PHICOSOPHY OF SCIENCE

Volume 67 Number 4 December 2000

Journal of the Philosophy of Science Association

Philosophy of Science

Editorial Board: Noretta Koertge, Editor-in-Chief

Don Howard

Michael Dickson, Michael Friedman,

and Elizabeth Lloyd, Associate Editors

William Bechtel
Ned Block
Michael Bradie
Jeffrey Bub
Lindley Darden
John Dupré
John Earman
James Fetzer
Arthur Fine
Allan Franklin
Peter Gärdenfors
Ron Giere
Clark Glymour
Richard Grandy

Alan Hájek

Gary Hatfield

Geoffrey Hellman

Paul Hoyningen-Huene

David Hull Paul Humphreys Gürol Irzik Jon Jarrett James Joyce Muhammad Khalidi Janet Kourany Henry Kyburg Isaac Levi Helen Longino David Malament Sandra Mitchell Margaret Morrison Alan Musgrave Karen Neander Nancy Nersessian Ilkka Niiniluoto

John Norton David Papineau Itamar Pitowski Alexander Rosenberg Michael Ruse Rose-Mary Sargent Teddy Seidenfield Lawrence Sklar Brian Skyrms Elliott Sober Miriam Solomon Kim Sterelny Steven Stich Frederick Suppe Paul Teller Soshichi Uchii Bas van Fraassen James Woodward Alison Wylie

Assistant Editors: James Mattingly and Anne Mylott

Governing Board of the Association

Richard Jeffrey, President (1999) John Earman, President-Elect (1999) Michael Friedman, Past-President (1999)

Robert Brandon (1999) Parold Brown (2000) E Jeffrey Bub (2000) Sa Allan Franklin (1998) M

Paul Humphreys (1998) Elisabeth Lloyd (2000) Sandra Mitchell (2000) Margaret Morrison (1999)

Executive Secretary: George Gale

VOLUME 67 • NUMBER 4 • DECEMBER 2000

Philosophy of Science

Contents

- 559 Inductive Risk and Values in Science Heather Douglas
- 580 Philosophy of Science That Ignores Science Neven Sesardic
- 603 Chance and Macroevolution Roberta L. Millstein
- 625 Anti-Representationalism and the Dynamical Stance Tony Chemero
- 648 Adaptive Complexity and Phenomenal Consciousness Todd Grantham and Shaun Nichols
- 671 Some Problems for 'Alternative Individualism' R. A. WILSON
- 680 The Persistence of Memory: Surreal Trajectories in Bohm's Theory Jeffrey A. Barrett
- 704 Discussion: Are There Material Objects in Bohm's Theory? MICHAEL DICKSON
- 711 Referees for Philosophy of Science
- 713 Index for Volume 67

Philosophy of Science (ISSN 0031-8248) is published quarterly in March, June, September, and December by The University of Chicago Press, 5720 S. Woodlawn Avenue, Chicago, IL 60637.

Periodicals postage paid at Chicago, IL and at additional mailing points.

Postmaster: Send address changes to: *Philosophy of Science,* The University of Chicago Press, P.O. Box 37005, Chicago, IL 60637.

Membership and Subscription Rates

Annual membership in the Philosophy of Science Association, which includes the journal and supplement, is graduated based on income: income below \$40,000 is \$57; \$40,000-\$49,999 is \$67; \$50,000-\$59,999 is \$77; and \$60,000 or above is \$87. Student rate is \$25 (photocopy of valid ID must accompany subscription order). Subscriptions for institutions in North America are \$93.00, \$98.00 in Australia, Hong Kong, Japan, New Zealand, and Western Europe; and \$51.50 elsewhere. Payment in U.S. currency only. Single copy rates are \$15 for individuals and \$23.25 for institutions. Canadian residents, please add 7% GST to all North American rates listed above. Subscription inquiries should be addressed to: *Philosophy of Science*, The University of Chicago Press, P.O. Box 37005, Chicago, IL 60637, FAX (312) 753-0811, e-mail: subscriptions@journals.uchicago.edu

Volumes 1–55 available from Periodical Services Co., 11 Main Street, Germantown, NY 12526, Phone (518) 537-4700 or FAX (518) 537-5899. Volumes in microfilm available from UMI, 300 N. Zeeb Road, Ann Arbor, MI 48106.

