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David Suzuki: Biomimicry offers hope for sustainable future

by [Faisal Moola](#), [David Suzuki](#) on Aug 24, 2010 at 4:15 pm

Sometimes a new science emerges that not only offers hope for our continued survival as a species but that also makes obvious how little we have really learned in our relatively brief time on Earth.

In the past, it took centuries or even millennia to fully exploit a technological breakthrough, but modern technology, fuelled by cheap energy, exploded in the 20th century. Machinery driven by fossil fuels has amplified our muscle power to a point where we are altering the physical, chemical, and biological features of the planet on an unprecedented scale. Some scientists have even proposed calling this the Anthropocene epoch, a time when human beings have become a geological force.

We're starting to realize, though, that while our technologies are powerful our sense of control is often illusory; the application of brute power to bludgeon nature into apparent submission often has unexpected costs. Examples of the negative consequences of our great innovations are numerous: the pesticide DDT, splitting the atom, chlorofluorocarbons, phosphate fertilizers, and, of course, harnessing the energy of fossil fuels.

What can we learn?

To start, we must realize that we are a part of nature and that nature has a lot to teach us. I was reminded of this by a [recent feature](#) in Toronto's *Now* weekly newspaper about biomimicry. I've been fascinated by this subject ever since I came across the work of Janine Benyus, who is quoted in the *Now* article.

Ms. Benyus, an American science writer and president of the [Biomimicry Institute](#), notes that nature has had almost four billion years to deal with the challenges humans face—how to find food and shelter, what to do with waste, how to avoid being eaten, what to do when sick, and so on. She believes we can learn from that wealth of experience.

According to the *Now* article: "The biomimic asks nature how it accomplishes the different functions we humans need to carry out, like making fibres stronger than steel at low temperatures the way spiders do, out of carbohydrates with no toxins, or making solar cells that imitate the way leaves turn sunshine into energy."

As the Biomimicry Institute's website points out: "The conscious emulation of life's genius is a survival strategy for the human race, a path to a sustainable future. The more our world functions like the natural world, the more likely we are to endure on this home that is ours, but not ours

alone.”

The Institute has another Web site, [Ask Nature](#), which demonstrates some of the wonderful potential of this science. The site allows biologists, engineers, architects, designers, and the public to share ideas and ask questions to create “biological blueprints and strategies, bio-inspired products and design sketches.”

And so, for example, we can learn to create self-cleaning, water-repellant surfaces by looking at the leaves of the sacred lotus, which uses nanoscale bumps to accomplish this.

Even one of the strategies of our own bodies may offer help with disasters like the Gulf oil leak: “The circulatory system of humans prevents blood loss from wounds by sending platelets to block the hole.”

One of my favourites is simple: “Leaves on a forest floor create aesthetically seamless surfaces by exhibiting organized chaos.” This led one of our board members, Ray Anderson, the founder and chair of the world's largest carpet tile manufacturer, Interface Inc., to create recyclable carpeting that can be replaced one square at a time without concern for matching the patterns because no two tiles are alike. He says it is the most popular brand.

Other great ideas include looking at termite mounds to learn about low-cost building ventilation, studying bamboo stems to create lightweight structural supports that don't buckle, and applying the aerodynamic efficiency of humpback whale fins to turbines, airplane wings, and underwater vehicles.

Ecosystem services are another example of how we can learn from nature and of how important it is to respect what nature has to offer. Forests store carbon, filter water, and prevent floods, yet in not taking into account the value of these services, we'll cut down the trees to get the money only to end up spending much more to build filtration plants or flood-control dykes.

It will require humility to admit that we are not in control and that we depend on nature for our well-being. We have much to gain from showing respect for evolutionary solutions to our numerous challenges.

Learn more at www.davidsuzuki.org.

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