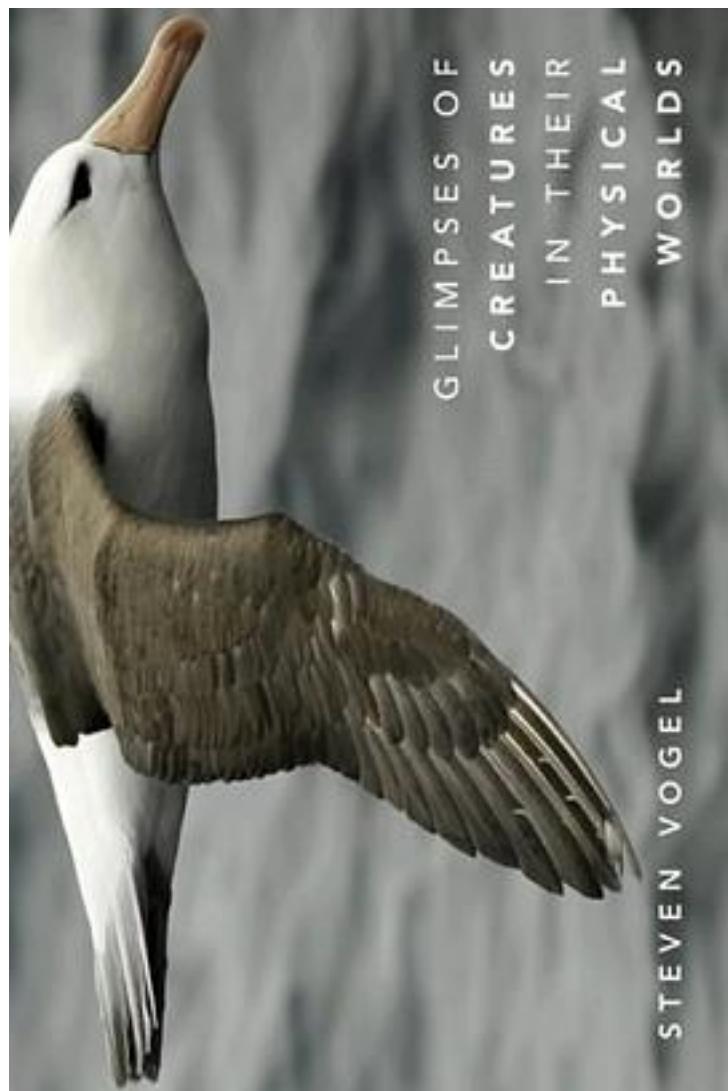


Glimpses of Creatures in Their Physical Worlds



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"Glimpses of Creatures in Their Physical Worlds" offers an eye-opening look into how the characteristics of the physical world drive the designs of animals and plants. These characteristics impose limits but also create remarkable and subtle opportunities for the functional biology of organisms. In particular, Steven Vogel examines the size and scale, and trade-offs among different physical processes. He pays attention to how the forms and activities of animals and plants reflect the materials available to nature, and he explores the unique constraints and possibilities provided by fluid flow, structural design, and environmental forces. Each chapter of the book investigates a facet of the physical world, including the drag on small projectiles; the importance of diffusion and convection; the size-dependence of acceleration; the storage, conduction, and dissipation of heat; the relationship among pressure, flow, and choice in biological pumps; and how elongate structures tune their relative twistiness and bendiness. Vogel considers design-determining factors all too commonly ignored, and builds a bridge between the world described by physics books and the reality experienced by all creatures. "Glimpses of Creatures in Their Physical Worlds" contains a wealth of accessible information related to functional biology, and requires little more than a basic background in secondary-school science and mathematics. Drawing examples from creatures of land, air, and water, the book demonstrates the many uses of biological diversity and how physical forces impact biological organisms.

作者介绍:

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