

PHILOSOPHY  
OF  
SCIENCE

*Official Journal of the Philosophy of  
Science Association*



VOLUME 54, NUMBER 3

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

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. 1987 Subscription price \$45.00 U.S.A. (\$46.00 non-U.S.A.) per Volume. Single numbers \$12.00. 1987 Membership dues, which include subscription, \$35.00. Subscription inquiries should be directed to the Executive Secretary. Second-class postage paid at East Lansing, Michigan and at additional mailing offices. © 1987 by the Philosophy of Science Association.

## CONTENTS\*

<b>THE LOGICAL INCONSISTENCY OF THE OLD QUANTUM THEORY OF BLACK BODY RADIATION, JOHN NORTON . . . .</b>	327
<b>COMPETING UNITS OF SELECTION?: A CASE OF SYMBIOSIS, SANDRA D. MITCHELL . . . . .</b>	351
<b>HUSSERL'S LATER PHILOSOPHY OF SCIENCE, PATRICK A. HEELAN (Erratum p. 390) . . . . .</b>	368
<b>MACHINE MODELS FOR COGNITIVE SCIENCE, R. J. NELSON</b>	391
<b>SCIENTIFIC DISCOVERY AND MAXWELL'S KINETIC THEORY, PETER ACHINSTEIN . . . . .</b>	409
<b>THE LOGIC OF DISCOVERY, KEVIN T. KELLY . . . . .</b>	435
<b>RELEVANCE LOGIC BRINGS HOPE TO HYPOTHETICO-DEDUCTIVISM, C. KENNETH WATERS . . . . .</b>	453
<b>DISCUSSION: PARSIMONY, LIKELIHOOD, AND THE PRINCIPLE OF THE COMMON CAUSE, ELLIOTT SOBER . . . . .</b>	465
<b>DISCUSSION: A REINSTATEMENT, IN RESPONSE TO GILLES, OF REDHEAD'S ARGUMENT IN SUPPORT OF INDUCTION, I. J. GOOD . . . . .</b>	470
<b>DISCUSSION: GLYMOUR ON BOOTSTRAP CONFIRMATION OF PTOLEMAIC THEORY, BRAD ABERNETHY . . . . .</b>	473
<b>DISCUSSION: PLURALISM AND SPECIES CONCEPTS, OR WHEN MUST WE AGREE WITH ONE ANOTHER?, KENT E. HOLSINGER . . . . .</b>	480

\*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*.

<b>BOOK REVIEWS</b> .....	486
<i>The Politics and Rhetoric of Scientific Method</i> , J. A. Schuster and R. R. Yeo (eds.)—Alex C. Michalos; <i>The Tradition of the Topics in the Middle Ages</i> , Niels J. Green-Pedersen—Martin M. Tweedale; <i>From Quarks to Quasars: Philosophical Problems of Modern Physics</i> , Robert G. Colodny (ed.)—James H. McGrath; <i>From Maxwell to Microphysics: Aspects of Electromagnetic Theory in the Last Quarter of the Nineteenth Century</i> , Jed Z. Buchwald—Nancy J. Nersessian.	