



david bowen: on growth and form

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Third Floor Emerging Artist Series

Throughout history, artists and scientists have studied growth, the process of natural forms and biological processes, making visual notations of their observations. One objective of these careful studies is to identify emerging patterns and search for predictable forms or outcomes. Scottish biologist, mathematician, and classics scholar D'Arcy Wentworth Thompson explored these concepts in his influential 1917 book *On Growth and Form*, which put forward that physics and mechanics are primary determinates of biological structure. Thompson's theories are in opposition to Charles Darwin, providing an alternative to natural selection through geometry and mathematics. Thompson offered numerous examples in support, such as jellyfish whose bodies mimic liquid dropped into viscous fluid, or phyllotaxis,

the arrangement of leaves on plant stems whose precise growth pattern conform to mathematical Fibonacci sequences.

Thompson also recognized that the tendency towards self-organization due to physical forces and chemistry is not isolated—often factors work concurrently towards a state of balance. Thompson writes:

“To one who has watched the potter at his wheel, it is plain that the potter’s thumb, like the glass blower’s blast of air, depends for its efficacy upon the physical properties of the medium on which it operates, which for the time being is essentially a fluid. The cup and the saucer, like the tube and the bulb display (in their simple and primitive forms) beautiful surfaces of equilibrium as manifested under certain limiting conditions. They are neither more nor less than glorified “splashes,” formed slowly, under conditions of restraint, which enhance or reveal their mathematical symmetry.”¹

Therefore, form and aesthetics are guided by outside forces and the inherent properties of materials. In a response to Thompson’s observation University of Oxford art historian Martin Kemp writes in his essay *Doing what comes naturally: morphogenesis and the limits of the genetic code*, “It seems to me that there is a fundamental visual insight here... for the understanding of morphogenesis in the work of those artists who have been particularly concerned with truth to materials in terms of dynamic process rather than engineering statics... the dialogue between the behavior of materials in nature and the conscious remodeling and appropriation of the underlying processes in science and art.”² Intriguing questions arise from Thompson and Kemp’s observations. How do the materials, processes and environmental forces shape the forms created in the natural world and in the artist’s studio? Does a concern for “truth in materials” lends itself to interactive, kinetic or time-based work?

Echoing Thompson and Kemp’s enthrallment with process and structure in nature, David Bowen’s work is concerned with aesthetics resulting from interactive systems. Bowen creates mechanisms to produce drawings, sounds, and activities based on environmental inputs, which comment on the relationship between the viewer, technology and nature. Bowen seeks to

mimic or document natural responses and processes through interactive kinetic constructions rather than static representations. In keeping with scientific study there is an intentional transparency of both material and function in Bowen's kinetic sculptures. The inner workings are left exposed—wires, circuit boards, gears and motors function without a protective skin, revealing their role as the machine labors. Bowen's work captures the viewer's attention through the use of technology while attempting to expose the equaling complex mechanisms, cycles, and phenomena in our natural environment. Bowen's choice of materials (metals and plastics) attempts to heighten the contrast between the natural and artificial, while acknowledging the increasing difficulty of discerning this difference in contemporary culture.

Growth Rendering Device is a kinetic installation based on the rate of growth, cell structure and absorption of a biological specimen. Nestled within a robotic armature, the daily growth of a plant is captured and documented over the length of the exhibition. The vertical armature attached to the gallery wall contains the plant, scanning equipment, and an inkjet printer. A growth light and nutrient-rich hydroponic solution nurture the plant throughout the length of the exhibition. Once every 24 hours the scanner maps the visual data from the plant while the printer records the information as a rasterized inkjet "drawing" on a long scroll of paper spooling behind the device, progressing down the gallery wall, documenting the growth (and possible death) of the plant.

Through its precise mechanical systems Bowen's *Growth Rendering Device* objectivity records its biological subject without the artist's interferences and bias. However the hand of the artist is not absent, instead it is created in collaboration with the technology and shaped by artificial and natural forces. Like the work of the potter or the glass blower the outcome of *Growth Rendering Device* is variable. Even within the seemingly rigid boundaries of biological growth and finely tuned technology, subtle interventions—human or otherwise—can have dramatic consequences. SS

Scott Stulen is the Curator of the Third Floor Emerging Artist Series

1 Thompson, D'Arcy Wentworth, *On Growth and Form*, Cambridge: Cambridge University Press, 1917; abridged ed. J. T. Bonner, 1961. P. 238

2 Kemp, Martin "Doing what comes naturally: morphogenesis and the limits of the genetic code," Art Journal, March 22, 1996

About the Artist

David Bowen is an exhibiting studio artist and Assistant Professor of Sculpture at the University of Minnesota, Duluth. He received his BFA degree from Herron School of Art in Indianapolis in 1999 and his MFA degree from the University of Minnesota, Minneapolis in 2004. His work has recently been featured in Artbots: the robot talent show at the Eyebeam Atelier in New York, NY, Good Work at Dangerous Curve in Los Angeles, CA, Robotix at PASS-Parc d'Adventure Scientifiques in Brussels, Belgium and Art of Machines at the Rxgallery blasthaus, San Francisco, CA. He has attended the Sculpture Space residency in Utica, NY and the Hungarian Multicultural Center residency in Balatonfured, Hungary and will receive a fellowship to attend Vermont Studio Center and The Bemis Center for Contemporary Art.

3rd Floor Artist Series Credits

The Rochester Art Center continually strives to engage the community members of all ages in the creation, contemplation, and appreciation of the visual arts. As a non-collecting institution, the Art Center focuses its efforts on presenting temporary exhibitions throughout the year featuring established local, national, and international artists, as well as "emerging" artists from diverse backgrounds working in a variety of media.

In 2004, the Rochester Art Center initiated the 3rd Floor Emerging Artist Series—an exhibition program dedicated to promising young artists working in the state of Minnesota. Since its inception, the series has reflected shifting trends in contemporary artistic practice and production, and has helped to facilitate the creation of new bodies of work in a variety of media including photography, installation, sound, painting, drawing, sculpture, and film. Now entering our third year, the 3rd Floor Emerging Artist Series continues to support emerging artists and to provide a dedicated forum for the exhibition of exciting new work.

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