

Does science aim at providing an account of the world that is *literally* true or *objectively* true? Understanding the difference requires paying close attention to metaphor and its role in science. In *The Third Lens*, Andrew S. Reynolds argues that metaphors, like microscopes and other instruments, are a vital tool in the construction of scientific knowledge and explanations of how the world works. He investigates the role of metaphors in the creation of scientific concepts, theories, and explanations, using cell theory as the focus of his study. He also explores the history of key metaphors that have informed modern cell biology and the experimental, philosophical, and social circumstances under which they have emerged, risen in popularity, and in some cases faded from view.

How we think of cells—as chambers, organisms, or even machines—makes a difference to scientific practice. More than just rhetorical devices for conveying difficult ideas, metaphors provide the conceptual means with which scientists interpret and intervene in the world.

"A rich and engaging tour of the role of metaphor in the history of cell biology."

EVELYN F. KELLER, Massachusetts Institute of Technology

"Reynolds has done an outstanding job teasing out the many varieties of metaphors that have been applied in cell biology since the seventeenth century. Particularly insightful is the explication of how various metaphors fashioned the very epistemic foundations of biological theory—how various cell biologists have tried to understand (and explain) cell structure and function. *The Third Lens* makes us think seriously about metaphors not just as useful figures of speech for conveying ideas about particular phenomena, but as part and parcel of how we formulate understandings and indeed our very construction of the natural world."

GARLAND E. ALLEN, Washington University in St. Louis

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