THE BIOCHEMICAL SOCIETY

OFFICERS AND COMMITTEE, 1969-70

Chairman of the Committee
G. A. D. HASLEWOOD

Treasurer
W. F. J. CUTHBERTSON

Meetings Secretary
A. N. DAVISON

Committee Secretary
K. S. DODGSON

International Secretary
A. P. MATHIAS

Committee
J. S. D. BACON  R. HOFFENBERG*†  P. J. RANDLE
G. R. BARKER  A. KORNER  D. S. ROBINSON*†
W. BARTLEY  H. A. KREBS  D. B. ROODYN*†
S. R. ELSDEN  S. V. PERRY  R. M. S. SMELLIE§
D. F. EVERED  D. C. PHILLIPS  D. G. WALKER*†

* Ex officio Member of Committee.
† Representative of Editorial Board of the Biochemical Journal.
‡ Representative of Editorial Board of Clinical Science.
§ Symposium Organizer.

The Biochemical Society exists to advance the science of biochemistry through meetings and publications. Eleven 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 W.C.1 (01-242 1076/7/8/9).

The Biochemical Journal is published and distributed by the Biochemical Society. It is published twice monthly, in four or more volumes per year. It is planned that five volumes will appear in 1970. The index for each volume is published separately.

Subscriptions to the Biochemical Journal. For non-members of the Biochemical Society the subscription to the Journal at the present rate of publication is £45 per year (£9 per volume). For non-members in the U.S.A. the subscription is $108 per year ($22 per volume). All subscriptions are payable in advance at the time of ordering. Orders and subscriptions should be sent to the Biochemical Society (Publications), 7 Warwick Court, London W.C.1.

Claims regarding issues lost or damaged in transit should be addressed to the Biochemical Society at the address in the preceding paragraph. No claims can be entertained if they are received later than three months after the date of posting of the Journal.

Back Numbers. Enquiries for volumes 1–19 should be addressed to William Dawson & Sons Ltd., Back Issues Department, Cannon House, Park Farm Road, Folkestone, Kent. Quotations for available issues of subsequent volumes and parts may be obtained on application to Walter J. Johnson Ltd., Berkeley Square House, Berkeley Square, London W1X 6BA, or to The Biochemical Society.

Advertisements. Applications for advertising space should be sent to the Advertising Department, The Biochemical Society, 7 Warwick Court, London W.C.1 (01-242 1076/7/8/9). Copy is required eight weeks before publication date. Rate cards are available on request.

Microfilms. Volumes 1–61 (1906–1955) have been recorded on microfilm by Micro Methods Ltd., East Ardsley, Wakefield, Yorks. Details are available from the firm or the Biochemical Society.
## CONTENTS

### INDEX TO AUTHORS

<table>
<thead>
<tr>
<th>Author</th>
<th>Page(s)</th>
<th>Author</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bardsley, W. G.</td>
<td>169</td>
<td>Levvy, G. A.</td>
<td>129</td>
</tr>
<tr>
<td>Barrett, D.</td>
<td>57, 61</td>
<td>Lobley, R. W.</td>
<td>169</td>
</tr>
<tr>
<td>Boulter, D.</td>
<td>183</td>
<td>Lockwood, D. H.</td>
<td>17</td>
</tr>
<tr>
<td>Brosnan, J. T.</td>
<td>91</td>
<td>Louis, C. F.</td>
<td>139, 147</td>
</tr>
<tr>
<td>Brown, B. S.</td>
<td>119</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buckingham, R. H.</td>
<td>157</td>
<td>Milstein, C.</td>
<td>33</td>
</tr>
<tr>
<td>Butterly, S. H.</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cecil, R.</td>
<td>139, 147</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chidlow, J. W.</td>
<td>49</td>
<td>O’Grady, J. E.</td>
<td>65</td>
</tr>
<tr>
<td>Cox, R. A.</td>
<td>101</td>
<td>Ogston, A. G.</td>
<td>85</td>
</tr>
<tr>
<td>Della Corte, E.</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denton, R. M.</td>
<td>73</td>
<td>Pegg, A. E.</td>
<td>17</td>
</tr>
<tr>
<td>de Vries, G. M.</td>
<td>33</td>
<td>Pink, J. R. L.</td>
<td>33</td>
</tr>
<tr>
<td>Edmond, E.</td>
<td>85</td>
<td>Ramshaw, J. A. M.</td>
<td>183</td>
</tr>
<tr>
<td>Fishman, W. H.</td>
<td>161</td>
<td>Roughan, P. G.</td>
<td>1</td>
</tr>
<tr>
<td>Flint, A. P. F.</td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hay, A. J.</td>
<td>129</td>
<td>Shirahama, T.</td>
<td>161</td>
</tr>
<tr>
<td>Heald, P. J.</td>
<td>65</td>
<td>Smith, H.</td>
<td>49</td>
</tr>
<tr>
<td>Hems, R.</td>
<td>177</td>
<td>Smith, M. W.</td>
<td>9</td>
</tr>
<tr>
<td>Hill, C. M.</td>
<td>169</td>
<td>Snaith, S. M.</td>
<td>129</td>
</tr>
<tr>
<td>Ide, H.</td>
<td>161</td>
<td>Spray, G. H.</td>
<td>177</td>
</tr>
<tr>
<td>Kato, K.</td>
<td>161</td>
<td>Stephen, J.</td>
<td>49</td>
</tr>
<tr>
<td>Kemp, P.</td>
<td>9</td>
<td>Stirpe, F.</td>
<td>97</td>
</tr>
<tr>
<td>Krebs, H. A.</td>
<td>91, 177</td>
<td>Stocken, L. A.</td>
<td>157</td>
</tr>
<tr>
<td>Laycock, M. V.</td>
<td>183</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thompson, E. W.</td>
<td>183</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Threlfall, D. R.</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weidemann, M. J.</td>
<td>177</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Whistance, G. R.</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Williams, D. L.</td>
<td>177</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Williams-Ashman, H. G.</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Williamson, D. H.</td>
<td>91</td>
</tr>
</tbody>
</table>
PAPERS ACCEPTED FOR PUBLICATION

