

PHILOSOPHY
OF
SCIENCE

*Official Journal of the Philosophy of
Science Association*



VOLUME 54, NUMBER 4

December, 1987

PHILOSOPHY OF SCIENCE

(ISSN 0031-8248)

JOURNAL OF THE PHILOSOPHY OF SCIENCE ASSOCIATION

EDITORIAL BOARD:

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

WILLIAM DEMOPOULOS, *Associate Editor*

PETER ACHINSTEIN
PETER ASQUITH
JOHN BEATTY
JEFFREY BUB
RICHARD BURIAN
NANCY CARTWRIGHT
ROBERT CAUSEY
LINDLEY DARDEN
JOHN EARMAN
ANNE FAGOT
ARTHUR FINE
JERRY FODOR
MICHAEL FRIEDMAN
RONALD GIERE

GARY GLYMOUR
GARY GUTTING
IAN HACKING
WILLIAM HARPER
MARY HESSE
DAVID HULL
PHILIP KITCHER
HENRY KYBURG, JR.
LARRY LAUDAN
ANDREW LUGG
PETER MACHAMER
VAUGHN MCKIM
DAVID MALAMENT
ROBERT MATTHEWS

JOHN NICHOLAS
THOMAS NICKLES
ILKKA NIINILUOTO
GLENN PEARCE
MICHAEL RUSE
KENNETH SCHAFFNER
DUDLEY SHAPERE
LAWRENCE SKLAR
BRIAN SKYRMS
FREDERICK SUPPE
PATRICK SUPPES
BAS VAN FRAASSEN

EDITORIAL ASSISTANT:

Elizabeth A. Attridge

COPY ASSISTANT:

Philip Catton

GOVERNING BOARD OF THE ASSOCIATION:

Arthur Fine, President (1988)

Thomas S. Kuhn, President-elect (1988)

David L. Hull, Past President (1988)

Richard Burian (1987)

Patricia Smith Churchland (1988)

Ronald N. Giere (1987)

Philip Kitcher (1988)

Noretta Koertge (1988)

Deborah G. Mayo (1987)

Elliott Sober (1988)

Paul Teller (1987)

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. 1984 Subscription price \$32.50 U.S.A. (\$33.50 non-U.S.A.) per Volume. Single numbers \$9.00. 1984 Membership dues, which include subscription, \$30.00. Subscription inquiries should be directed to the Executive Secretary. Second-class postage paid at East Lansing, Michigan and at additional mailing offices. © 1984 by the Philosophy of Science Association.

CONTENTS*

| | |
|---|-----|
| CAUSAL MODELING: NEW DIRECTIONS FOR STATISTICAL EXPLANATION, GUROL IRZIK AND ERIC MEYER | 495 |
| MODELS OF GROUP SELECTION, DEBORAH G. MAYO AND NORMAN L. GILINSKY | 515 |
| HORWICH ON 'SEMANTIC' AND 'METAPHYSICAL' REALISM, DAVID DAVIES | 539 |
| EPR, BELL, AND COLLAPSE: A ROUTE AROUND "STOCHASTIC" VARIABLES, GEOFFREY HELLMAN | 558 |
| A QUANTUM-MECHANICAL AUTOMATON, DAVID Z. ALBERT | 577 |
| DISCUSSION: INDEFINITE PROBABILITY JUDGMENT: A REPLY TO LEVI, RICHARD JEFFREY. | 586 |
| DISCUSSION: COMMENTS ON "RANDOMIZATION AND THE DESIGN OF EXPERIMENTS" BY P. URBACH, O. MAYO . . . | 592 |
| CRITICAL NOTICE: WESLEY SALMON'S <i>SCIENTIFIC EXPLANATION AND THE CAUSAL STRUCTURE OF THE WORLD</i>, JAMES H. FETZER | 597 |
| BOOK REVIEWS | 611 |
| <i>The Quantum and Beyond</i> , W. M. Honig—Cliff Hooker; <i>The Rationality of Induction</i> , D. C. Stove—M. Giaquinto; <i>Il Neopositivismo Logico</i> , Francesco Barone—William R. Shea. | |
| REFEREES FOR <i>PHILOSOPHY OF SCIENCE</i> | 617 |
| INDEX TO VOLUME 54 | 621 |

*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*.