




**SCIENTIFIC  
EXPLANATION**



*Philip Kitcher and  
Wesley C. Salmon,  
editors*

MINNESOTA STUDIES IN THE  
PHILOSOPHY OF SCIENCE



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# Minnesota Studies in the PHILOSOPHY OF SCIENCE

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## VOLUME XIII *Scientific Explanation*

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PHILIP KITCHER AND WESLEY C. SALMON

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For  
Carl G. Hempel,  
and in memory of  
Herbert Feigl,  
who made the whole enterprise possible

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## *Preface*

Is a new consensus emerging in the philosophy of science? This is the question to which a year-long workshop was devoted at the Minnesota Center for the Philosophy of Science during the academic year 1985–86. Throughout the fall term our discussions were directed almost exclusively to the issue of consensus regarding the nature of scientific explanation. This is the topic to which the present volume is addressed.

To ask whether a *new* consensus is emerging in philosophy of science strongly suggests that there was an old consensus. We believe, indeed, that there was one. It can be identified with what might be called *the hegemony of logical empiricism* which reached its peak in the 1950s and 1960s. With respect to scientific explanation, it seems reasonable to single out Carl G. Hempel's *Aspects of Scientific Explanation and Other Essays in the Philosophy of Science* (1965) as the pinnacle of the old consensus. The main foundation of that structure is the classic article "Studies in the Logic of Explanation" (1948), co-authored by Hempel and Paul Oppenheim. A large preponderance of subsequent philosophical work on scientific explanation flows directly or indirectly from this epoch-making essay.

The initial essay in the present volume, "Four Decades of Scientific Explanation," serves as an introduction in two senses. First, it is intended to acquaint readers who are not specialists in this area with the main issues, viewpoints, and arguments that have dominated the philosophical discussion of the nature of scientific explanation in recent decades. Hence, this volume does *not* presuppose prior knowledge of its main topics. Second, if we want to try to decide whether a new consensus is emerging, it is important to look at the developments leading up to the present situation. "Four Decades of Scientific Explanation" is also a historical introduction that describes the old consensus, its breakup, and subsequent developments. To understand the current state of things, we need to know how we got from there to here.

Although the present volume emerges from an NEH institute conducted at the Minnesota Center for the Philosophy of Science, it is in no sense a 'proceeding' of that workshop. Three of the contributors—Philip Kitcher, Merrilee Salmon,

and Wesley Salmon—participated actively during the entire term. Three others—Paul Humphreys, David Papineau, and Peter Railton—paid brief visits. The remaining three—Nancy Cartwright, Matti Sintonen, and James Woodward—were invited to contribute papers because of their special interests in the problems to which the workshop was devoted.

We should like to express our deepest gratitude to the National Endowment for the Humanities for their support. We should also like to thank C. Wade Savage, co-director, with Philip Kitcher, of the NEH institute, and all of the other participants in the workshop. Finally, special appreciation is due to Candy Holmbo, without whose organizational talents we would have had far less time to think about scientific explanation.

P. K.  
W. C. S.

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**James Woodward** is associate professor of philosophy at the California Institute of Technology. He has published articles on causation and scientific explanation and is currently working on a book on explanation.

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