

# MODERN LOGIC

International Journal for the History of Mathematical Logic,  
Set Theory, and Foundations of Mathematics

Vol. 6, no. 2

(April 1996)

*Mathematical logic . . . is the modern form of logic developed  
in the last hundred years.*      – Rudolf Carnap (1954)



Modern Logic Publishing, Ames, Iowa, USA

ISSN 1047-5982

# MODERN LOGIC

International Journal of the History of Mathematical Logic,  
Set Theory, and Foundations of Mathematics

## EDITORIAL BOARD

EDITOR: Irving H. ANELLIS (Modern Logic Publishing, 2408½ W. Lincoln Way (Upper Level), Ames, IA 50014-7217, USA; email: F1.MLP@ISUMVS.IASTATE.EDU (preferred); ModernLog@aol.com; America Online: ModernLog) (English, Russian / General Logic and Foundations, Proof Theory, 20.-cent., Logic in the USSR; 03Bxx, 03Fxx)

CO-EDITOR: Thomas L. DRUCKER (Modern Logic Publishing, 304 South Hanover Street, Carlisle, PA 17013-3938, USA; fax: 717-258-0515) (English, French / Categorical Logic, Model Theory and Nonstandard Models; 03G30, 18B25, 03Cxx, 03Hxx)

### ASSOCIATE EDITORS:

Francine F. ABELES (Department of Mathematics and Computer Science, Kean College SCNJ, Union, N.J. 07083, USA; email: fabeles@turbo.kean.edu) (Reviews Editor)

Alexei G. BARABASHEV (Department of Philosophy and Methodology of Science, Room 451, Humanities Bldg. No. 1, Center for Social Sciences and Humanitarian Studies, Moscow University, Moscow, 119899 Russia; email: alexei@bar.srcc.msu.su; fax: 7 (095) 939-5338) (Russian, English / Sociology, Pedagogy, Methodology and Philosophy of Logic, Philosophy of History of Foundations of Mathematics, Future Prospectives; 00A25, 01A67, 01A80, 03A05, 98-03)

Valentine A. BAZHANOV (Department of Philosophy, Ulyanovsk Branch of Moscow University, P.O. Box 1602, Ulyanovsk 63, 432063, Russia; email: bazhan@bzh.univ.simbirsk.su; WWW page url: <http://www.bmsu.simbirsk.su/koi8/Bmsu/persons/bazhanov.html> (bazhanov.godel OR peirce OR loguniv.html); fax: 7 (8422) 313000) (Russian, English / Paraconsistent Logics, Modal Logics, Multiple-valued Logics, 19.-20. century Logic in Russia & USSR; 03B45, 03B50)

Leon HARKLEROAD (1111 Hector Street, Ithaca, N.Y. 14850, USA; email: leon@math.cornell.edu) (English, French, German, Hungarian / Recursion Theory, Fuzzy Sets; 03Dxx, 03E72, 04A72)

SANGMUN KIM (Department of Mathematics, Yonsei University, Seoul, 120-749, South Korea; email: sangmunkim@bubble.yonsei.ac.kr) (English, German / Logic and History of Logic in Asia; 01A25, 01A27, 01A29)

Roman MURAWSKI (Instytut Matematyki, UAM, ul. Matejki 48/49, PL-60-769 Poznań, Poland; email: rmur@math.amu.edu.pl) (Polish, Russian, German, English, French / 19.-20. century Logic in Poland, Hilbert's Program, Metamathematics, and Theories of Arithmetic, First- and Second-order Arithmetic and Fragments, Nonstandard Models of Peano Arithmetic; 03C62, 03F30, 03F35, 03H15)

Volker PECKHAUS (Institut für Philosophie der Universität Erlangen-Nürnberg, Bismarckstraße 1, D-91054 Erlangen, Germany; email: vrpeckha@phil.uni-erlangen.de; URL: <http://www.phil.uni-erlangen.de/~p1phil/Instii.html>) (German, English / Algebraic Logic; 03Gxx)

Wim RUITENBURG (Department of Mathematics, Statistics & Computer Science, Marquette University, P.O. Box 1881, Milwaukee, WI 53201-1881, USA; email: wimr@mscs.mu.edu) (English, Dutch, German, French / Constructive Logic and Mathematics, Intuitionism, Topos Theory, Constructive Algebra; 03F50, 03F55, 03F65; 03G30)