Editorial Correspondence

Send all editorial correspondence to *Philosophy of Science*, 123 Goodbody Hall, Indiana University, Bloomington, IN 47405-7005; e-mail: philsci@indiana.edu. Information regarding submission of manuscripts can be found on the inside back cover of every issue or on our website: http://www.indiana.edu/~philsci.

Copying Beyond Fair Use

The code on the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made beyond those permitted by Sections 107 or 108 of the U.S. Copyright Law provided that copies are made only for personal or internal use, or for the personal or internal use of specific clients, and provided that the copier pay the stated per-copy fee through the Copyright Clearance Center, 27 Congress St., Salem, MA 01970. To request permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, kindly write to Permissions Department, The University of Chicago Press, 5801 S. Ellis Ave., Chicago, IL 60637.

Articles appearing in Philosophy of Science are abstracted or indexed in 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.

© 2000 by the Philosophy of Science Association. All rights reserved.

PSA ESSAY CONTESTS

Each year the Philosophy of Science Association holds two essay contests, one for graduate students and one for recent Ph.D.s. The financial support for these contests has been made possible by the generosity of past presidents of the PSA.

Prize Winners for 1999. The prize for an essay submitted by a graduate student in 1999 was awarded to Scott Tanona for "The Anticipation of Necessity: Kant on Kepler's Laws and Universal Gravitation," which appeared in the September 2000 issue of *Philosophy of Science*. The Prize Committee for the 1999 submissions consisted of Lawrence Sklar (Chair), Margaret C. Morrison, and Robert A. Rynasiewicz. Their thoughtful work in judging the submissions is much appreciated. No prize was awarded in the recent Ph.D. category.

Contests for 2000. This year's contests are currently in progress. Due to the change in Editors the notice was inadvertently omitted from the journal, but the contests were advertised on the web, in a mailing to members, and through the PSA listserve. We apologize for any confusion or inconvenience.

Graduate Student Contest for 2001. Essays may be on any topic in the philosophy of science, and should be submitted to the Editor-in-Chief of *Philosophy of Science* before December 1st, 2001. The prize-winning essay will be published in *Philosophy of Science* and the author will receive \$250.

The essay must be accompanied by a letter from the graduate department certifying that the author is a student in good standing. Co-authored papers are not eligible. Previously published papers are not eligible unless they appear in *Philosophy of Science* during the calendar year 2001. Authors are encouraged to format their essays in accordance with the Instructions for Authors found on the *Philosophy of Science* web site (see http://www.indiana.edu/~philsci/submit.html). Authors' names will be removed and the essays then judged by a committee of three senior members of the PSA.

Recent Ph.D. Contest for 2001. A prize of \$250 will be awarded to the best article in Philosophy of Science written by someone who received the Ph.D. within the last five years. To be eligible for the contest, the paper must have a publication date during the year 2001. Papers in both the four regular issues and the special September Proceedings Supplement qualify.

To have an article entered into the competition, the author must supply proof that the Ph.D. degree was formally awarded between December 1st, 1996 and December 1st, 2001. The deadline for receipt of the affidavit in the Editorial Office is December 1, 2001. A reprint of the article will then be automatically forwarded to the judges.

PSA INFORMATION ONLINE

*The Philosophy of Science Association maintains a web site at: http://scistud.umkc.edu/psa

Many of the papers from the PSA 2000 Conference recently held in Vancouver are posted there. You may also wish to subscribe to the Electronic Newsletter by following the link to *E-list*.

*A joint directory of members of the Philosophy of Science Association and History of Science Society can be found at: http://www.journals.uchicago.edu/HSS-PSA/

To modify your own entry, please go to the *Update My Record* link.

*It is now possible to join the PSA online. Go to: http://www.journals.uchicago.edu/PHILSCI/home.html

Some overseas subscribers will find the new rate structure to be quite favorable.