

The ARCHIVES OF OPHTHALMOLOGY is a member of the consortium of AMA journals listed below. The complete text of all AMA journals is available online from Dialog Information Services and Information Access Company.

The Journal of the American Medical Association (JAMA)

- Archives of Dermatology
- Archives of Family Medicine
- Archives of General Psychiatry
- Archives of Internal Medicine
- Archives of Neurology
- Archives of Ophthalmology
- Archives of Otolaryngology—Head & Neck Surgery
- Archives of Pathology & Laboratory Medicine
- Archives of Pediatrics & Adolescent Medicine
- Archives of Surgery

The ARCHIVES OF OPHTHALMOLOGY (ISSN 0003-9950) is published monthly by the American Medical Association, 515 N State St, Chicago, IL 60610, and is an official publication of the Association. The ARCHIVES OF OPHTHALMOLOGY reaches more than 18 000 readers in over 94 countries each month. Periodicals postage paid at Chicago, IL and at additional mailing offices. GST registration number: 12622 5556 RT. Canada Post International Publications Mail (Canadian Distribution) Sales Agreement No. 318957.

Printed in the USA.

Continuing the Publication Founded by Herman Knapp, MD, in 1869. The objective of the ARCHIVES OF OPHTHALMOLOGY is education: To inform its readers of progress, problems, and pertinent research in the practice of ophthalmology through the publication of original contributions and observations.

SUBSCRIPTION RATES—The personal subscription rates for the ARCHIVES OF OPHTHALMOLOGY are \$130 for 1 year (12 issues) in the United States and US possessions; \$168 in the Americas; £108 outside the Americas. The institution rates for 1 year are \$176 in the United States; \$230 in the Americas; £148 outside the Americas. Special rates for residents and medical students are available. Address all subscription communications to: Subscriber Services Center, American Medical Association, PO Box 10946, Chicago, IL 60610-0946. Phone: (800) 262-2350. Fax: (312) 464-5831. E-mail: ama-subs@ama-assn.org. For mailing addresses outside the United States and US possessions, see International Subscription Information.

CHANGE OF ADDRESS—POSTMASTER, send all address changes to ARCHIVES OF OPHTHALMOLOGY, c/o Subscriber Services, American Medical Association, 515 N State St, Chicago, IL 60610. Please notify us of address change at least 6 weeks

in advance to ensure uninterrupted service. Include both old and new addresses, a recent mailing label, and new ZIP code. For mailing addresses outside the United States and US possessions, see International Subscription Information.

SUBSCRIBER SERVICES—For information about subscribing to any of the AMA publications, change of address, missing issues, or purchasing back issues, please contact Subscriber Services Center, American Medical Association, PO Box 10946, Chicago, IL 60610-0946, or call (800) 262-2350 or (312) 670-SUBS (670-7827) between 8:30 AM and 4:30 PM CST. Fax: (312) 464-5831. E-mail: ama-subs@ama-assn.org. For mailing addresses outside the United States and US possessions, see International Subscription Information.

INTERNATIONAL SUBSCRIPTION INFORMATION—Subscriptions outside the United States and US possessions are served according to geographic region. Please address correspondence to the following 2 offices based on delivery address: (1) For delivery in North America, Central America, and South America, contact Subscriber Services Center, AMA, PO Box 10946, Chicago, IL 60610-0946. Phone: (312) 670-7827. Fax: (312) 464-5831. E-mail: ama-subs@ama-assn.org. (2) For delivery outside the Americas, contact JAMA & Archives Journals, Reader Services Centre, PO Box 299, London WC1H 9TD, England. Phone: +44 (0)171-383-6270. Fax: +44 (0)171-383-6402. E-mail: bmjsubs@dial.pipex.com.

REPRINTS—Authors place their reprint order at the time the edited typescript is reviewed and should allow 4 to 6 weeks for delivery following publication. Requests for individual reprints should be sent directly to the author at the address shown in the article.

