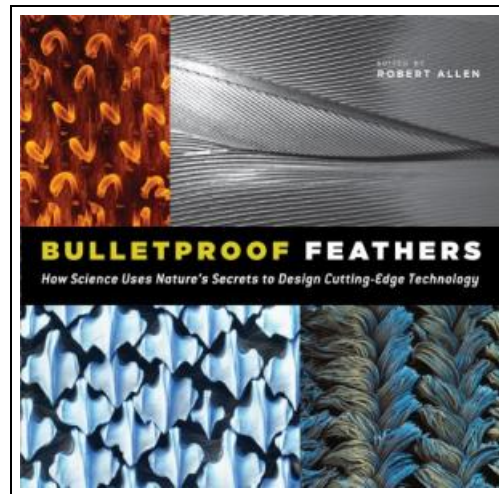


## Bulletproof Feathers: How Science Uses Nature's Secrets to Design Cutting-Edge Technology



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## BULLETPROOF FEATHERS: HOW SCIENCE USES NATURES SECRETS TO DESIGN CUTTING-EDGE TECHNOLOGY

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University of Chicago Press. Hardcover. Book Condition: New. Hardcover. 192 pages. Dimensions: 8.6in. x 8.5in. x 0.8in. Fabrics that are not only stain resistant but actually clean themselves. Airplane wings that change shape in midair to take advantage of shifts in wind currents. Hypodermic needles that use tiny serrations to render injections virtually pain free. Though they may sound like the stuff of science fiction, in fact such inventions represent only the most recent iterations of natural mechanisms that are billions of years old the focus of the rapidly growing field of biomimetics. Based on the realization that natural selection has for countless eons been conducting trial-and-error experiments with the laws of physics, chemistry, material science, and engineering, biomimetics takes nature as its laboratory, looking to the most successful developments and strategies of an array of plants and animals as a source of technological innovation and ideas. Thus the lotus flower, with its waxy, water-resistant surface, gives us stainproofing; the feathers of raptors become transformable airplane wings; and the nerve-deadening serrations on a mosquito's proboscis are adapted to hypodermics. With *Bulletproof Feathers*, Robert Allen brings together some of the greatest minds in the field of biomimetics to provide a fascinating at times even jaw-dropping overview of cutting-edge research in the field. In chapters packed with illustrations, Steven Vogel explains how architects and building engineers are drawing lessons from prairie dogs, termites, and even sand dollars in order to heat and cool buildings more efficiently; Julian Vincent goes to the very building blocks of nature, revealing how different structures and arrangements of molecules have inspired the development of some fascinating new materials, such as waterproof clothing based on shark skin; Tomonari Akamatsu shows how sonar technology has been greatly improved through detailed research into dolphin communication; Yoseph Bar-Cohen delves into the ways that robotics engineers...

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