Properties and reaction with iodoacetamide of adenosine 5′-triphosphate-creatine phosphotransferase from human skeletal muscle. Further evidence about the role of the essential thiol group in relation to the mechanism of action. By I. KUMUDAVALLI, B. H. MORELAND and D. C. WATTS

The biosynthesis of androst-16-enes in boar testis tissue. By T. KATKOV and D. B. GOWER

A comparative study of the ability of methionine or linolenic acid to act as precursors of ethylene in plant tissues. By L. W. MAPSON, J. F. MARCH, M. J. C. RHODES and L. S. C. WOULTON

The control by insulin of amino acid accumulation in muscle. By K. L. MANCHESTER


The amino acid sequences of the Fd fragments of two human ɣ1 heavy chains. By E. M. PRESS and N. M. HOGG

Micro-analysis of pure deoxyribonucleic acid-dependent ribonuclease polymerase from Escherichia coli. Action of heparin and rifampicin on structure and function. By V. NEUHOFF, W.-B. SCHILL and H. STERNBACH

Partial characterization of a biologically active steroid glycoside isolated from the starfish Marthasterias glacialis. By A. M. MACKIE and A. B. TURNER

Bioynthesis of phytoquinones. Homogentisic acid: a precursor of plastoquinones, tocopherols and α-tocopherolquinone in higher plants, green algae and blue-green algae. By G. R. WHISTANCE and D. R. TRELFALE

The stereochemistry of hydrogen elimination from C-7 in cholesterol and ergosterol biosynthesis. By M. AKHTAR, A. D. RAHIMTULA and D. C. WILTON

A variant of rabbit phosphoglucone isomerase. By S. G. WELCH, L. I. FITCH and C. W. PARR

Factors affecting the permeability of isolated fat-cells from the rat to [42K]potassium and [36Cl]chloride ions. By M. C. FERRY and C. N. HALES


Pathways leading to and from serine during growth of Pseudomonas AM1 on C1 compounds or succinate. By J. HEPTINSTALL and J. R. QUAYLE

Isolation of ribosomes from cell-wall preparations of barley (Hordeum vulgare). By L. JERVIS and M. HALLAWAY

Cathepsin D. Purification of isoenzymes from human and chicken liver. By A. J. BARRETT

Activation of δ-aminolaevulate synthetase in extracts of Rhodopseudomonas spheroides. By J. MARRIOTT, A. NEUBERGER and G. H. TAIT

Control of the tricarboxylate cycle and its interactions with glycolysis during acetate utilization in rat heart. By P. J. RANDLE, P. J. ENGLAND and R. M. DENTON

Computer simulation of the non-steady-state radioactive labelling of a system of metabolite pools with constant rates of influx and efflux. By P. J. ENGLAND

Enzymes involved in acetoacetate formation in various bovine tissues. By G. D. BAIRD, K. G. HIBBITT and J. LEE

Evidence for the existence of a multichain proteoglycan of heparan sulphate. By L. JANSSON and U. LINDAHL

Purification and properties of the nicotinamide–adenine dinucleotide phosphate-dependent isocitrate dehydrogenase from pig liver cytoplasm. By J. A. ILLINGWORTH and K. F. TIFFTON

Enzymes of Trichomonas foetus. Separation and properties of two β-galactosidases. By G. J. HARRAP and W. M. WATKINS

Aggregation of ferrihaems. Dimerization and protolytic equilibria of protoferrihaem and deuteroferrhaem in aqueous solution. By S. B. BROWN, T. C. DEAN and P. JONES

Catalytic activity of iron(III)-centred catalysts. Role of dimerization in the catalytic action of ferrihaems. By S. B. BROWN, T. C. DEAN and P. JONES

Measurement of oxidized glutathione and total glutathione in the perfused rat heart. By P. L. WENDEL.
It is the policy of the Biochemical Journal to publish papers in English in all fields of biochemistry, provided that they make a sufficient contribution to biochemical knowledge. Papers may include new results obtained experimentally, descriptions of new experimental methods of biochemical importance, or new interpretations of existing results. All work presented should have as its aim the development of biochemical concepts rather than the mere recording of facts. Preliminary or inconclusive experiments should not generally be described.