For bulk reprint orders for distribution by commercial organizations, please contact Wanda Bartolotta, 500 Fifth Ave, #2210, New York, NY 10110. Phone: (212) 354-0050. Fax: (212) 354-1169. E-mail: wanda_bartolotta@ama-assn.org. For reprint orders in limited quantities for distribution by educational organizations and for author reprints, please contact Joseph R. Rekish, 515 N State St, Chicago, IL 60610. Phone: (312) 464-4594. Fax: (312) 464-4849.

WORLD WIDE WEB ADDRESS—<http://www.ama-assn.org>.

OPHTHALMOLOGY HOME PAGE—<http://www.ama-assn.org/opht>.

PERMISSIONS—Contact Ada Jimenez-Walker, Permissions Assistant, 515 N State St, Chicago, IL 60610. Phone: (312) 464-2513.

ADVERTISING PRINCIPLES—Each advertisement in this issue has been reviewed and complies with the principles governing advertising in AMA scientific publications. A copy of these principles is available on request. The appearance of advertising in AMA publications is not an AMA guarantee or endorsement of the product or the claims made for the product by the manufacturer.

Publication Staff
Offices: 515 N State St
Chicago, IL 60610

**Editorial Processing Department,
Archives Journals**

Director: Paula Glitman
Manager: Vicky Golden

Freelance Manager: Diane L. Cannon
Freelance Coordinator: Sandra E. Hazel

Electronic Editing Specialist:
Paul Frank

Assistant Electronic Editing Specialist:
Monica Mungle

Copy Editors:
Brenda Gregoline
Mary Kingzette
Bryan E. Steinmetz

Editorial Assistant: Celina Canchola
**Scientific Information and
Multimedia Group**

Administrative Assistant: Helga Fritz
New Media Editorial Office

Editorial Director, New Media:
William M. Silberg

Associate Editor: Marty Suter
Assistant Editors:
Deborah Flapan
Neil Shankman

Staff Assistant: Marla A. Hall

Production & Distribution Division

Manager, Budgets & Costs:
Bonnie Van Clevon

Office Manager: Karen Branham
Senior Secretary: Shannon Epplert

**Advertising & Production
Department**

Director:
Karen Adams-Taylor

Manager, Advertising Services:
Carole Piszker

Manager, Production Services:
Susan Price

Production Associates:
Debbie Camp
Betty Frigerio
Mari Guizzetti
Sarah Powell
Jennifer Reiling
Chad Sanderson
Mary Ann Schultz
Carmela Ware

Production Assistant:
Jo Anne Turner

Distribution

Distribution Manager:
Paul Gasielcki

Electronic Production Department

Director: Linda Knott
Supervisor, Composition & Pagination:
Phil Arko

Electronic Production Operators:
Brenda Chandler
La'son J. Diggs
Mary Ann Kuranda
Sandra Lopez

Manager, Graphics: Charl Richey
Graphics Operators:
Joe Amft
Ellen Gundersen
JoAnne Weiskopf
Alicja Wojcik-Dunn

Manager, Proofreading:
Teresa H. Omiotek

Proofreaders:
David Antos
Daniel James
Mary Kay Tinerella
Barbara Wojtowicz

Production Assistant: Ruth Sprague
Database & New Media

Electronic Coordinator:
Mary Ellen Johnston

Indexer: Kathy Gaydar

Database Assistants:
Gail Barrett
Melanie Parenti
Vincent Tafoya

Specialty Journal Division Office

Assistant to the Publisher:
Christine Hearne

**Publications Marketing &
New Media Division**

Administrative Assistant:
Millette Jackson-Bates

Circulation Processing Department

Director: Beverly Martin

Circulation Development Department

Director: Bina Oza

Licensing & Permissions Department

Director: Norman Frankel
Permissions: Ada Jimenez-Walker
International Coordinator: Sharon Ali

Reprints

Reprint Coordinator: Joseph Rekish



ARCHIVES

OF

OPHTHALMOLOGY

VOL 116 NO. 1, JANUARY 1998

CLINICAL SCIENCES

Contrast Sensitivity and Glare Disability After Radial Keratotomy and Photorefractive Keratectomy 12

