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Biogeography Synopsis 5: Biomimetics, Intelligent Design for Scientists

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Biomimetics is the discipline of design & engineering which seeks to emulate the efficacy & economy of biologic systems. This technique has famously been applied to aircraft design (Leonardo daVinci) and velcro (George de Mestral). Recently it is undergoing rapid expansion into a core method adopted by multidisciplinary development teams. Beyond simple imitation of form, researchers investigate functionality and interconnectivity of organisms related to their environments; their work products include propellers devised from whirlpool movement, robots who climb trees like geckos and market analysis modeled upon neural networks.

This approach departs from the idealized vision of Nature as either an incomprehensible and instantaneous Act of God or an occasion for conquest. Biomimetics investigates natural processes to glean solutions for our built environment by leveraging the laboratory of evolution, "untold experiments with an open research budget". [Simborg, 2008]

From a biogeographical perspective this design methodology is significant because humans are employing key adaptive strategies shared across the *homo* family and with other primates: mimicry and play. These behaviors are closely associated with transmission of culture and of the flexible application of knowledge; because we learn best when in a state of relaxed alertness (play) and integrate new information through kinesis ("going through the motions", imitation). These abilities lie at the crucial interface between human physiological hard-wiring and software, rules and interpretation. [Pinkner, 1994] Play and mimicry are the well-spring of language learning and application; biomimetics is re-invigorating design languages and the way we organize ourselves to produce tools. Although a search for materials related to biomimetics still turns up few books, articles are more common and there is at least one professional support group, the Biomimicry Institute.

Will engineering teams who contemplate the tensile strength of the hen's egg and the transportive capacity of the tracheid ever build the Aswan High Dam again? Maybe if we can use our big brains to design like animals, that is, as if we are part of nature, we can live within our means and even put something in the bank for a longer future. That would be intelligent design.

Sources

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Benyus, Janine, <http://www.biomimicryinstitute.org/>, 2008

Pinkner, Steven, The Language Instinct, 1994

Simborg, Mark, "Tapping into Nature's Genius", SF Chronicle, Sunday March 23, 2008