THE BIOCHEMICAL JOURNAL

15 October 1980

Volume 192, No. 1

EDITORIAL BOARD

Chairman

J. T. Dinale

Deputy Chairmen C. I. Pogson A. J. Kenny J. B. Clark A. J. Cornish-Bowden J. A. Lucy

Editorial Manager A. G. J. Evans

Editorial Secretary
A. S. Beedle

P. M. Bayley* W. J. Brammar R. C. Brav J. W. Bridges D. N. Brindlev H. G. Britton K. Brocklehurst M. J. Clemens B. A. Cooke D. D. Davies R. T. Dean R. M. Denton F. M. Dickinson G. J. Dutton P. C. Engel J. E. Fotheraill P. J. Garlick J. L. Gordon **D. E. Griffiths**

L. A. Grivell B. A. Haddock L. Hue O. T. G. Jones P. Lund **R. M. Marchbanks** G. Murphy N. B. Mvant K. B. M. Reid D. Robinson D. Schulster J. E. Scott S. P. Spragg* D. R. Stanworth M. J. A. Tanner P. Tulkens R. T. Walker

*Nominated by the British Biophysical Society

Overseas Advisory Panel

H. Beinert (U.S.A.), H. F. DeLuca (U.S.A.), W. Fiers (Belgium), R. W. Hanson (U.S.A.),
O. Hayaishi (Japan), B. Hess (Germany), D. B. Keech (Australia), T. C. Laurent (Sweden),
L. F. Leloir (Argentina), R. Ross (U.S.A.), M. Schramm (Israel), A. Tissières (Switzerland),
D. Trentham (U.S.A.), A. D. Vinogradov (U.S.S.R.), O. Wieland (Germany)



London: The Biochemical Society © 1980

THE BIOCHEMICAL SOCIETY

OFFICERS AND COMMITTEE, 1980-81

Chairman of the Committee **S. V. Perry, F.R.S.**

Treasurer **D. F. Elliott**

Assistant Treasurer **B. Spencer**

General Secretary **D. Robinson**

Publications Secretary G. B. Ansell

Meetings Secretary H. F. Bradford Committee J. R. Bronk E. G. Brown P. H. Clarke, F.R.S. J. T. Dingle*† P. F. Fottrell M. I. Gurr J. L. Harwood F. W. Hemming J. A. Lucy R. D. Marshall J. Mowbray*‡ I. H. M. Muir, F.R.S.

J. H. Ottaway R. N. Perham C. F. Phelps

**Ex officio* Member of Committee. †Representative of Editorial Board of the *Biochemical Journal.* ‡Representative of Group Secretaries.

....

Executive Secretary: A. I. P. Henton (7 Warwick Court, London WC1R 5DP)

The Biochemical Society exists to advance the science of biochemistry through meetings and publications. Several meetings a year are held, each at a different place; original papers are presented and special topics are discussed at symposia and colloquia. Persons interested in biochemistry are eligible for election as Members. Details of further facilities accorded to Members, and forms of application for membership, are available from the Executive Secretary, The Biochemical Society, 7 Warwick Court, London WC1R 5DP [01-242 1076 (4 lines)]

NOTICE FOR SUBSCRIBERS

The Biochemical Journal is published and distributed by the Biochemical Society. It is published twice monthly, alternate issues being devoted to Molecular Aspects and to Cellular Aspects of biochemistry. It is planned that in 1980 eight volumes, each volume being made up of three issues, will be published.

Biochemical Society Transactions. This is a separate publication (see below). Volume 8 will be published in 1980, in six parts.

Subscription Rates to the Biochemical Journal. For non-members of the Biochemical Society the subscription rates for 1980 are shown below.

Subscribers to the *Biochemical Journal* can subscribe to *Biochemical Society Transactions* on a joint subscription, saving £15.00 (U.K. and Overseas) or \$25.00 (N. America). The methods of despatch of both publications are shown below.

Terms are cash with order or against proforma invoice. Orders and subscriptions should be sent to the

Biochemical Society Book Depot, P.O. Box 32, Commerce Way, Colchester CO2 8HP, Essex, or through your normal agent.

		U.S.A.,
	U.K. &	Canada
	Overseas	& Mexico
1 year (8 volumes)	£195.00	U.S. \$465.00
Per volume	£26.00	U.S. \$60.00
Per part	£9.00	U.S. \$21.50
	Japan only	
1 year (8 volumes)	£225.00	
Per volume	£30.00	
Per part	£11.50	

Airfreight to U.S.A., Canada and Mexico. The subscription rates for North America include an element for this service.

Accelerated Surface Post to Japan only. The subscription rates include a surcharge for this service.

IMPORTANT NOTICE. All subscribers, other than in North America, are asked to remit in £ sterling or U.S. \$ equivalent at the rate of exchange prevailing at the date of payment.