Alaa A. Ghaith, MD; Jan Daniel, MD; R. Doyle Stulting, MD, PhD; Keith P. Thompson, MD; Michael Lynn, MS

Aqueous Humor Flow in Human Eyes Treated With Dorzolamide and Different Doses of Acetazolamide 19

Lill-Inger Larsson, MD, PhD; Albert Alm, MD, PhD

Short-term Oral Pentoxifylline Use Increases Choroidal Blood Flow in Patients With Age-related Macular Degeneration 27

Andreas Kruger, MD; Bettina Matulla, MD; Michael Wolzt, MD; Stephan Peh, MD; Karin Strenn, MD; Oliver Findl, MD; Hans-Georg Eichler, MD; Leopold Schmetterer, PhD

Imaging the Microvasculature of Choroidal Melanomas With Confocal Indocyanine Green Scanning Laser Ophthalmoscopy 31

Arthur J. Mueller MD, PhD; Dirk-Uwe Bartsch, PhD; Robert Folberg, MD; Mary G. Mehaffey, MD; H. Culver Boldt, MD; Margaret Meyer; Lynn M. Gardner; Michael H. Goldbaum, MD; Jacob Pe'er, MD; William R. Freeman, MD

Laser-Induced Chorioretinal Venous Anastomosis for Nonischemic Central or Branch Retinal Vein Occlusion 43

Sharon Fekrat, MD; Morton F. Goldberg, MD; Daniel Finkelstein, MD

Long- and Short-term Variability of Automated Perimetry Results in Patients With Optic Neuritis and Healthy Subjects 53

Michael Wall, MD; Chris A. Johnson, PhD; Kim E. Kutzko; Richard Nguyen, MD; Caridad Brito, PhD; John L. Keltner, MD

LABORATORY SCIENCES

Three-Dimensional Scanning Electron Microscopic Study of Keratoconus Corneas 62

Shoichi Sawaguchi, MD; Takeo Fukuchi, MD; Haruki Abe, MD; Tadayoshi Kaiya, MD; Joel Sugar, MD; Beatrice Y. J. T. Yue, PhD

An Intravitreal Sustained-Release Triamcinolone and 5-Fluorouracil Codrug in the Treatment of Experimental Proliferative Vitreoretinopathy 69

Chang-Sue Yang, MD; Joseph A. Khawly, MD; Dean P. Hainsworth, MD; San-Ni Chen, MD; Paul Ashton, PhD; Hong Guo, MD; Glenn J. Jaffe, MD

American Medical Association

Physicians dedicated to the health of America



Copyright 1998 by the American Medical Association. All rights reserved. Reproduction without permission is prohibited.

All articles published, including editorials, letters, and book reviews, represent the opinions of the authors and do not reflect the policy of the American Medical Association, the Editorial Board, or the institution with which the author is affiliated, unless this is clearly specified.

Lynn Jensen, PhD
Chief Operating Officer &
Interim Executive Vice President

George D. Lundberg, MD
Editor in Chief, Scientific
Information and Multimedia

Robert L. Kennett
Vice President, Publishing

Peter L. Payerli
Publisher

Vanessa Hayden
Director, Production &
Distribution Division

Cheryl Iverson
Director, Editorial Processing
Division

Geoffrey A. Flick
Manager, Marketing Services

Advertising Office: J. P. Cahill & Associates, 341 S Waiola Ave, La Grange, IL 60525 (708) 352-0322. **AMA Classified Advertising Department:** Thalia Moss, 800-262-2260.

