

QUARTERLY REVIEWS OF BIOPHYSICS

VOLUME 11 1978

Editors: A. Engström [*Sweden*], A. Ehrenberg [*Sweden*],
R. D. Keynes [*United Kingdom*],
G. Felsenfeld [*U.S.A.*]

Council of IUPAB

S. Ebashi (*Japan*) *President*

A. R. Gopal-Ayengar [*India*] *Vice-President*

R. D. Keynes [*United Kingdom*] *Vice-President*

B. Chance [*U.S.A.*] *Hon. Vice-President*

K. Wüthrich [*Switzerland*] *Secretary-General*

J. Coursaget (*France*)

H. Eisenberg [*Israel*]

M. Errera (*Belgium*)

S. Estrada-O (*Mexico*)

V. S. Gurfinkel (*U.S.S.R.*)

P. G. Kostyuk (*U.S.S.R.*)

S. Maričić (*Yugoslavia*)

L. D. Peachey (*U.S.A.*)

D. C. Phillips (*United Kingdom*)

F. M. Richards (*U.S.A.*)

A. J. H. Vendrik (*Netherlands*)

A. Wada (*Japan*)

Published for the International Union for
Pure and Applied Biophysics

Cambridge University Press 1978

PUBLISHED BY
THE SYNDICS OF THE CAMBRIDGE UNIVERSITY PRESS

The Pitt Building, Trumpington Street, Cambridge CB2 1RP
Bentley House, P.O. Box 92, 200 Euston Road, London NW1 2DB
32 East 57th Street, New York, N.Y. 10022

© Cambridge University Press 1979

Printed in Great Britain at the University Press, Cambridge

Contents

No. 1. FEBRUARY 1978

T. W. BARRETT. The transfer of the cochlea	1
O. KRATKY and I. PILZ. A comparison of X-ray small-angle scattering results to crystal structure analysis and other physical techniques in the field of biological macromolecules	39
H. B. STUHRMANN. The use of X-ray synchrotron radiation. for structural research in biology	71
News from IUPAB	99

No. 2 MAY 1978

M. THOMAS RECORD Jr., CHARLES F. ANDERSON and TIMOTHY M. LOHMAN. Thermodynamic analysis of ion effects on the binding and conformational equilibria of proteins and nucleic acids: The roles of ion association or release, screening and ion effects on water activity	103
GERALD S. MANNING. The molecular theory of polyelectrolyte solutions with applications to the electrostatic properties of polynucleotides	179
News from IUPAB	247

No. 3. AUGUST 1978

L. A. BLUMENFELD. The physical aspects of energy transduction in biological systems	251
P. R. CAREY. Resonance Raman spectroscopy in biochemistry and biology	309
PETER LAGGNER and KARL W. MULLER. The structure of serum lipoproteins as analysed by X-ray small angle scattering.	371
News from IUPAB	427

No. 4. NOVEMBER 1978

J. EISINGER and W. E. BLUMBERG. Environmental intoxicants and their fundamental interactions	429
JOSEF EISINGER. Biochemistry and measurement of environmental lead intoxication	439
J. M. WOOD., Y-T. FANCHIANG and W. P. RIDLEY. The biochemistry of toxic elements	467
W. E. BLUMBERG. Enzymic modification of environmental intoxicants: the role of cytochrome P-450	481
ARTHUR M. LANGER. Crystal faces and cleavage planes in quartz as templates in biological processes	543
STANLEY DAGLEY. Determinants of biodegradability	577
JAMES E. TROSKO and CHIA-CHENG CHANG. Genes, pollutants and human diseases	603
Opening Address by the President of IUPAB	629
News from IUPAB	637

INFORMATION FOR CONTRIBUTORS TO QUARTERLY REVIEWS OF BIOPHYSICS

1. *Quarterly Reviews of Biophysics* is the official journal of the International Union for Pure and Applied Biophysics. As such, its primary aim is to provide a forum for general and specialized communication between biophysicists working in different areas. This will normally be achieved by inviting authors who have made significant contributions to give a critical and readable account of recent progress in their special fields. Shorter and even controversial articles discussing topics of particular current interest will also be published.

2. Reviews should preferably be written in English. The style of presentation must be concise, with only key references.

3. Three copies of manuscripts are required. They should be typed in double spacing with a margin of 4 cm all round. The position of tables and illustrations should be indicated in the text. Tables and legends for illustrations should be typed on separate pages. A table of contents should be provided for printing at the head of the article.

4. In the text, the references should be to authors and year. When a paper cited has three or more authors the style Smith *et al.* (1973) should be used on all occasions. At the end of the paper, references should be listed alphabetically, with the full title of each paper, and the first and last pages. Abbreviations of journal titles should follow the latest edition of the *World List of Scientific Periodicals*. For example

BERNAL, J. D. (1967). *Origin of Life*. London: Weidenfeld and Nicolson.

EIGEN, M. (1968). New looks and outlooks on physical enzymology. *Q. Rev. Biophys.* 1, 3-33.

5. Drawings should be in Indian ink on tracing paper. They should be drawn roughly twice the size of the finished block. Explanations should as far as possible be placed in the legends. Lettering for photographs should either be on a duplicate print or on an accurately registered overlay.

6. The author will receive only one set of page proofs for correction. Fifty reprints of each review will be provided free of charge. Additional copies may be purchased.

QUARTERLY REVIEWS OF BIOPHYSICS

Reviews on the following topics will appear in forthcoming issues:

Physical models for the analysis of acoustical systems in biology
N. F. FLETCHER and SUSZANNE THWAITES

Photoreversibly photochromic pigments in organisms: properties
and role in biological light perception

L. O. BJÖRN

Quantum mechanical tunneling in biological systems

D. DEVAULT

Osmosis

ADRIAN HILL

© Cambridge University Press 1979

CAMBRIDGE UNIVERSITY PRESS

The Pitt Building, Trumpington Street, Cambridge CB2 1RP
Bentley House, 200 Euston Road, London NW1 2DB
32 East 57th Street, New York, NY 10022

Printed in Great Britain at the University Press, Cambridge