Second-class postage paid at New York, NY, U.S.A.

Contents

- Characterization of glycopeptides labelled from D-[2-³H]mannose and L-[6-³H]fucose in intestinal epithelial cell membranes during differentiation
- Effects of ionophores and metabolic inhibitors on the mitochondrial membrane potential within isolated hepatocytes as measured with the safranine method
- The H^+/e^- stoicheiometry of respiration-linked proton translocation in the cytochrome system of mitochondria
- The location of dissimilatory nitrite reductase and the control of dissimilatory nitrate reductase by oxygen in *Paracoccus denitrificans*
- Stoichiometry of catecholamine/protein exchange across the chromaffin-granule membrane
- Hydroperoxide-induced chemiluminescence of the perfused lung
- Transport of D-fructose and D-galactose into isolated rat hepatocytes

- A. HERSCOVICS, B. BUGGE, 145–153 A. QUARONI & K. KIRSCH
- K. E. O. Åkerman & J. O. Järvisalo 183–190
- S. Papa, F. Guerrieri, M. Lorusso, **203–218** G. Izzo, D. Boffoli, F. Capuano, N. Capitanio & N. Altamura
- P. R. ALEFOUNDER & S. J. FERGUSON 231-240
- J. H. PHILLIPS & D. K. APPS 273–278
- E. CADENAS, I. D. ARAD, A. B. FISHER, 303-309 A. BOVERIS & B. CHANCE
- J. D. CRAIK & K. R. F. ELLIOTT 373–375

PHOTOCOPYING

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made in the U.S.A. for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per-copy fee through the Copyright Clearance Center Inc. (P.O. Box 765, Schenectady, New York 12301, U.S.A.) for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

INDEX OF AUTHORS

	PAGE		PAGE		PAGE
Agius, L.	361	Hamann, A.	223	Phillips, J. H.	273
Agutter, P. S.	85	Harmony, J. A. K.	91	Pollak, J. K.	75
Åkerman, K. E. O.	183	Hassinen, I. E.	285	Porteous, R.	191
Alefounder, P. R.	231	Hers, HG.	177, 263	Pösö, H.	59
Altamura, N.	203	Herscovics, A.	133, 145	Postle, A. D.	65
Apps, D. K.	273	Heslop, J. P.	247		
Arad, I. D.	303	Hiltunen, J. K.	285	Quaroni, A.	133, 145
11,000, 11,200	000	Hilz, H.	223	2 ,	
Barber, B. H.	49	Hokin, L. E.	107		
Bauer, J. S.	99	Holmsen, H.	99	Ragan, C. I.	9, 19
Berridge, M. J.	247	Howell, S. L.	381	Raz, A.	127
Bloxham, D. P.	65	Hradec, J.	369	Remberg, G.	331
Boeynaems, JM.	241	Hsu, B. YL.	119	Roncari, D. A. K.	165
Boffoli, D.	203	Hue, L.	263	Roomi, M. W.	165
Boveris, A.	303	Hui, D. Y.	91	Russell, S. M.	321
Bugge, B.	145	11ul, D. 1.	91		
Burgess, R. J.	321			Saxton, J.	311
Durgess, R. J.	521	Iles, R. A.	191	Schmidt, E.	331, 339
Cadenas, E.	303	Irvine, R. F.	279		127
	203	Isselbacher, K. J.	133	Schwartzman, M.	223
Capitanio, N.	203	Izzo, G.	203	Schwoch, G.	
Capuano, F.				Segal, S.	119
Chance, B.	303 9, 19	Jänne, J.	59	Solanki, K.	377
Cottingham, I. R.	373	Järvisalo, J. O.	183	Speake, B. K.	297
Craik, J. D.	373 49	· · · · · · · · ·		Statham, H. E.	257
Crumpton, M. J.	49	Käpyaho, K.	59	Stevens, A. N.	191
Demostration C A	99	King, S. R.	1	Storer, G. B.	219
Dangelmaier, C. A.	279	Kirsch, K.	133, 145	Sutton, R.	75
Dawson, R. M. C.		Knackmuss, HJ.	331, 339		
Delaissé, JM.	365	Koenig, H.	349	Takala, T.	285
Devos, P.	177 257	Koeing, H.	549	Topping, D. L.	219
Dubowitz, V.				Trimble, R. P.	219
Dumont, J. E.	241	Letcher, A. J.	279	Tucker, E. M.	33
Easthaut V	265	Lorusso, M.	203	Tuháčková, Z.	369
Eeckhout, Y.	365	Lu, C. Y.	349	Tyhurst, M.	381
Elliott, K. R. F.	373				
Erneux, C.	241	Marshall, C. M.	119	Vere C	265
	40	Mascaro, K.	1	Vaes, G.	365
Faulkes, R. A.	49	Mayer, R. J.	311, 321	Van Schaftingen, E.	263
Ferguson, S. J.	231	McNamara, P. D.	119	Veneziale, C. M.	41
Fisher, A. B.	303	Moser, U. K.	377		
Fukami, M. H.	99			Walter, P.	377
	101	Nyfeler, F.	377	Weinberger, M. J.	41
Gadian, D. G.	191		••••	White, D. A.	297
Gilman, J. G.	355	Odessey, R.	155	Wilde, C. J.	311
Gleed, C. D.	85	Owen, M. J.	49	Williamson, D. H.	361
Goldberg, D. M.	165	Uwen , W . J.	47	Witkowski, J. A.	257
Goldstone, A.	349	D			
Golichowski, A. M.	1	Papa, S.	203		
Griffiths, J. R.	191	Paskin, N.	311	Young, J. D.	33
Guerrieri, F.	203	Peterson, G. L.	107	Yu, A.	165