OPHTHALMIC MOLECULAR GENETICS

- Familial Axenfeld-Rieger Anomaly, Atrial Septal Defect, and Sensorineural Hearing Loss: A Possible New Genetic Syndrome** 78
Emmett T. Cunningham, Jr, MD, PhD, MPH; Dean Elliott, MD; Neil R. Miller, MD; Irene H. Maumenee, MD; W. Richard Green, MD

EPIDEMIOLOGY AND BIostatISTICS

- Retinopathy in Older Persons Without Diabetes and Its Relationship to Hypertension** 83
Tony Yu, MBBS, MPH; Paul Mitchell, MD, FRACO, FRCOphth; Geoffrey Berry, MA, PhD; Weining Li, MBBS; Jie Jin Wang, MBBS, MMed (Clin Epi)

SOCIOECONOMICS OF OPHTHALMOLOGY

- Modern Surgery for Global Cataract Blindness: Preliminary Considerations** 90
Mark Gillies, MD, PhD; Garry Brian, MD; Jamie La Nauze, MD, MMed Sci; Richard Le Mesurier, MD; David Moran, MD; Hugh Taylor, MD; Sanduk Ruit, MD

SPECIAL ARTICLE

- A Simple Model for Demonstrating Abnormal Slitlamp Findings** 93
William R. Morris, MD

EDITORIAL

- The Evolving Paradigm of Orbital Decompression Surgery** 95
Robert Alan Goldberg, MD

CLINICOPATHOLOGIC REPORTS

- Conjunctival 'MALToma' With Systemic Recurrence** 97
Mark T. Cahill, FRCOphth; Paul A. Moriarty, FRCOphth; Susan M. Kennedy, MD, FRCOphth
- Histopathologic and Immunohistochemical Study of an Autopsy Eye With X-linked Cone Degeneration** 100
King W. To, MD; Michael Adamian; Frederick A. Jakobiec, MD; Eliot L. Berson, MD

CASE REPORTS AND SMALL CASE SERIES

- Varicella-Zoster Virus Retinitis Presenting as an Acute Vitreous Hemorrhage** 104
John Michael Lewis, MD; James E. Puklin, MD
- Orbital Hemorrhage in the Nonoperated Eye as a Complication of General Endotracheal Anesthesia** 105
Kerry E. Hunt, MD; Jason J. Ross, MD
- Valsalva-Induced Subperiosteal Hemorrhage During Migraine** 106
Matthew M. Boyer, MD; Mark J. Lucarelli, MD

ARCHIVES

OF

OPHTHALMOLOGY

Editor:
Daniel M. Albert, MD
 Suite 102
 2870 University Ave
 Madison, WI 53705
 (608) 262-7769
 Fax: (608) 265-5896
 archives@eyesee.opth.wisc.edu

Associate Editors:
Richard E. Appen, MD
 Madison, Wis
Leonard A. Levin, MD, PhD
 Madison, Wis

Manager, Editorial Operations:
Eleanor Albert, MA
 Madison, Wis

Assistant Manager, Editorial Operations:
Laura Hayes Hoffman
 Madison, Wis

Ophthalmic Molecular Genetics:
Edwin M. Stone, MD, PhD
 Iowa City, Iowa

Socioeconomics of Ophthalmology:
Eric B. Bass, MD, MPH
 Baltimore, Md
Paul P. Lee, MD
 Durham, NC

Clinicopathologic Reports:
W. Richard Green, MD
 Baltimore, Md

Controversies:
Andrew P. Schachat, MD
 Baltimore, Md

Photo Essays:
Elisabeth J. Cohen, MD
 Philadelphia, Pa

Book and Software Reviews:
Thomas A. Farrell, MD
 Madison, Wis

Online Editors:
Jon P. Gieser, MD
Stephen D. McLeod, MD

Editorial Board:

Eduardo C. Alfonso, MD
 Miami, Fla
Neil M. Bressler, MD
 Baltimore, Md
Matthew D. Davis, MD
 Madison, Wis
Monte A. Del Monte, MD
 Ann Arbor, Mich
Thaddeus P. Dryja, MD
 Boston, Mass
David A. Durfee, MD
 Oregon City, Ore
Robert A. Goldberg, MD
 Los Angeles, Calif

Barbara S. Hawkins, PhD
 Baltimore, Md
Eve J. Higginbotham, MD
 Baltimore, Md
Douglas H. Johnson, MD
 Rochester, Minn
Dan B. Jones, MD
 Houston, Tex
Simmons Lessell, MD
 Boston, Mass
Charles E. Letocha, MD
 York, Pa
Peter J. McDonnell, MD
 Los Angeles, Calif
William F. Mieler, MD
 Milwaukee, Wis
Stephen A. Obstbaum, MD
 New York, NY
Annabelle A. Okada, MD
 Tokyo, Japan
Michael B. Raizman, MD
 Boston, Mass
Arthur L. Rosenbaum, MD
 Los Angeles, Calif
Robert N. Weinreb, MD
 La Jolla, Calif

