

Nature of Neptune

Exploring connections between Science and Art

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Art in the Lab: The Artist in Residence

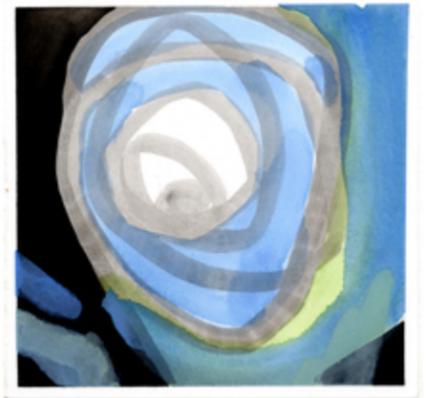


Many of the the posts on this blog have examined the work of artists who incorporate concepts or methods from science into their artwork. This, however, is only one way the incongruous worlds of Art and Science can combine. What happens when, rather than bringing science into the studio, we bring art into the lab? This scenario is happening in research institutions more and more, often in the form of the Artist in Residence, an artist brought into a lab to create artwork, or to offer a new viewpoint on the research being done.

Daniel Kohn, currently an Artist in Residence at the Broad Institute in Cambridge, Massachusetts, is one such artist who has been invited to work at a premier genetics research center. For a place to create artwork, Kohn was given part of a research lab to covert into his studio. I recently had a chance to sit down with Daniel to discuss his experience at Broad and the work he has created while there.

The mission of the Artist in Residence is two-pronged. First, the artist must absorb the research being done around him or her and translate or incorporate it into artwork. Secondly, the artist should try to influence or augment the actual research being done. Certainly the dialogue between artist and scientist should go both ways.

Kohn dove into the first objective head-long, unabashedly questioning the Broad scientists, and trying to learn and absorb what he could of the research being done around him. While allowing the scientific concepts to "wash over" him, he started a long series of water color paintings exploring "genomic space." He used these paintings to work through different ways of representing concepts from genetics, such as the linear string of nucleotides in a strand of DNA, or the spiral structure of chromatin. The results are lush, abstract paintings, often with swirling movement and a strong sense of depth and ambient light. A vague but fundamental sense of structure comes through as spiral/circular motion is contrasted with a linear/gridded framework.



Clearly, Kohn has successfully incorporated scientific concepts into his own visual language, but do his paintings speak about science? The work is a pleasure to view, but it is fair to say that almost no one looking at them without any background knowledge would guess that they are based on the structure of DNA. This is where we must ask if Kohn's work at Broad is engaging both directions of dialogue between artist and scientist. Certainly his artwork has been influenced by the science, but how can the artwork itself return the favor, and in turn influence the science?

This is a tough question. It applies not just to Kohn's work at Broad, but to the work of any artist working closely with scientific research. There seem to be a few possible ways of achieving this goal. One way is rather than directly influencing research, artwork can set a framework for scientific knowledge by putting it into the context of our own lives, specifically through our senses and emotions. The work won't drive new scientific advancements, but can instead show a new way of understanding the information. Successful artwork of this nature is very difficult to achieve. It requires a very thorough and fundamental understanding of both the physical properties of an object or system, and the subjective experience of encountering the object. Kohn acknowledges this, remarking that the process of turning his work at Broad into "art" will be a very long one. See the work of Andy Goldsworthy or Ned Kahn for stunning examples of artwork that place scientific concepts in the context of our own everyday experiences.



Another way an artist can influence science is to address the methods rather than the concepts. As visual thinkers, artists can offer new viewpoints about how to visualize scientific data in order to see information in a new light. In fact, this is the method that Kohn has used at the Broad Institute in order to influence scientific research. Together with a group of researchers, Kohn is helping to develop "functional visualization" tools that aim to help scientists understand complex biological systems. Rather than working to provide generalized visualizations for communication with nonspecialists, the team is building tools that will drive new science.

Thus, one way of creating artwork that addresses science is to contextualize or personalize it; i.e. make art that brings scientific facts into the realm of personal experience. The problem with this method is that it is very unlikely it will ever directly influence scientific research and help uncover new facts. Another way artists can influence science is by using their visual skills to help scientists develop new methods of visualizing or modeling data. However, this isn't actually artwork, it is design. It uses visual methods to achieve specific, practical goals, and therefore must ignore many essential attributes of artwork: perception,

emotion, and reflection.

Herein lies a fundamental difference between Art and Science. The objectivity of science cannot, by definition, be influenced by the subjectivity of artwork. Any notions that artwork could provide a missing key to driving scientific research are simply illusions. When becoming involved with science in any way, an artist must choose between helping push the science without using actual artwork, or contextualizing the science without directly influencing it. Kohn's success has been doing the former, and it will be interesting to see how other Artists in Residence will address this fundamental difficulty.

All images are from Daniel Kohn's Broad Institute webpage.

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