Welcome to BioInspire, a monthly publication addressing the interface of human design, nature and technology.

. . . . . .

NEW COURSE FOR 20 AIA lu!!

Biomimicry and Architecture in Montana's Rocky Mountains

September 28-30, 2003 at Blacktail Ranch, Wolf Creek, Montana Click on www.biomimicry.net/blacktail.htm, or see below for more information. Also offered in the US Virgin Islands http://biomimicry.net/virgin_islands.htm

. . . . . .

BioInspire.7 07.17.03

Life's Inspiration

John Mlade, Biomimicry Guild

Institute for the Built Environment

Colorado State University

johnm@biomimicry.net

The current disconnect between humans and our environment is unprecedented. Poor human designs have degraded nearly every major ecosystem in the world, thereby compromising the very air, water and soils upon which we are fundamentally dependent for existence. We need change.

Imagine a world in which human designs were considered "natural" - a world in which creative and innovative designs lead us to sustainable solutions. Better design is possible and within our reach. We need only be bio-inspired.

Most architects, engineers and designers know very well that they should design building and products that use materials wisely and efficiently, that compliment natural environmental cycles, and even build surrounding habitat. We all know that non-toxic designs have obvious benefits, as do those that clean air and self-monitor and adjust to changing levels of temperature and light. But how can we design these features?

Many sets of design criteria are available to help understand sustainable design and promote positive change. However, most design criteria explain the same or similar principles, such as running on current solar income and eliminating waste. Yet, even when we understand these design criteria, there remains a gap between understanding and the application of these principles in design. One of the bellwether tools of sustainability, and one likely to bridge the gap between sustainability and design, is Biomimicry.

BI-O-MIM-IC-RY

[From the Greek bios, life, and mimesis, imitation]

1. Nature as model. Biomimicry is a new science that studies nature's models and then imitates or takes inspiration from these designs and processes to solve human problems, e.g., a solar cell inspired by a leaf.

2. Nature as measure. Biomimicry uses an ecological standard to judge the "rightness" of our innovations. After 3.8 billion years of evolution, nature has learned: What works. What is appropriate. What lasts.

3. Nature as mentor. Biomimicry is a new way of viewing and valuing nature. It introduces an era based not on what we can extract from the natural world, but on what we can learn from it. (Janine Benyus in Biomimicry, 1997)

At the heart of biomimicry is the goal of operating as nature does. Life has been evolving on Earth for an estimated 3.8 billion years. In that time, life has learned what works, what is appropriate and what lasts. This wisdom and natural genius can be accessed simply by asking, "What would nature do here?"

For example, an engineer wanting to design an effective water harvesting system may look to creatures in dry climates - where effective water harvesting and storage designs are the key to survival. For this type of design, the Namibian beetle may fit the bill. www.ox.ac.uk/blueprint/2001-02/0612/15.shtml

Conversely, if the idea was to shed water effectively, flower petals or critters in wet habitats may provide some insight to design. Animals such as the duck and sea otter use combinations of structural components (feathers and fur) and naturally produced oils to provide water resistance. In the case of the lotus flower, water-shedding capabilities also serve as a self-cleansing design. www.biologie.uni-hamburg.de/b-online/lotus/Waxes_Lotus/bionics.htm A paint that mimics the self-cleansing structure of flower petals is already commercially available in the US. www.arn.org/docs2/news/engineersasknature121201.htm

Hypodermic needles are modeled after snake fangs. This makes sense. After all, snake fangs have evolved for millions of years to be able to penetrate skin effectively. Velcro's design was inspired by the burrs that stick on your socks as you walk through the woods. Even an office building that runs on only 10% of the energy conventional buildings require, was constructed for nearly 10% less because the air conditioning plant was designed out, and offers 20% less rent than surrounding buildings in the form of energy savings, has drawn inspiration from the construction of native termite mounds. http://www.gdrc.org/uem/anthill.html

Nature is abundant and offers an incredible number of designs to learn from. Architects, engineers and designers can take advantage of that wealth of knowledge to aid in design by working with biologists, natural historians and others with more readily accessible information on the natural world. The design "leads" that nature offers are unparalleled and often fulfill sustainable design criteria. By consciously consulting nature, we re-establish the connection with nature that we have long since parted with. We begin learning from her again and are able to draw inspiration from "life" to help guide our designs.

The possibilities are as endless as nature is diverse. Biomimics around the world are looking to nature for clues on how to capture energy from the sun, how to heat and cool buildings, manufacture materials, and even design communities.

By looking to nature for design inspiration, our designs can become conducive to life. Start a conversation with nature yourself. Ask her what she would do in a particular situation. More importantly, listen to how she replies. You may be surprised by what you learn. Our forests, oceans and air will again be recognized as life givers. We will again recognize ourselves as part of something greater. We will begin to recognize ourselves as part of nature. We will fit in again.

. . . . . .

NEW COURSE FOR 20 AIA lu!!

Biomimicry and Architecture in Montana's Rocky Mountains

September 28-30, 2003 at Blacktail Ranch, Wolf Creek, Montana www.biomimicry.net/blacktail.htm
February 16-20, 2004, Maho Bay Camps, St. John, U.S. Virgin Islands
http://biomimicry.net/virgin_islands.htm

Humans are not alone in creating built environments…Swallows, black bears, ponderosa pines, spiders ~ a whole suite of nature's creatures have been creating inhabitations for millennia.

Perhaps their "blueprints" might inspire you to discover functional, innovative, and sustainable solutions to some of the building industry's greatest challenges…

Join us for this exciting, hands-on, interactive course for students and professional architects, engineers, and designers interested in bringing nature's strategies and solution to the design table.

Click on www.biomimicry.net/blacktail.htm for more information.

INSTRUCTORS
Dayna Baumeister, PhD, Biomimicry Guild
Janine Benyus, Biomimicry Guild
John Mlade, CSU Institute for the Built Environment & Biomimicry Guild . . . . . .
. . . . . .

ABOUT THE PUBLISHER:

John Mlade is a green building professional researching and teaching biomimicry at Colorado State University and is a research assistant at the Institute for the Built Environment (www.ibe.colostate.edu). He is also a member of the Biomimicry Guild. Visit www.biomimicry.net for more information.

TO CONTACT THE PUBLISHER:

Email John Mlade at BioInspire@yahoo.com

FOR YOUR FREE SUBSCRIBTION:

www.colostate.edu/services/acns/listserv

1.Click on “Subscribe to one of CSU’s other lists”

2.Scroll to BioInspire

TO UNSUBSCRIBE:

www.colostate.edu/services/acns/listserv

1.Click on “Unsubscribe to one of CSU’s other lists”

2.Scroll to BioInspire

. . . . . .

Copyright 2003 BioInspire. All rights reserved. Republishing BioInspire in print or on a web site, in whole or in part, or commercial distribution in any form requires advance permission of the publisher.

Do you Yahoo!?
SBC Yahoo! DSL - Now only $29.95 per month!