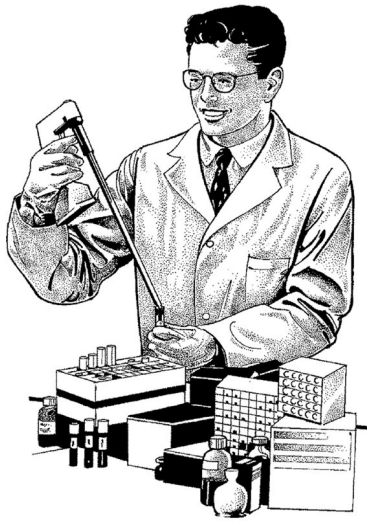
BIOMIMETICS point to the Divine Designer



In the April 2008 issue of *National Geographic* there appeared an article entitled, "Biomimetics– Design by Nature" by Tom Mueller. Biomimetics involve applying designs from nature to solve problems in engineering, materials science, medicine, and other fields. Scientists study the amazing design in animals and plants in order to learn how to manufacture certain products.

Although written by an evolutionist, the article speaks of the "brilliant design" found in nature (p. 75). It begs the question, "How can there be brilliant design without a designer?" How can blind chance, apart from any intelligence, result in ***brilliant design***? How can random processes "create" such brilliantly designed animals and plants?

Brilliant scientists are developing amazing products, not based on their own creative ideas or inventions, but by copying complex designs found in the animal and plant kingdoms. Here are some fascinating examples:

1) The **boxfish** has a sleek design. The contours of his body allow him to swim up to six body lengths per second. The boxfish's surprisingly streamlined form inspired Mercedes-Benz's bionic concept car which is able to perform as high as 70 miles per gallon. Here is the example of a modern car copied after the pattern of a small fish which evolutionists claim originated apart from any intelligent design (pages 69-71).

2) The **thorny devil lizard** of the arid Australian desert is able to convey water through its body to its mouth. All this creature needs to do is find some moist sand, and the moisture will be wicked up the lizard's leg and will make its way to its mouth. Scientists hope to make a thorny-devil-inspired device that will help people collect lifesaving water in the desert (pages 72-74).

3) Iridescence in **butterflies** and **beetles** and anti-reflective coatings in moth eyes have resulted in studies that have led to brighter screens for cellular phones and even an anti-counterfeiting technique (page 74).

4) Engineers are pondering the bumps on the leading edges of **humpback whale** flukes to learn how to make airplane wings for more agile flight (page 74). In fact, dramatic improvements in airfoil design (design of fan blades, etc.) have been inspired by the unusual geometry of the Humpback's pectoral fins.

> According to Joan Wood, sales coordinator for Envira-North, the WhalePower design led to a ceiling fan that moves 20 percent more air using half as many blades as its previous models while consuming less energy. "Because of the efficiency of the blades, our fans can be run at a slower speed," she says. "That translates to about 20 percent less energy required to move more air than a conventional fan."
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> The implications of the Humpback-inspired design could be enormous, says Dewar, considering that fans are an essential component in everything from computers and microwaves to compressors, turbines and HVAC systems. While the size of the global fan market is hard to determine, Dewar says saving between 20 to 30 percent in power consumption, were WhalePower's fan blade design to become standard, could have a huge cumulative effect on energy consumption worldwide.
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> "Look at the computer industry alone" he says. "If you put together all the desktop computers and servers in the U.S., they consume 5 percent of the country's total electrical generating capacity. That's 50 million MWh, 60 percent of which goes to power the fans and ventilation. Imagine if we could cut that consumption by even 5 percent let alone 20 percent." [From the article "Whale of an Idea," Nov. 1, 2010, found at http://www.design-engineering.com/ features/whale-of-an-idea/, accessed 3/26/15.]

5) The finger-like primary feathers of **raptors** are inspiring engineers to develop airplane wings that change shape aloft to reduce drag and increase fuel efficiency (page 74).

6) Architects in Zimbabwe are studying how **termites** regulate temperature, humidity and airflow in their mounds in order to build more comfortable buildings (page 74).

7) Japanese medical researchers are reducing the pain of an injection by using hypodermic needles edged with tiny serrations, like those on a **mosquito's** proboscis, minimizing nerve stimulation (page 74).

8) Cockelbur--In 1948 Swiss engineer George de Mestral examined burs plucked from his pants and from his dog's coat after a hike. He found that the spines of the burs were tipped with tiny hooks. This clue from nature enabled him to invent Velcro, which is widely used today (page 75). We would all agree that Velcro came about as the result of George de Mestral's intelligence. Does it make sense to say that burs came about by blind chance apart from any intelligent design?

9) The metallic sheen and dazzling colors of **tropical birds** and **beetles** derive not from pigments, but from optical features: neatly spaced microstructures that reflect specific wavelengths of light. Such structural color, fade-proof and more brilliant than pigment, is of great interest to people who manufacture paint, cosmetics, and those little holograms on credit cards (p. 75).

10) The **Melanophila beetle**, which lays its eggs in freshly burned wood, has a structure that can detect the precise infrared radiation produced by a forest fire, allowing it to sense a blaze a hundred kilometers away. This talent is being explored by the U.S. Air Force (p. 75).

11) In 1982 a botanist in Germany discovered in the **lotus leaf** a naturally self-cleaning, water-repellent surface. The secret lies in waxy microstructures and nanostructures that, by their contact angle with water, cause it to bead and roll away like mercury, gathering dirt as it goes. This "Lotus Effect" has found commercial application in a special paint that is reputed to repel water and resist stains for decades (page 79), including coatings for cars (*The Week* magazine, May 9, 2008, p. 38).

12) The **blowfly** is being used as a model for a miniature robotic fly that is swift, small, and maneuverable enough for use in surveillance or search-and-rescue operations. With wings beating 150 times per second, the blowfly hovers, soars, and dives with uncanny agility. From straight-line flight it can turn 90 degrees in under 50 milliseconds--a maneuver that would rip the Stealth fighter to shreds (page 82).

13) Why are **sharks** so speedy? An electron micrograph reveals the sharkskin's secret to speed: tooth-like scales called dermal denticles. Water races through the microgrooves without tumbling, reducing friction. Naval ships may apply synthetic coatings to their hulls copied after the amazing design of sharkskin (page 83). Are we to conclude that the design of the hulls of naval ships will be improved by copying the design of a shark, a design which is really no design at all, but a randomly evolved structure produced by blind chance over time apart from any intelligence? "A Speedo swimsuit mimics the denticles on a shark's skin, reducing drag. Introduced in 2000, the suit has helped competitive swimmers set scores of world records" (*The Week* magazine, May 9, 2008, p. 38).

14) The legs of a **horse**. A horse can gallop at a speed of 50km per hour. Although this requires considerable mechanical work, relative little energy is spent. How is this possible? The secret is in the horse's leg. Consider what occurs when a horse gallops. Elastic muscle-tendon units absorb energy when the leg steps onto the ground, and much like a spring, they return it, propelling the horse forward. Furthermore at a gallop, the horse's legs vibrate at high frequencies that could injure its tendons. However, the muscles in the legs act as dampers. Researchers call this structure a "highly specialized muscle-tendon design" that provides both agility and strength. Engineers are trying to imitate the horse's legs for use in four-legged robots. However according to the Biomimetic Robotics Laboratory of Massachusetts Institute of Technology (MIT), the complexity of the design cannot be easily duplicated with current materials and engineering knowledge.

How can blind chance and undirected processes bring about such amazing life forms?

~**George Zeller**, *Dec. 31, 2016* www.middletownbiblechurch.org