Protracted Postsurgical Blindness With Visual Recovery Following Optic Nerve Sheath Fenestration	107
<i>Michael C. Brodsky, MD; Garrick A. Rettele, MD</i>	

PHOTO ESSAYS

White Dot Fovea in an African American Patient	110
<i>Sharon Fekrat, MD; Mark S. Humayun, MD, PhD</i>	
Acute Macular Neuroretinopathy	112
<i>Pranav Amin, MD; Terry A. Cox, MD</i>	

CORRESPONDENCE

Methazolamide-Induced Stevens-Johnson Syndrome: A Warning!	117
<i>John B. Cotter, MD</i>	
In Reply	117
<i>Shiroaki Shirato, MD, PhD</i>	
Surgery for Ectopia Lentis	117
<i>David BenEzra, MD, PhD</i>	
In Reply	118
<i>William F. Mieler, MD; Steven B. Koenig, MD</i>	
Pars Plana Vitrectomy in the Treatment of Phakic and Pseudophakic Malignant Glaucoma	118
<i>Osman Cekic, MD; Cosar Batman, MD</i>	
Complications of Sutureless Pars Plana Vitrectomy Through Self-sealing Sclerotomies	119
<i>Tibor Milibák, MD; Ildikó Süveges, MD, PhD, DSc</i>	
In Reply	119
<i>John C. Chen, MD, FRCSC</i>	

OBITUARY

Roy H. Steinberg, MD, PhD, 1935-1997	120
<i>Matthew M. LaVail, PhD; Sheldon Miller, PhD; Peter A. Dudley, PhD</i>	

BOOK AND SOFTWARE REVIEWS

Atlas of Ophthalmic Surgery	124
<i>Norman S. Jaffe, MD (ed)</i>	
<i>Reviewed by James Allen, MD</i>	
Glaucoma: A Colour Manual of Diagnosis and Treatment	124
<i>Jack J. Kanski, MD, MS, FRCS, FRCOphth;</i>	
<i>James A. McAllister, FRCS, FRCOphth;</i>	
<i>John F. Salmon, MD, FRCS, FRCOphth</i>	
<i>Reviewed by John Geanon, MD</i>	

CORRECTIONS

A Comparison of Retinal Morphology Viewed by Optical Coherence Tomography and by Light Microscopy	77
<i>Cynthia A. Toth, MD; Drew G. Narayan; Stephen A. Boppart, MSEE; Michael R. Hee, MSEE; Jim G. Fujimoto, PhD; Reginald Birngruber, PhD; Clarence P. Cain, PhD; Cheryl D. DiCarlo, DVM; W. Patrick Roach, PhD</i>	
Protracted Postsurgical Blindness With Visual Recovery Following Optic Nerve Sheath Fenestration	107
<i>Michael C. Brodsky, MD; Garrick A. Rettele, MD</i>	

REGULAR DEPARTMENTS

Reviewers for 1997	9
Notes From Our Ophthalmic Heritage	52, 122
News and Comment	121
Continuing Medical Education	126
Instructions for Authors	127
Products & Services	132
Classified Advertising	133
Index to Advertisers	136

Call for Papers

Call for Papers for the Annual Coordinated Theme Issues of the American Medical Association's Journals

Considering that complementary and alternative medical therapies have the potential to involve patients of physicians in virtually all specialties, the editors of the American Medical Association scientific journals have selected complementary and alternative medicine as the subject for coordinated theme issues to be published in November 1998.

We invite interested authors to submit manuscripts about this topic for consideration for the November issue. To allow sufficient time for peer review and possible revisions, we must receive these manuscripts no later than May 1, 1998. Please note in the cover letter that the submission is for the November "Alternative Medicine" issue.