John C. SIMMS (Department of Mathematics, Statistics & Computer Science, Marquette University, P.O. Box 1881, Milwaukee, WI 53201-1881, USA; email: johns@mscs.mu.edu; URL: <http://mscs.mu.edu/~johns>) (English, German, French / Set Theory; 03Exx, 04-xx)

ADVISORY BOARD: Evandro AGAZZI, *ex officio* (Genoa), Boris V. BIRYUKOV (Moscow), Alejandro R. GARCADIAGO (Mexico City), Nathan HOUSER (Indianaopolis), Christian THIEL (Erlangen)

# MODERN LOGIC

International Journal for the History of Mathematical Logic, Set Theory,  
and Foundations of Mathematics

Revue International d'Histoire de Logique Mathématique, Théorie des  
Ensembles et des Fondements des Mathématiques

Internationale Zeitschrift für Geschichte der mathematischen Logik,  
Mengenlehre und Grundlagen der Mathematik

Международный Журнал по Истории Математической Логики,  
Теории Множеств и Оснований Математики

Rivista Internazionale di Storia della Logica Matematica, Teoria degli  
Insiemi e Fondamenti di Matematica

Revista internacional de historia de la lógica matemática, teoría de  
conjuntos y fundamentos de las matemáticas

Volume 6, no. 2  
(April 1996)

Modern Logic Publishing  
(SAN 298-1777)

Irving H. Anellis, Publisher; Henry Kormin, Executive Administrator  
2408 1/2 W. Lincoln Way (Upper Level)  
Ames, Iowa 50014 -7217, USA

☎ tel.: 515 / 292-1819

email: F1.MLP@ISUMVS.IASTATE.EDU (preferred);  
ModernLog@aol.com

Printed by Sigler Printing & Publishing  
413 Northwestern Avenue, Ames, IA 50010-0887, USA  
Typesetting by the Department of Mathematics, Statistics and Computer  
Science of Marquette University

# MODERN LOGIC

International Journal of the History of Mathematical Logic,  
Set Theory, and Foundations of Mathematics

**Subscriptions.** Requests for information concerning subscriptions should be sent to: Order & Subscription Department, Modern Logic Publishing, 2408<sup>1</sup>/<sub>2</sub> W. Lincoln Way (Upper Level), Ames, IA 50014-7217, USA. Individuals residing in the countries which do not have convertible currency may inquire about Barter Exchange Subscriptions. Institutional subscribers may contact their journals subscription service. Subscriptions: Individuals – US\$40 per volume (add US\$20 per volume for air mail delivery outside the United States); Libraries/institutions: US\$110 per volume.

Published by Modern Logic Publishing, Dr. Irving H. Anellis, Editor & Publisher; Henry Kormin, Executive Administrator; Megan J. Saville, General Office Manager. Editorial Office: 2408<sup>1</sup>/<sub>2</sub> W. Lincoln Way (Upper Level), Ames, IA 50014-7217, USA.

WWW URL page: <http://www.ed.ac.uk/~pmilne/ml/home.html>.

© Modern Logic Publishing, 1996

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system without the express permission in writing of the publisher. *Modern Logic* is registered with the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, Massachusetts 01923, USA. The publisher hereby authorizes registered users of the CCC to duplicate materials contained in *Modern Logic* by paying copy fees directly to the CCC.

vol. 6, no. 2  
(April 1996)



Printed on recycled paper

ISSN 1047-5982



*HISTORY OF LOGIC NEWSLETTER*

publishes

- \* News and notices, information exchange
- \* Abstracts
- \* Information on past and upcoming meetings
- \* Personalia, memorial and biographical notices
- \* Queries and responses
- \* Discussions
- \* Meetings calendar
- \* special features

of particular interest to historians of logic

Price: \$15.00 per year; \$2.50 per issue.

Published bimonthly (6 times per year)

Back issues available; write for details on availability and pricing.

Contents of

# MODERN LOGIC

International Journal for the History of Mathematical Logic,  
Set Theory, and Foundations of Mathematics

Vol. 6, no. 2

(April 1996)

A. P. RAO, A survey of free logics

Memorial Notes by

EDITOR, V. A. BAZHANOV, and Peter BYSTROV

DISCUSSION:

Steven J. BARTLETT, Review of a reviewer: Reply to Wolenski  
Jan WOLEŃSKI, Comments on Bartlett's reply

Reviews by

Irving H. ANELLIS, James W. VAN EVRA, and Nicla VASSALLO



Modern Logic Publishing, Ames, Iowa, USA

ISSN 1047-5982



1047 5982 199604 06 2