

PHILOSOPHY
OF
SCIENCE

*Official Journal of the Philosophy of
Science Association*



VOLUME 60, NUMBER 4

December, 1993

PHILOSOPHY OF SCIENCE

(ISSN 0031-8248)

JOURNAL OF THE PHILOSOPHY OF SCIENCE ASSOCIATION

EDITORIAL BOARD:

MERRILEE H. SALMON, *Editor-in-Chief*

PETER MACHAMER AND JOHN D. NORTON, *Associate Editors*

PETER ACHINSTEIN	CLARK GLYMOUR	THOMAS NICKLES
FRANK ARNTZENIUS	GARY GUTTING	ILKKA NIINILUOTO
PETER ASQUITH	IAN HACKING	ALEXANDER ROSENBERG
JOHN BEATTY	WILLIAM HARPER	MICHAEL RUSE
JEFFREY BUB	GEOFFREY HELLMAN	KENNETH SCHAFFNER
RICHARD BURIAN	DAVID HULL	DUDLEY SHAPER
ROBERT BUTTS	PAUL HUMPHREYS	LAWRENCE SKLAR
NANCY CARTWRIGHT	PATRICIA KITCHER	BRIAN SKYRMS
LINDLEY DARDEN	PHILIP KITCHER	STEPHEN STICH
JOHN EARMAN	HENRY KYBURG, JR.	FREDERICK SUPPE
ARTHUR FINE	JAMES LENNOX	PATRICK SUPPES
JERRY FODOR	DAVID MALAMENT	BAS VAN FRAASSEN
STEVE FULLER	DEBORAH G. MAYO	LINDA WESSELS
MICHAEL FRIEDMAN	TIM MAUDLIN	JAMES WOODWARD
RONALD GIERE		

ASSISTANT EDITOR:

Judith Meiksin

EDITORIAL ASSISTANT:

Madeline M. Larson
Heather E. Douglas

GOVERNING BOARD OF THE ASSOCIATION:

Ronald N. Giere, President (1994)

Abner Shimony, President-elect (1994)

Bas C. van Fraassen, Past President (1994)

John Beatty (1994)

William Harper (1993)

William Bechtel (1994)

Paul Horwich (1994)

John Earman (1993)

Nancy Nersessian (1994)

Daniel Garber (1993)

William Wimsatt (1993)

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, 503 South Kedzie Hall, Department of Philosophy, Michigan State University, East Lansing, Michigan 48824-1032. 1993 Subscription price \$60.00 U.S.A. (\$65.00 non-U.S.A.) per Volume. Single numbers \$15.00. 1993 Membership dues, which include subscription, are graduated based on income: income below \$40,000—\$40.00; \$40,000—\$49,999—\$50.00; \$50,000 or above—\$60.00. Subscription inquiries should be directed to the Executive Secretary. Second-class postage paid at East Lansing, Michigan and at additional mailing offices. © 1993 by the Philosophy of Science Association.

CONTENTS*

WHY FALSIFICATION IS THE WRONG PARADIGM FOR EVOLUTIONARY EPISTEMOLOGY: AN ANALYSIS OF HULL'S SELECTION THEORY, EUGENIE GATENS-ROBINSON	535
A MAJOR FAILURE WITHIN MODERN ANALYTIC PHILOSOPHY, PATRICK SIBELIUS	558
GENERALIZING EVOLUTIONARY ALTRUISM, ANTHONY PERESSINI	568
NEURATH'S PROTOCOL STATEMENTS: A NATURALISTIC THEORY OF DATA AND PRAGMATIC THEORY OF THEORY ACCEPTANCE, THOMAS E. UEBEL	587
ARE PROHIBITIONS OF SUPERLUMINAL CAUSATION BY STOCHASTIC EINSTEIN LOCALITY AND BY ABSENCE OF LEWISIAN PROBABILISTIC COUNTERFACTUAL CAUSALITY EQUIVALENT?, MIKLÓS RÉDEI	608
THE ARROW OF TIME IN QUANTUM GRAVITY, CHUANG LIU	619
DISCUSSION: NARLIKAR'S "CREATION" OF THE BIG BANG UNIVERSE WAS A MERE ORIGINATION, ADOLF GRÜNBAUM	638
CRITICAL NOTICE: LOUIS ALTHUSSER'S <i>PHILOSOPHY AND THE SPONTANEOUS PHILOSOPHY OF THE SCIENTISTS AND OTHER ESSAYS</i>, ARISTIDES BALTAS	647
BOOK REVIEWS	659
<i>Realism in Mathematics</i> , Penelope Maddy—Jill Dieterle and Stewart Shapiro; <i>Laws and Symmetry</i> , Bas C. van Fraassen—Joel M. Smith; <i>Historical Roots of Cognitive Science: The Rise of a Cognitive Theory of Perception from Antiquity to the Nineteenth Century</i> , Theo C. Meyering—Gary Hatfield; <i>Too Hot to Handle: The Race for Cold Fusion</i> , Frank Close—James T. Cushing; <i>Cosmos and Anthropos: A Philosophical Interpretation of the Anthropic Cosmological Prin-</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*; *Repertoire Bibliographique de la Philosophie*; *Social Sciences Citation Index*; *Sociological Abstracts*.

ciple, Errol E. Harris—John Leslie; *Stabilizing Dynamics: Constructing Economic Knowledge*, E. Roy Weintraub—Mark Perlman; *The Chances of Explanation: Causal Explanation in the Social, Medical and Physical Sciences*, Paul Humphreys—Jim Woodward; *Methodological Aspects of the Development of Low Temperature Physics 1881–1956: Concepts Out of Context*, K. Gavroglu and Y. Goudaroulis—Jed Z. Buchwald; *The Imagery Debate*, Michael Tye—Christopher Peacocke; *Scientism: Philosophy and the Infatuation with Science*, Tom Sorrell—James Maffie; *Inference to the Best Explanation*, Peter Lipton—Jesse Hobbs.

REFEREES FOR <i>PHILOSOPHY OF SCIENCE</i>	681
INDEX TO VOLUME 60	685