

Preface

It is commonly assumed in philosophy that reality is composed of things, the holders of definite properties, the bearers of definitions, and the grounds for certain, absolute truths. We take for granted that science and its history has been aimed at developing our understanding of these absolute and static things. Great advances in the history of science are reformulated to fit this image of discovering the true nature of the world. From genes to particles to spacetime structure to molecular makeup, we treat science as if it will eventually tell us how the world is, absolutely, eternally, and definitely.

However, the history of science, and its foundation in empirical practice tell a different story. Rather than definite properties of the world, science reveals dynamic and contextual features. Rather than absolute truths, science tells of evolving understanding and modeling practice. Rather than static structural relations, science outlines a world of interactions. Fundamentally, because science is not primarily a description of the world, but rather a method for interacting with it and learning from it, science allows us to know not a world of things, but a world of processes.

Drawing on both conceptual analysis of the empirical practice of science, particularly physics, and the history of this practice, this book aims to articulate exactly what the dynamic world of science looks like. It outlines two elements of this picture. First, an ontology of science rooted in the nature of experiment. Second, an epistemology of the inferences that scientists and philosophers alike are allowed to make in the process of experimenting on and modeling the physical world. The book argues that this new way of looking at the world—the process-realist way—resolves longstanding philosophical problems and directs new research in science. Finally, the book presents process realism as another iteration on a worldwide tradition of process philosophy finding roots in a diverse array of philosophies and scientific communities alike. Thus, the book presents process realism as the culmination of the philosophies of the world and the international community of practicing scientists. Process realism is what is really going on.

