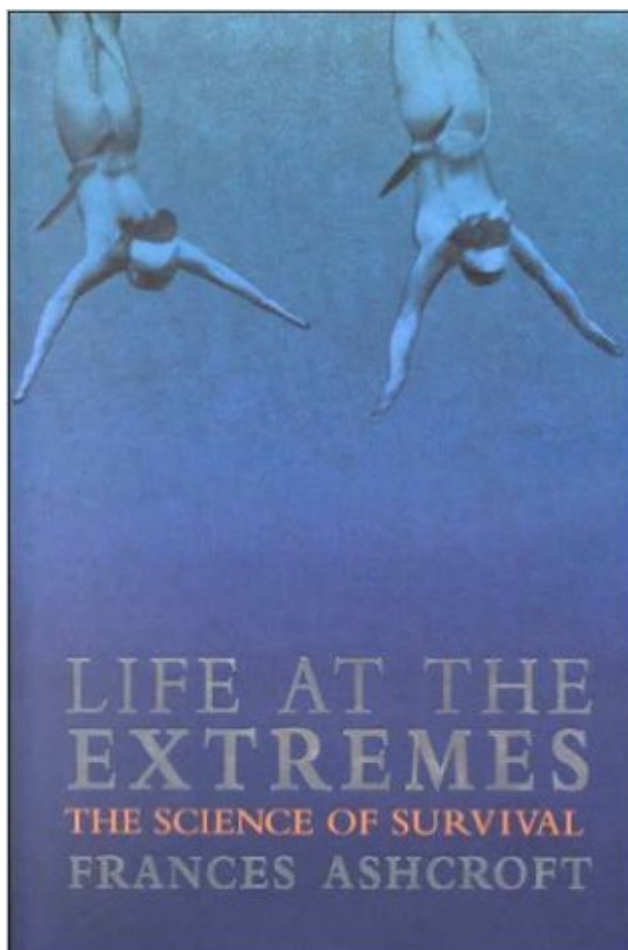


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# Life At The Extremes: The Science Of Survival



## Synopsis

The challenge of scaling the highest mountain, exploring the deepest ocean, crossing the hottest desert, or swimming in near-freezing water is irresistible to many people. Life at the Extremes is an engrossing exploration of what happens to our bodies in these seemingly uninhabitable environments. Frances Ashcroft weaves stories of extraordinary feats of endurance with historical material and the latest scientific findings as she investigates the limits of human survival and the remarkable adaptations that enable us to withstand extreme conditions. What causes mountain sickness? How is it possible to reach the top of Everest without supplementary oxygen, when passengers in an airplane that depressurized at the same altitude would lose consciousness in seconds? Why do divers get the bends but sperm whales do not? How long you can survive immersion in freezing water? Why don't penguins get frostbite? Will men always be faster runners than women? How far into deep space can a body travel? As she considers these questions, Ashcroft introduces a cast of extraordinary scientific personalities; inventors and explorers who have charted the limits of human survival. She describes many intriguing experiments and shows how scientific knowledge has enabled us to venture toward and beyond ever greater limits. Life at the Extremes also considers what happens when athletes push their bodies to the edge, and tells of the remarkable adaptations that enable some organisms to live in boiling water, in highly acidic lakes, or deep in the middle of rocks. Anyone who flies in an airplane, sails the high seas, goes skiing or walking in the mountains, or simply weathers subzero winters or sweltering summers will be captivated by this book. Full of scientific information, beautifully written, and packed with many fascinating digressions, Life at the Extremes lures us to the very edge of human survival.

## Book Information

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## Customer Reviews

If you have ever wondered EXACTLY why and how humans get altitude sickness, what happens to the body when exposed to extreme heat or cold, why scuba divers sometime get the "bends," or what would happen to an astronaut if the Space Station developed a leak, this book is for you. Frances M. Ashcroft explains in complete detail - the detail that is so often lacking in the popular, dumbed-down modern media - why the body at high altitudes can't get the oxygen it needs, what happens to skin cells when you burn yourself or get frostbite, how nitrogen dissolves in your blood when diving deep in water, or how your blood would boil if exposed to the emptiness of space. And she doesn't stop with humans. She examines the extremes of the animal world for creatures able to withstand and thrive in boiling cauldrons, the extreme depths of the oceans, or the extreme cold of Antarctica. She presents not just a world of creatures living in incredible environments, but precise descriptions of how this is all accomplished. This makes for Really Amazing reading!

This much-heralded book is a treasure chest of facts and anecdotes on (mostly human or other mammalian) life under extreme conditions. It's a good mix of physics, physiology, and the adventurous tales of people "who have been there". The extremes treated in this book range from the deepest depth of the ocean to the highest elevations that can be reached on foot or by balloon, from the causes and dangers of overheating to what tissues frostbites destroy. It also includes a chapter on astronauts' problems in space, as well as one on how microbes survive in atmospheres of otherwise lethal toxic gases, in hot springs, acid and caustic lakes or springs, and in deep rocks. This is a book for the general reader and the physics and physiology are accordingly described in an easily understandable manner. It is also a good starting point for someone intending to delve deeper into the matter (a 'further reading' list is appended). The text is agreeable to read (except for the irritating use of singular subject and plural verb form) and the printing errors are easy to spot. A shame is that the illustrations were not printed on glossy paper; they lose much of their charm on the rough surface of the pages.

This book contains a variety of interesting bits of trivia and it is written with a voice that keeps the reader interested. Scientific facts and principles are presented in a manner accessible to a general audience, but they are not so overly simplified that a scientist becomes bored. The only serious

shortcoming is that sometimes the biological background of the author demonstrates fundamental deficiencies in understanding physics. While these errors did not really subtract from the main points being made, physicists and engineers may occasionally become irritated.

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