

VOLUME 11

JULY/AUGUST 1994

NUMBER 4

V I S U A L N E U R O S C I E N C E

An international journal for experimental and theoretical research

CAMBRIDGE
UNIVERSITY PRESS

V I S U A L N E U R O S C I E N C E

(ISSN 0952-5238)

EDITOR

JAMES T. MCILWAIN
Brown University

FOUNDING EDITOR

KATHERINE V. FITE
University of Massachusetts, Amherst

EDITORIAL BOARD

Duane G. Albrecht, *University of Texas, Austin*
Paola Bagnoli (Associate Editor), *University of Pisa, Italy*
Alexander K. Ball, *McMaster University, Ontario*
Barbara-Anne Battelle, *University of Florida*
M. Deric Bownds, *University of Wisconsin, Madison*
Jean Bullier, *INSERM, Lyon*
T.W. Cronin, *University of Maryland, Cantonsville*
Ulf T. Eysel, *Universität Bochum*
David L. Ferster, *Northwestern University, Evanston*
David Fitzpatrick, *Duke University, Durham*
Laura J. Frishman, *University of Houston*
P. Michael Iuvone, *Emory University, Atlanta*
Ann H. Milam, *University of Washington*
Ehud Kaplan, *Rockefeller University, New York*
Kent T. Keyser, *University of California, San Diego*

David R. Pepperberg, *University of Illinois, Chicago*
Roberta G. Pourcho, *Wayne State University, Detroit*
Dianna A. Redburn, *University of Texas, Houston*
Anton J. Reiner, *University of Tennessee, Memphis*
John G. Robson (Associate Editor), *University of Cambridge*
Michael H. Rowe, *Ohio University, Athens*
Anne C. Rusoff, *Montana State University*
Peter H. Schiller (Associate Editor), *Massachusetts Institute of Technology*
David I. Vaney, *University of Queensland, Australia*
Andrew B. Watson, *Vision Group, Moffett Field, California*
Paul Witkovsky (Associate Editor), *New York University Medical Center*
Stephen Yazulla (Associate Editor), *State University of New York, Stony Brook*

Visual Neuroscience publishes experimental and theoretical studies concerning the neural mechanisms of vision. Contributions may deal with molecular, cellular, and systems-level processes in both vertebrate and invertebrate species. Studies based exclusively on clinical, psychophysical, or behavioral data will be considered only if they explicitly address neural mechanisms. Appropriate research areas include:

- photoreception and transduction
- subcortical visual pathways
- developmental processes
- visually guided behavior
- retinal structure and function
- cortical mechanisms
- oculomotor control
- substrates of perception

Visual Neuroscience features full-length research papers, short communications, and review articles that critically examine topics related to the journal's principal focus.

Visual Neuroscience is indexed in Current Contents/Life Sciences; Science Citation Index; Ocular Resources Review; Neuroscience Citation Index; and in the SCISEARCH and ISI/BIOMED databases.

Editorial Office: James T. McIlwain, Editor, *Visual Neuroscience*, Brown University, Box G-M416, Providence, RI 02912, USA. Telephone (401) 863-2159. Fax: 401-863-2537. E-mail: james_mcilwain@brown.edu.

Publishing, Subscription and Advertising Offices: Cambridge University Press, 40 West 20th Street, New York, NY 10011, USA; and (outside the US and Canada) Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, England.

Published Bimonthly. Annual institutional subscription rates: US \$358.00 in the US, Canada, and Mexico; UK £229.00 + VAT elsewhere. Individual rates: US \$130.00 in the US, Canada, and Mexico; UK £93.00 + VAT elsewhere. Single part rates: US \$60.00 in the US, Canada, and Mexico; UK £38.00 + VAT elsewhere. Special rates for students (with certification of status): US \$85.00 in the US, Canada, and Mexico; UK £65.00 + VAT elsewhere. Prices include postage and insurance.

Copyright © 1994 Cambridge University Press

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying or otherwise, without permission in writing from Cambridge University Press. *Photocopying information for users in the U.S.A.:* The Item-Fee Code for this publication (0952-5238/94 \$5.00 + .00) indicates that copying for internal or personal use beyond that permitted by Sec. 107 or 108 of the U.S. Copyright Law is authorized for users duly registered with the Copyright Clearance Center (CCC) Transaction Reporting Service, provided that the appropriate remittance of \$5.00 per article is paid directly to: CCC, 222 Rosewood Drive, Danvers, MA 01923. Specific written permission must be obtained for all other copying.

Printed in the United States of America.

Second class postage paid at New York, NY, and additional mailing offices. Postmaster: send address changes in the US and Canada to: *Visual Neuroscience*, Journals Department, Cambridge University Press, 110 Midland Avenue, Port Chester, NY 10573-4930.