NOTICE FOR CONTRIBUTORS

The Biochemical Journal places emphasis on the prompt publication of both full-length papers (on average about 6 months after receipt) and rapid papers (on average 10-12 weeks after receipt).

For detailed instructions on the preparation of papers contributors (who need not be members of the Biochemical Society) should refer to *Policy of the Journal and Instructions to Authors* [Biochem. J. (1978) 169, 1–27], and the notice below.

Papers submitted for publication should be addressed to the Editorial Manager, Biochemical Journal, 7 Warwick Court, London WC1R 5DP.

Contributors should note that the *Biochemical Journal* makes no manuscript handling charges, no page charges and no charges for plates. Reprints are available at modest cost at about the same time as publication, and, if an author is a member of the Biochemical Society, 25 reprints are provided free of charge.

The Biochemical Journal accepts papers on all aspects of Biochemistry. Alternate issues of the journal are devoted to **Molecular Aspects** and **Cellular Aspects**. For the convenience of readers, papers within each issue are assigned to sections on the Contents pages. Authors should indicate whether their papers are **Molecular** or **Cellular** and designate the section in Contents in which they would like their paper to appear. Section headings, for both **Molecular Aspects** and **Cellular Aspects**, are reviewed from time to time; the present headings are as follows:

Molecular Aspects (Physical, Structural and Chemical Properties of Biochemical Systems, including Sequencing Information) Peptide and Protein Structure Enzymes and Enzyme Kinetics Metalloproteins Nucleoides, Nucleic Acids and Nucleoproteins Lipids Membranes Carbohydrates and Complex Carbohydrates Physical Biochemistry Cellular Aspects (Biochemical Properties of Metabolic, Subcellular and Cellular Systems) Protein Biosynthesis/Molecular Genetics Protein Turnover Metabolism, Regulation and Control Processes Cell Surfaces and Receptors Developmental Biochemistry Membranes, Transport, Bioenergetics and Photosynthesis

IMPORTANT NOTICE FOR AUTHORS

Limitation of paper lengths. As a measure to meet the effects of continuously rising production costs of the Journal, the Editorial Board has decided to introduce a policy of limitation of length of published papers. In future papers should not normally exceed eight printed pages in the Journal, including Figures and Tables. (Eight pages represent approximately 5000 words without Figures or Tables; as a guide, the number of double-spaced A4 typescript sheets for text and references, with the addition of one sheet for each Figure, Table or Scheme with its legend, should not exceed 24 if the eight printed pages maximum is to be met.) Cooperation of authors in this will be expected, and there is an advantage in that shorter papers are usually published with the least delay. Authors should also note that a single paper consisting justifiably of ten printed pages, for example, will normally be considered more favourably than two papers each of six pages dealing with the same material.

Copies of submitted papers. To expedite handling and refereeing procedures in a new system to be operated by the Journal, authors are now requested to provide three copies of papers at submission.

New features. In 1981 the inclusion of Reviews in the Journal will commence; these will usually be invited, although prospective authors of Reviews are welcome to contact the Deputy Chairman concerned with Reviews (Professor J. A. Lucy) at the Editorial Office.

"Biochemical Journal Letters' is an additional feature now being implemented for the Journal. 'BJ Letters' are intended to provide an opportunity to discuss, criticize or expand particular points made in published work, or to present a hypothesis. They must be concisely written and each will normally occupy less than one printed page of the Journal. Letters will be treated as items for rapid publication. They will be accepted only if they are thought to represent soundly reasoned opinions. Letters are not intended to provide a vehicle for discussion of more general matters which might more appropriately be sent to the *Biochemical Society Bulletin*. If a letter is polemical in nature, a reply may be solicited from other interested parties before its publication. Such replies will be assessed for publication with the original letter if this is appropriate. Letters should be sent to the Editorial Office.