

# PHILOSOPHY OF SCIENCE

*Official Journal of the Philosophy of  
Science Association*



VOLUME 57, NUMBER 2

**June, 1990**

# PHILOSOPHY OF SCIENCE

(ISSN 0031-8248)

JOURNAL OF THE PHILOSOPHY OF SCIENCE ASSOCIATION

## EDITORIAL BOARD:

ROBERT E. BUTTS, *Editor-in-Chief*

WILLIAM DEMOPOULOS AND ALISON WYLIE, *Associate Editors*

PETER ACHINSTEIN	GARY GUTTING	THOMAS NICKLES
PETER ASQUITH	IAN HACKING	ILKKA NIINILUOTO
JOHN BEATTY	WILLIAM HARPER	GLENN PEARCE
JEFFREY BUB	MARY HESSE	ALEXANDER ROSENBERG
RICHARD BURIAN	DAVID HULL	MICHAEL RUSE
NANCY CARTWRIGHT	PHILIP KITCHER	KENNETH SCHAFFNER
LINDLEY DARDEN	HENRY KYBURG, JR.	DUDLEY SHAPER
JOHN EARMAN	LARRY LAUDAN	LAWRENCE SKLAR
ANNE FAGOT	ANDREW LUGG	BRIAN SKYRMS
ARTHUR FINE	PETER MACHAMER	FREDERICK SUPPE
JERRY FODOR	VAUGHN MCKIM	PATRICK SUPPES
MICHAEL FRIEDMAN	DAVID MALAMENT	BAS VAN FRAASSEN
RONALD GIERE	ROBERT MATTHEWS	
CLARK GLYMOUR	JOHN NICHOLAS	

## EDITORIAL ASSISTANT:

Andrea Purvis

## COPY ASSISTANT:

Philip Catton and Darcy Cutler

## GOVERNING BOARD OF THE ASSOCIATION:

Thomas S. Kuhn, President (1990)

Bas C. van Fraassen, President-elect (1990)

Arthur Fine, Past President (1990)

John Earman (1991)

Philip Kitcher (1990)

Michael Friedman (1990)

Deborah G. Mayo (1989)

Daniel Garber (1991)

Brian Skyrms (1990)

Joseph F. Hanna (1989)

Paul Teller (1990)

William Harper (1991)

William Wimsatt (1991)

## EXECUTIVE SECRETARY:

Peter D. Asquith

MADE AND PRINTED IN THE USA BY  
EDWARDS BROTHERS, INC., ANN ARBOR, MI

PHILOSOPHY OF SCIENCE is published quarterly by the Philosophy of Science Association, 18 Morrill Hall, Department of Philosophy, Michigan State University, East Lansing, Michigan 48824. 1989 Subscription price \$45.00 U.S.A. (\$46.00 non-U.S.A.) per Volume. Single numbers \$12.00. 1989 Membership dues, which include subscription, \$40.00. Subscription inquiries should be directed to the Executive Secretary. Second-class postage paid at East Lansing, Michigan and at additional mailing offices. © 1989 by the Philosophy of Science Association.

## CONTENTS\*

<b>THE CONCEPTUAL STRUCTURE OF THE CHEMICAL REVOLUTION, PAUL THAGARD</b> . . . . .	183
<b>EVOLUTION, PHENOTYPIC SELECTION, AND THE UNITS OF SELECTION, TIMOTHY SHANAHAN</b> . . . . .	210
<b>DISAPPEARANCE AND KNOWLEDGE, ANDREW D. CLING</b> . . . . .	226
<b>THE MODEL-THEORETIC APPROACH IN THE PHILOSOPHY OF SCIENCE, NEWTON C. A. DA COSTA AND STEVEN FRENCH</b> . . . . .	248
<b>ON ADVANCING SIMPLE HYPOTHESES, DANIEL N. OSHERSON AND SCOTT WEINSTEIN</b> . . . . .	266
<b>WHEN PROBABILISTIC SUPPORT IS INDUCTIVE, ALBERTO MURA</b> . . . . .	278
<b>ONE CAUSAL MECHANISM IN EVOLUTION: ONE UNIT OF SELECTION, CARLA E. KARY</b> . . . . .	290
<b>AGAINST POSITING CENTRAL SYSTEMS IN THE MIND, DON ROSS</b> . . . . .	297
<b>DISCUSSION: DOES THE PRINCIPLE OF RELATIVITY IMPLY WINNIE'S (1970) EQUAL PASSAGE TIMES PRINCIPLE?, HARVEY R. BROWN</b> . . . . .	313
<b>CRITICAL NOTICE: HILARY PUTNAM'S REPRESENTATION AND REALITY, WILLIAM DEMOPOULOS</b> . . . . .	325
<b>BOOK REVIEWS</b> . . . . .	334
<i>Selected Scientific Papers of Alfred Landé, A. O. Barut and A. van der Merwe (eds.)—Roger Stuewer; Orthogonality and Spacetime Geometry, Robert Goldblatt—Graham Solomon; Scientific Discovery: Computational Explorations of the Creative Process, Pat Langley et al.—Malcolm Forster; Probability and Causality, J. H. Fetzer (ed.)—Frank Arntzenius; From Minerology to Geology: The Foundations of a Science, 1650–1830, Rachel Laudan—Henry Frankel;</i>	

\*The contents of PHILOSOPHY OF SCIENCE are utilized in compiling the following bibliographic sources: *Arts and Humanities Citation Index; Biological Abstracts; Bulletin Signalétique 519; Current Contents/Arts and Humanities; Current Contents/Social and Behavioral Sciences; Current Index to Statistics; Humanities Index; Index to Book Reviews in the Humanities; Isis Critical Bibliography; Language & Language Behavior Abstracts; Mathematical Reviews; Philosopher's Index; Philosophie; Psychological Abstracts; Répertoire Bibliographique de la Philosophie; Social Sciences Citation Index; Sociological Abstracts.*

*Schrödinger: Centenary Celebration of a Polymath*, C. W. Kilmister (ed.)—Robert K. Clifton; *Bachelard: Science and Objectivity*, Mary Tiles—Gary Gutting; *Niels Bohr's Philosophy of Physics*, Dugald Murdoch—Jeffrey Bub; *A Border Dispute: The Place of Logic in Psychology*, John Macnamara—David P. O'Brien; *An Architectonic for Science*, Wolfgang Balzer et al.—Peter Kroes.

**BOOKS RECEIVED** ..... 351