Scientific Essentialism

Scientific Essentialism defends the view that the fundamental laws of nature depend on the essential properties of the things on which they are said to operate and are therefore not independent of them. These laws are not imposed on the world by God, the forces of nature, or anything else, but rather are immanent in the world.

Brian Ellis argues that ours is a dynamic world consisting of more or less transient objects that are constantly interacting with each other and whose identities depend on their roles in these processes. Natural objects must behave as they do because to do otherwise would be contrary to their natures. The laws of nature are therefore metaphysically necessary, and consequently there are necessary connections between events.

In an innovative contribution to contemporary metaphysics, Ellis calls for the rejection of the theory of Humean Supervenience and implementation of a new kind of realism in philosophical analysis.

This book will interest professionals and students of philosophy and the philosophy of science.

Brian Ellis is Professor Emeritus of Philosophy at La Trobe University, Victoria, Australia, and Professorial Fellow in the Department of History and Philosophy of Science at the University of Melbourne. His books include *Basic Concepts of Measurement* (Cambridge University Press, 1966), *Rational Belief Systems,* and *Truth and Objectivity.*

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To Scamp

Who kept vigil on the floor behind my chair
To guard me from whatever threats there might be
From hostile forces
And defenders of Humean Supervenience

Contents

Preface

This book had its origin in a series of discussions I had with John Bigelow and Caroline Lierse, beginning in 1989, on the idea that the world is an instance of a natural kind and that the laws of nature are of its essence. This is not a new idea. Rom Harré and E.H. Madden (1975) had expressed a similar view in their excellent book, *Causal Powers.* But we thought that the idea was worth a more thorough investigation than it had had up to that time, and the three of us wrote a joint paper on this topic (Bigelow, Ellis, and Lierse, 1992).

At the time, I was thinking about the problem of objective knowledge in the particular form in which it arose out of the work that I was then doing on *Truth and Objectivity.* If the world has no intrinsic structure, I thought, then, in principle, any single way of conceptualizing the world might be as good as any other. There would be an objective world, and perhaps from a human perspective, a best description of it. But such a description might not also be the best from the point of view of an alien being, whose epistemic values might well be different from ours. However, if the world had a natural kind structure, I reasoned, then we should be able to classify things in the world objectively in two quite different ways – vertically, in terms of the distinct objects that are the members of the natural kinds, and horizontally – in terms of the kinds to which they belong, and hence the properties they must have by virtue of their memberships of these kinds. In that case, there would be a set of objective facts about the world – facts that would exist independently of how we, or any other being, might think or reason about the world. The hypothesis of a natural-kind structure of reality thus promised to yield a solution to the objective knowledge problem, for objective knowledge could then be defined with reference to this structure.

For three years, from 1990, Caroline Lierse worked with me as a research assistant, and then in 1993 as a research associate. In this period, we wrote a series of papers on a range of topics, including dispositional properties, laws of nature, and the ontology of natural kinds. Joint papers were read at national conferences of the Australiasian Association of Philosophy and Social Studies of Science in 1992 and 1993. One of these was later published as "Dispositional Essentialism." This book is heavily dependent on the work we did together in this period, and I am greatly indebted to Caroline for her contribution to it. I am particularly indebted for her work on powers and dispositions (in Chapter 3), for her arguments against Humeanism (published separately in Lierse, 1996), for contributions, too numerous to detail, to other sections of the work, and for the encouragement and support she gave me in pursuit of the project.

The book has also profited from discussions with John Bigelow, John Fox, David Armstrong, Alan Chalmers, Keith Campbell, George Molnar, George Bealer, and Erik Anderson, and with several overseas correspondents, including Evan Fales, Chris Swoyer, and Storrs McCall. I wish to thank them all for their contributions, and pay special tribute to the members of the School of Philosophy at La Trobe University and the Department of History and Philosophy of Science at the University of Melbourne, who put up with my going on and on about natural kinds, laws, and essential natures, and doing it all so very goodnaturedly.

For long periods of time, my wife, Jenny, has also had a lot to put up with, with my sitting in front of my computer (even when it was a beautiful day outside and I should have been out in the garden). I thank her for her tolerance and support, without which this project would never have been completed.