

SENSING SCIENCE: THE MICROSCOPIC ENVIRONMENT

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ABSTRACT

Hudson Valley Muddy Waters is an interactive augmented reality work engaging the public space of our environmental waters as subject, inviting viewers to enter the world of microscopic life. With imagery constructed with an artist's sensibility, it engages science while revealing the hidden but vital microscopic creatures comprising the most basic part of our food chain and our world.

ENGAGING PUBLIC SPACE

Public space is often thought of as commercial space, as the space where we mingle with other people when we need to buy food and clothes. The term evokes images of busy streets teeming with humanity. These spaces are the opposite of the space of our homes, where we are engaged in the interior life of small family groups or even solitary thinking. Today, as many people increasingly live in urban spaces with limited access to the space of nature, we increasingly think of public space as city parks, beaches, long stretches of open land and deep forests.

What are our thoughts as we move through public spaces? Are we in our own worlds or do we engage the history and meaning of the location or even focus on the community around us? Artworks have long served as the catalyst to move our thoughts into the realm of that shared emotional space where the sense of community overtakes the private space of whatever we might have on our minds.

Large monumental memorials traditionally dominated the public art realm. These were created to serve a specific purpose: to prompt the public to remember important people and events that were considered too important to be forgotten. They served as a bridge from present to past, but also as a trigger for deeper thoughts about the connection that each of us has to the world beyond the personal.

Although the subjects and media of public art have long been expanded to include a number of approaches, the overriding goal remains. In the best of these works, the art stimulates new ideas and ways of thinking about the world and our place in it. The goal is not decoration, it is the stimulation of conceptual exploration and this is the same goal that motivated the creation of *Hudson Valley Muddy Waters*.

PUBLIC SPACE OF OUR WATERS

The public space of our waters is a different kind of space. Water is a shared resource, one with which we cannot live without and a space to which many of us are naturally drawn. What we see at water's edge, however, is not the whole story. Much of the story of water is experienced in scientific laboratories, which are not public spaces. This is especially true when it comes to the vital microscopic life of the waters, the story of plankton.



Fig. 1. *Hudson Valley Muddy Waters*, 2014, Cynthia Beth Rubin, digital print, © C. B Rubin.

Hudson Valley Muddy Waters offers the viewers the opportunity to explore the normally invisible and therefore less accessible story of water that is part of the laboratory experience. By employing Augmented Reality to simulate the process of discovery, it engages the public in new ways that echoes the excitement of looking under a microscope.

The viewer begins with an artistic image that is composed to give the impression of discovering muddy waters in the forest. Then the viewer looks not through a microscope, but rather searches this wall-mounted print with a mobile device.

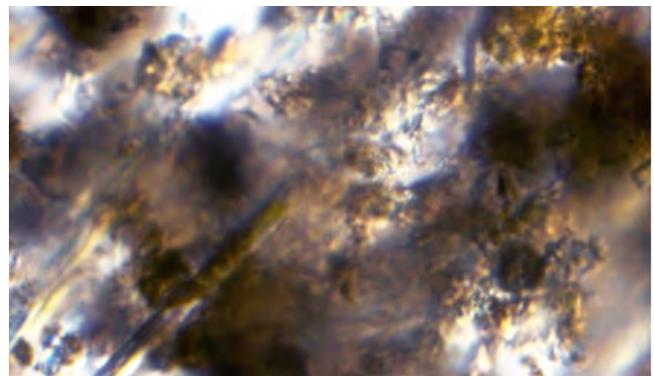


Fig. 2. Micro-capture of Plankton from the Hudson Valley, 2013, Cynthia Beth Rubin, photograph, © C. B Rubin.

The short videos triggered by specific locations on a wall print are at both the micro and macro level. The majority of the videos show plankton swimming in the water, in imagery that is digitally processed for clarity and appeal but still scientifically accurate in representation. The work also triggers macro videos of the environment, imagery of the trees and the running water that is again only digitally processed for clarity and appeal. In the way

the wall print is not just a physical trigger for other imagery, but a conceptual trigger as well. The impetus to explore imaginatively comes from an imaginative, creative artistic image.

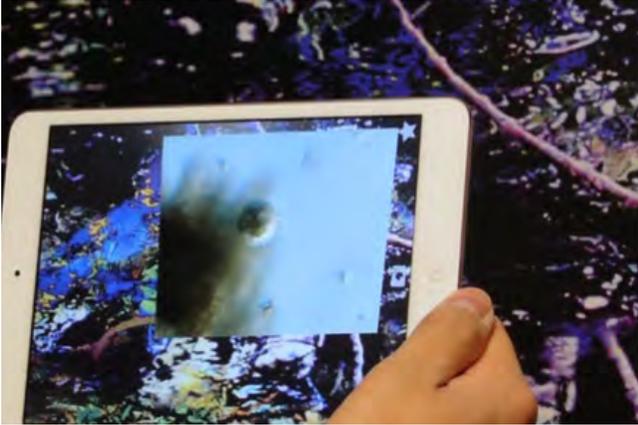


Fig. 3. Detail with Augmented Reality user Hudson Mud and Water, 2014, Cynthia Beth Rubin, Digital Image, © C. B Rubin.

SUMMARY: TRUE SCIENCE, STILL ART

Artists working with scientists face basic common questions: What kind of art will stimulate the public to think deeply about the water that is vital to our lives? Furthermore, how do we address the problem of staying faithful to scientific accuracy while infusing imagery with the sensibility of an artist?

The use of Augmented Reality provides an ideal vehicle for creating a conceptual conversation between creative imagery and what is considered scientifically accurate representation, that is representation as it comes through a camera lens and built-in camera software and frozen at a particular moment in time. We all know the arguments put forward by Roland Barthes of the frozen moment of photography and short videos do not do much more to expand that moment. [1] The added layer of the interpretative work of an artist in conjunction with “real” imagery may break the unreality of photographic representation.

Hudson Valley Muddy Waters reverses the usual relationship of reality and imagined space by using a visually enticing space as the point of departure. From here, the user embarks on the journey of discovery in a fashion echoing the experience of looking through a microscope to discover the life forms in water.

The source material for the artistic imagery, as well as the videos of microscopic life, are all derived from the same location in the Hudson Valley of New York State in the U.S.A. The project was begun during an artist residency made possible by Art Kibbutz. The microscopic imaging part of the project was undertaken at the Edna Lawrence Nature Lab at the Rhode Island School of Design, with equipment purchased with funding from Rhode Island EPSCOR (Experimental Program to Stimulate Competitive Research). Scientific advice for the project was generously

provided by members of the Menden-Deuer lab at the Graduate School of Oceanography at the University of Rhode Island.

The work is viewable, with AR triggers, at:
<http://cbrubin.net>

REFERENCES

1. Roland Barthes, *La Chambre Claire : Note sur la photographie* (Paris: Cahiers du cinéma Gallimard, 1980).

ENDNOTES:

The full final version of this installation was subsequently exhibited at: ACM Creativity and Cognition 2015, June 22 - 25, 2015, Glasgow, United Kingdom