

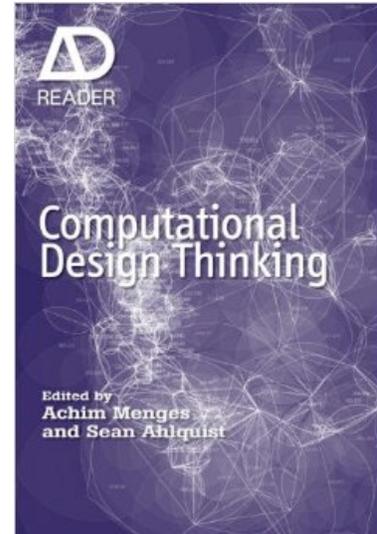
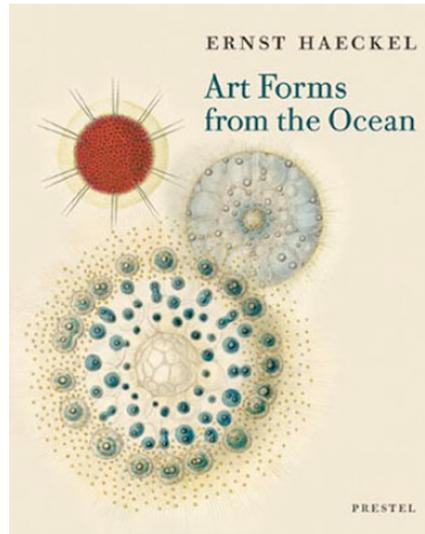
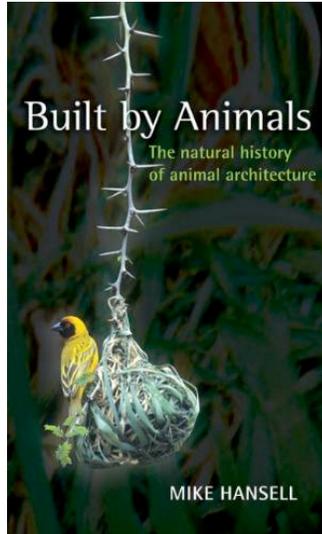
ARCH 4803/6352/8803 Elective – Spring 2017

College of Architecture / Georgia Institute of Technology

Instructor: Prof. Lars Spuybroek, email: nox@luna.nl

Tuesdays and Thursdays from 12.00-1.25pm, room 259.

Spring 2017 – *Bioconstructivisms: Tinkering vs Engineering*



Structure is usually viewed as clearly defined elements linking up in a state of either tension or compression, where all form simply follows the laws of force. The structures of nature, however, exhibit far greater complexity than any humanly engineered system. Without exception natural structures are in constant temporal development; their parts fulfill many, often conflicting roles simultaneously; and there is enormous redundancy in such systems. When we look at how soap bubbles interact or how the brain grows, how birds build their nests, or how the skin wrinkles, we always observe the same excessive variation in combination with a rigorous logic.

“Nature is always tinkering,” said the evolutionary biologist François Jacob in the early 1970s. The concept of tinkering is based on a constant redefinition and variation of elements. *Bioconstructivism is the art of tinkering: combining logic with vagueness.* This elective discusses the main protagonists of such ideas. We will be looking into early concepts of biomimetics such as Fechner’s and Francé’s research into plant morphology; the analogue computing techniques of Antoni Gaudi and Frei Otto; the work of Ernst Haeckel who discovered the complexity of Radiolaria; as well as how digital design techniques can both generate and use such complex structures for architectural and engineering solutions. We will see how two worlds that have been separated since ages, art and engineering (*Beaux-Arts* and *Polytechnique*), can be brought together by contemporary forms of bioconstructivism and digital morphogenesis.

The elective is structured by discussions and student presentations of the readings. The presentations are in Powerpoint or pdf format and contain a summary of the read material, the most important quotations, explanatory diagrams, background research and possible connections to other authors. Depending on the amount of students each participant usually does four or five presentations.

Lars Spuybroek is Professor of Architecture and the author of several books on architecture and digital design. He built the *HtwoOexpo* water pavilion, the first electronically interactive building with a continuous geometry; the *D-tower* and the *Son-O-House*, interactive art works registering the emotions and behavior of visitors. He also wrote *The Architecture of Continuity* and *The Sympathy of Things*, as well as editing the Research & Design series. His work was exhibited at three Venice Biennales and is part of the permanent collection of the CCA in Montreal a.o.