Science and Animation II

Aylish Wood
Where Do Shapes Come From?

This paper explores the work of Semiconductor (duo Ruth Jarman and Joe Gerhardt http://semiconductorfilms.com/), and animations created by the Goddard Science Visualization Studio (SVS) at NASA (https://svs.gsfc.nasa.gov/documents/available.html). Both produce animations through techniques involving the use of data generated by science-based methods. The data is converted and input into computer-generated animations. The SVS animations depict weather cycles or phenomena in space. They are both audio-visual descriptions of events, and a series of patterns tending toward abstraction. The animation *Perpetual Ocean* (2011), for instance, is driven by data based on satellite imaging of ocean surface currents during the period from June 2005 through December 2007. Without any narration, the animation is set to *Conscious Thought* by the American Music Company. On the SVS website, the stated goal of the animation 'was to use ocean flow data to create a simple, visceral experience.'(http://svs.gsfc.nasa.gov/cgi-bin/details.cgi?aid=3827). I place *Perpetual Ocean* alongside a recent work by Semiconductor, *Where Shapes Come From* (2016). In this work, Semiconductor take raw seismic data collected from the land forming Mariana deep sea trench, which they convert and use to control a computer-generated animation. This animation is composited with live-action footage from a laboratory located in the Smithsonian Museum of Natural History. The work is narrated by mineralogist Jeff Post as he describes the coming together of atoms to form matter, and the formations of organized structures and patterns as if they are happening in real-time, in front of our eyes, transcending time and space. Semiconductor describe their work as 'bringing a sense of playfulness and personal touch to the ordinarily rigorous framework of science…[the images] become fantastical and strange encouraging us to consider how science translates nature and question our experiences of the physical world.' (http://semiconductorfilms.com/art/whereshapescomefrom/)

Through my explorations of these two animations, I will tease out the connections between abstraction and visualization. *Perpetual Ocean*, though data driven, can simply look like a play of complex patterns. In *Where Shapes Come From*, and as was also the case in *Magnetic Movies* (2005), Semiconductor use data but resist and play against straightforward representational imagery. They too play off abstract animated patterns of molecules against images of actual objects. In addition to my exploration of connections between abstraction and visualization, I work with the idea of entanglement to explore the thinking behind these animations. Entanglement refers to the material and discursive relations that define how we understand things to be. This can include the material and discursive relations around scientifically generated data, choices behind colour and motion in abstract and representational images, and the kinds of objects created using software. My paper will open out a discussion around the balance of material and discursive influences in the design of these kinds of animations. As a part of my discussion, I consider whether software are merely tools or if, in an object-oriented sense, they have agency by making a difference to how imagery is conceived and then created.

Biography

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Aylish Wood is Professor of Animation and Film Studies at the University of Kent and has written widely on animation and visual effects. She has published articles in *Screen*, *New Review of Film and Video*, *Games and Culture*, *Film Criticism* and *Animation: an Interdisciplinary Journal*. She has studied images of science and technology (*Technoscience in Contemporary American Film,* 2002). Her book *Digital Encounters* (2007) is a cross media study of digital technologies in cinema, games and installation art. Her monograph *Software, Animation and the Moving Image: What's in the Box* (2014) explores the intersections between software and the production of moving images, a study that encompasses games, animations, visual effects cinema, and science visualizations.