The four numbers in this volume can be obtained separately from the Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

Copyright

© 1989 The Royal Society and the authors of individual papers.

It is the policy of the Royal Society not to charge any royalty for the production of a single copy of any one article made for private study or research. Requests for the copying or reprinting of any article for any other purpose should be sent to the Royal Society.


Printed in Great Britain by the University Press, Cambridge
CONTENTS

SERIES B VOLUME 237

NUMBER 1286  22 JUNE 1989

By L. M. Kunkel

The Florey Lecture, 1988. From egg to embryo: the initiation of cell
differentiation in Amphibia
By J. B. Gurdon. [Plates 1–4]

Responses of synchronous L5178Y S/S cells to heavy ions and their
significance for radiobiological theory
By J. T. Lett, A. B. Cox, M. D. Story, U. K. Ehmann and E. A. Blakely

The stability of ecosystems
By T. Hogg, B. A. Huberman and Jacqueline M. McGlade

Block of an insect central nervous system GABA receptor by cyclodiene and
cyclohexane insecticides
By K. A. Wafford, S. C. R. Lummis and D. B. Sattelle

Transport of carbon and phosphorus compounds about Sphagnum
By H. Rydin and R. S. Clymo. [Plates 1 and 2]

The determination of kinetic parameters for carrier-mediated transport of
non-labelled substrate analogues: a general method applied to the study
of divalent anion transport in placental membrane vesicles
By R. Deves and C. A. R. Boyd

The relation of elevation of cytosolic free calcium to activation of membrane
conductance in rat parotid acinar cells
By P. T. A. Gray

Inorganic nitrogen uptake by symbiotic marine cnidarians: a critical review
By D. J. Miller and D. Yellowlees

Epithelial action potentials in embryos of the Australian lungfish
By Q. Bone, F.R.S., A. Kemp and D. Kemp

NUMBER 1287  22 JULY 1989

The dynamics of Trifolium repens in a permanent pasture. I. The population
dynamics of leaves and nodes per shoot axis
By N. R. Sackville Hamilton and J. L. Harper, F.R.S.

Propulsion of a fin whale (Balaenoptera physalus): why the fin whale is a fast
swimmer
By N. Bose and J. Lien

Foraging behaviour of a tropical crab: Ozias verreauxii
By R. N. Hughes
Calcium-activated, voltage-dependent, non-selective cation currents in endosperm plasma membrane from higher plants
By H. Stoeckel and K. Takeda. [Plate 1] 213

\(a-(2\rightarrow8)\)-Polysialic acid immunoreactivity in voltage-sensitive sodium channel of eel electric organ
By W. M. James and W. S. Agnew 233

Properties of acetylcholine-receptor activation in human Duchenne muscular dystrophy myotubes
By E. Mancinelli, A. Sardini, A. D'Aumiller, G. Meola, G. Martucci, G. Cossu and E. Wanke 247

**NUMBER 1288  22 AUGUST 1989**

Fatty acid modifies Ca\(^{2+}\)-dependent potassium channel activity in smooth muscle cells from the human aorta
By P. D. Bregestovski, V. M. Bolotina and V. N. Serebryakov 259

The assembly of ionic currents in a thalamic neuron. I. The three-dimensional model
By R. M. Rose and J. L. Hindmarsh. [Plate 1] 267

The assembly of ionic currents in a thalamic neuron. II. The stability and state diagrams
By R. M. Rose and J. L. Hindmarsh 289

The assembly of ionic currents in a thalamic neuron. III. The seven-dimensional model
By R. M. Rose and J. L. Hindmarsh 313

Iron mineralization in the radula teeth of the chiton *Acanthopleura hirtosa*
By K.-S. Kim, D. J. Macey, J. Webb and S. Mann. [Plates 1–4] 335

The cytology of heavy metal accumulations in the digestive glands of three marine gastropods
By J. A. Nott and A. Nicolaidou. [Plates 1 and 2] 347

Osmosis in leaky pores: the role of pressure
By A. E. Hill 363

Osmotic flow equations for leaky porous membranes
By A. E. Hill 369

Ionic and charge-displacement currents evoked by temperature jumps in *Xenopus* oocytes
By I. Parker 379

**NUMBER 1289  22 SEPTEMBER 1989**

Editorial
A mathematical model of the carbon metabolism in photosynthesis.
Difficulties in explaining oscillations by fructose 2,6-bisphosphate regulation
By A. Laisk, H. Eichelmann, V. Oja, A. Eatherall and D. A. Walker, F.R.S. 389
Contents

A mathematical model of electron transport. Thermodynamic necessity for photosystem II regulation: 'light stomata'
By A. Laisk and D. A. Walker, F.R.S. 417

Vertical disparity, egocentric distance and stereoscopic depth constancy: a new interpretation
By P. O. Bishop, F.R.S. 445

The morphology and topographic distribution of substance-P-like immunoreactive amacrine cells in the cat retina
By D. I. Vaney, G. E. Whittington and H. M. Young. [Plates 1–6] 471

Oscillation period of mepp frequency at frog neuromuscular junctions is inversely correlated with release efficacy and independent of acute Ca^{2+} loading
By P. A. Pawson and A. D. Grinnell 489

Actions of the insecticide 2(nitromethylene)tetrahydro1,3-thiazine on insect and vertebrate nicotinic acetylcholine receptors

Indexes 515