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978-1-107-11047-2 - The Design of Mammals: A Scaling Approach
John William Prothero
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The Design of Mammals

A Scaling Approach

Despite an astonishing 100 million-fold range in adult body mass from bumblebee bat to blue whale, all mammals are formed of the same kinds of molecules, cells, tissues and organs and to the same overall body plan. A scaling approach investigates the principles of mammal design by examining the ways in which mammals of diverse size and taxonomy are quantitatively comparable.

This book presents an extensive re-analysis of scaling data collected over a quarter of a century, including many sources that are rarely or never cited. The result is an unparalleled contribution to understanding scaling in mammals, addressing a uniquely extensive range of mammal attributes and using substantially larger and more rigorously screened samples than in any prior works. An invaluable resource for all those interested in the "design" of mammals, this is an ideal text for postgraduates and researchers in a range of fields from comparative physiology to ecology.

John William Prothero served on the faculty of the Department of Biological Structure at the University of Washington from 1965 to 1999. During this time, he taught histology for fifteen years and subsequently functional neuroanatomy for nearly twenty years. He has a long-term interest in many aspects of scaling.

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For Joyce

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I met a traveller from an antique land
Who said: "Two vast and trunkless legs of stone
Stand in the desert. Near them, on the sand,
Half sunk, a shattered visage lies, whose frown,
And wrinkled lip, and sneer of cold command,
Tell that its sculptor well those passions read
Which yet survive, stamped on these lifeless things,
The hand that mocked them and the heart that fed:
And on the pedestal these words appear:
'My name is Ozymandias, king of kings:
Look on my works, ye Mighty, and despair!'
Nothing beside remains. Round the decay
Of that colossal wreck, boundless and bare
The lone and level sands stretch far away."

Ozymandias
Shelley, 1818

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