of Mr. and Mrs. Harry Burn, 1985.47.8

“The idea was to interpret science sensibly, with good proportion, good balance, and good lighting, so we could understand it,” Abbott explained. Many photographers and other scientific image-makers are the heirs to the new ideas for science photography Abbott proposed.
Abbott specifically described this optics image in terms of the staging required to create the photograph: “Multiple beams of light from a source change direction when they go into a glass plate and when they emerge. Some waves are reflected inside the glass and then escape. The prism photograph was done very carefully. The prism was filled with water and not one drop of air was inside. The box that held the light source was specially designed and purposely looks as it does to make for a better composition.” This iconic image has been repeated in many forms and is an affirmation of her goal of conveying a specific scientific sensibility.

Abbott’s photographs were published widely in scientific contexts. The photograph of the Japanese Beetle (Popillia japonica) feeding on a leaf was published in American High School Biology (1948); the image of soap bubbles was created for Science Illustrated.

For the purposes of science textbooks, an image is highly specific to its context and needs to be constructed to fit both into current scientific culture and to demonstrate the specific features scientists are trying to convey. The problem for the photographer, then, is how to encourage the viewer to notice those aspects of the image that match scientific purposes. In this image of a single eye, Abbott exhibited her mastery of composition and lighting: the lighting from the lower left of the image, the person’s gaze to the upper right, and the spotlight used to create a visible highlight on the cornea combine to create a slightly uncanny image of a very familiar object.

Unlike the single parabolic mirrors incorporated in most reflecting telescopes, including those used by Sir Isaac Newton, this apparatus is “compound,” i.e., it has many separate mirrors that can be individually oriented to approximate, as a group, a single parabolic mirror. In Parabolic Mirror, Abbott adjusted the mirrors to project the multiple images of an eye to the single eye of the camera.