For detailed instructions on the preparation of papers contributors should refer to Policy of the Journal and Instructions to Authors [Biochem. J. (1970), 116, 1] (obtainable from the Executive Secretary, The Biochemical Society, 7 Warwick Court, London W.C.1, price 3s. 6d. post free). In general the Biochemical Journal uses the recommended SI (Système Internationale) symbols [see Symbols, Signs and Abbreviations Recommended for British Scientific Publications (1969) (London: The Royal Society)]. For biochemical nomenclature authors should as far as possible follow the Tentative Rules and Proposals of the IUPAC–IUB Commission on Biochemical Nomenclature [see Biochem. J. (1970), 116, 10]. For chemical nomenclature the system of the Chemical Society should be used [see Handbook for Chemical Society Authors (1961), pp. 46–163]. The Biochemical Journal uses as a standard of spelling the Concise Oxford Dictionary of Current English (Oxford: Clarendon Press).

Two types of paper are accepted by the editors:

**Full-length papers.** Papers submitted for publication should be sent together with an extra copy of the synopsis to the Editorial Secretary, The Biochemical Journal, 7 Warwick Court, London W.C.1. Typescripts should bear the name and address of the person to whom the proof of the paper is to be sent.

Papers submitted should be written concisely. Typescripts that are not concise or do not conform to the conventions of the Biochemical Journal will be returned to the authors for revision. If a paper that has been returned to an author for revision is not resubmitted within one month, it will, on resubmission, be deemed to be a new paper and the date of receipt altered accordingly. A revised paper containing a significant amount of new material will also be redated.

Submission of a paper to the Editorial Board implies that it reports unpublished work, that it is not under consideration for publication elsewhere, and that if accepted for the Biochemical Journal it will not be published elsewhere in the same form, either in English or in any other language, without the consent of the Editorial Board.

Papers should be headed by a full and informative title (it should be borne in mind that scientific information services may index only the key words that appear in the title), by the names of the authors and by the name and address of the establishment where the work was performed. Details of financial support may appear in the acknowledgements at the end of the paper.

Before preparing papers authors should consult a current issue of the Journal to make themselves familiar with the general format, such as the use of cross-headings, lay-out of tables and citation of references. The need for revision of badly prepared typescripts or diagrams will delay publication. Papers should be in double-spaced typing throughout (including references and legends of tables and figures) on sheets of uniform size with wide margins. The top copy should be submitted.

Papers on specialized subjects should be presented so that they are intelligible to the ordinary reader of the Journal. Sufficient information must be included to permit repetition of the experimental work. Theoretical contributions will be considered equally with papers dealing with experimental work.

**Short Communications.** Typescripts should be submitted in duplicate, written in English, and conform strictly to the form of the Journal as far as spelling and abbreviations are concerned. Such communications must not exceed 1200 words of text, but in addition may include either one table, typed on a separate sheet, or one figure, drawn according to the rules of the Journal. If no figure or table is included the text may be expanded to 1400 words. Communications should be addressed to the Editorial Secretary, The Biochemical Journal, 7 Warwick Court, London W.C.1. Papers should be complete in themselves; (1) the methods used in experimental work must be adequately described or sufficient references given to allow repetition of the work; (2) sufficient indication of the results of experimental work must be included to justify the claims made.
STRUCTURES AND FUNCTIONS OF
PROTEOLYTIC
ENZYMES

Proceedings of a Discussion at the Royal Society
on 5–6 December 1968

203 pp. 11 plates £6.15.0. ($17.55)

Contributors include:

BLOW HARTLEY HESS GUTFREUND
WATSON KRAUT KEEIL KNOWLES
FELTMAN BUNN NEURATH LIPSCOMB
VALLEE DRENTH LOWE BERGER

Published in Philosophical Transactions of the Royal Society,
Series B, volume 257 part 813, February 1970

THE ROYAL SOCIETY, 6 CARLTON HOUSE TERRACE, LONDON, S.W.1.

THE BIOCHEMICAL JOURNAL
MARCH 16th 1970

Index to Advertisers

Advertisers’ Index xiii Nuclear Enterprises inside back
Baird & Tatlock xii Nutritional Biochemicals cover
Boehringer Corporation outside back
Pye Unicam
Radiochemical Centre
Clinical Science xiv The Royal Society xiii
Miles Laboratories vii Sigma Chemical Co. ix
Miles-Seravac xi Whatman Biochemicals viii