

# **biochemical society transactions**

**October 1979**

**Vol. 7, No. 5**

**Managing Editor**

**D. C. WATTS**

**Book Reviews Editor**

**B. MORELAND**

**london: the biochemical society © 1979**

**Biochemical Society Transactions** contains scientific reports of Society Colloquia and Members' Communications presented at the Biochemical Society's Meetings held in various parts of the U.K. and Ireland and, occasionally, in conjunction with other Societies, abroad. Short Biochemical Reviews, Book Reviews, Special Lectures of the Society and other information of biochemical interest are also included. Research papers are not accepted for publication directly.

Manuscripts reporting contributions to a Society Meeting must conform to the style of the *Biochemical Journal*. For general guidance see *Biochem. J.* (1978) **169**, 1-27. Data should be expressed in SI units [see *Pure Appl. Chem.* (1970) **21**, 1-44; *Quantities, Units and Symbols* (1971) The Royal Society, London]. Typescripts are technically sub-edited, but are not edited for scientific content, which is entirely the responsibility of the authors.

Volume 8, Parts 1-6 will be published in February, April, June, August, October and December 1980.

	1 Year	Per Part
U.K. & Eire	£35.00	£6.00
U.S.A., Canada & Mexico (by Airfreight)	U.S. \$85.00	U.S. \$15.00
Japan (by Accelerated Surface Post)	U.S. \$95.00	U.S. \$17.00
Other Overseas Destinations (by Surface Post)	U.S. \$75.00	U.S. \$13.50

Save £15 (U.S. \$25.00)

A combined 1980 subscription to *The Biochemical Journal* and *Biochemical Society Transactions* is offered at the following rates:

U.K. & Eire	£210.00
U.S.A., Canada & Mexico (by Airfreight)	U.S. \$495.00
Japan (by Accelerated Surface Post)	U.S. \$520.00
Overseas (by Surface Mail)	U.S. \$440.00

**IMPORTANT NOTICE. All subscribers outside the U.K. and Ireland must remit in U.S. \$ or the sterling equivalent at the rate of exchange prevailing at the date of payment.**

**Orders, back numbers and lost copies.** Orders, enquiries for back numbers and claims regarding issues lost or damaged should be addressed to: Biochemical Society Book Depot, P.O. Box 32, Commerce Way, Whitehall Road Industrial Estate, Colchester CO2 8HP.

No claims can be considered if they are received later than three months after the date of posting of *Transactions*, plus such time as would be expected for transit by post.

Back issues of *Biochemical Society Transactions* are available at the following prices:

Volume 1, 2 or 3	£15.00 (\$40.00) [single parts £3.00 (\$8.00)]
Volume 4	£24.00 (\$50.00) [single parts £4.20 (\$10.50)]
Volume 5	£28.00 (\$55.00) [single parts £4.80 (\$10.50)]
Volume 6 or 7	£32.00 (\$60.00) [single parts £5.40 (\$10.50)]

N.B. By Surface Mail to overseas addresses.

**Advertisements.** Applications for advertising space should be sent to the Advertising Department, The Biochemical Society, 7 Warwick Court, London WC1R 5DP [01-242 1076 (4 lines)]. Copy is required eight weeks before publication date. Rate cards are available on request.

**The Biochemical Society** exists to advance the science of biochemistry through meetings and publications. Meetings are held at different places; 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 [Telephone 01-242 1076 (4 lines)].

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

## INDEX OF AUTHORS

- Adams, T. H. 1018  
 Ager, A. 1065  
 Agutter, P. S. 926  
 Albano, J. D. M. 1035  
 Alberti, K. G. M. M. 1026, 1055  
 Allen, A. 904  
 Allen, R. L. 1081  
 Alvarado, F. 962, 1071  
 Amirrasooli, H. 1030  
 Aronson, N. N., Jr. 905
- Bailey, C. J. 911  
 Bailey, G. S. 1061  
 Balba, M. T. 1115  
 Bates, E. J. 854  
 Bauermeister, A. 1047  
 Baum, H. 1127, 1131, 1133  
 Baxter, M. A. 949  
 Baybutt, H. N. 1093  
 Beechey, R. B. 1120, 1127, 1131, 1133  
 Benford, D. J. 1107  
 Bénicourt, C. 1095  
 Bertrand-Triadou, N. 962, 1071  
 Besser, G. M. 857  
 Billah, M. M. 861  
 Billington, D. 947, 948  
 Bisson, R. 952, 954  
 Bitensky, L. 857  
 Boobis, A. R. 1060  
 Boothroyd, B. 956  
 Borghetti, A. F. 1007, 1137  
 Boyd, G. S. 967  
 Bramley, T. A. 841  
 Brand, M. D. 874  
 Branford White, C. J. 973  
 Bridges, J. W. 1073, 1104, 1106, 1107  
 Brindley, D. N. 1051  
 Brodie, M. J. 1060  
 Burditt, S. L. 1051  
 Burns, J. A. 1149  
 Butt, N. M. 1037, 1042
- Campbell, A. K. 865, 1066  
 Castle, A. G. 1024  
 Cattell, K. J. 935
- Chalmers, R. A. 957, 958  
 Chantler, E. N. 1079  
 Chayen, J. 857  
 Chayen, R. 857  
 Cheetham, P. S. J. 980  
 Cheng, C. H. K. 854  
 Clarke, D. J. 1111  
 Clarke, N. A. 1115  
 Clegg, R. A. 992, 1053  
 Coelho, L. C. B. B. 988  
 Coffey, K. H. M. 1011  
 Cole, W. F. 943  
 Coleman, R. 947, 948  
 Coles, G. A. 941  
 Collier, H. O. J. 1042  
 Coltart, D. J. 1028  
 Connock, M. J. 935  
 Cook, P. A. 895  
 Cooke, G. M. 920  
 Cooling, J. 1051  
 Coore, H. G. 949  
 Costa, E. M. 1077  
 Cousineau, J. 961  
 Cox, P. J. 1073  
 Cox, R. P. 1117  
 Craig, I. F. 967  
 Cramer, W. A. 1145  
 Crawford, A. 1030  
 Crawford, N. 1024
- Dabbeni-Sala, F. 954  
 Datta, H. 1026  
 Davies, D. S. 1060  
 Davies, J. I. 900  
 Davies, M. 941  
 Davies, R. J. H. 1088, 1089  
 Davison, M. T. 1112  
 Daw, R. A. 865, 1066  
 Dawes, I. W. 976  
 Dawson, J. R. 1106  
 Dearnley, C. N. 1061  
 De Brito, R. 917  
 de Duve, C. 823  
 Defreyn, G. 1050  
 De Loecker, W. 1069  
 De Martínez, S. G. 978  
 Dench, J. E. 1122  
 Dickinson, J. H. 1084  
 Dobrota, M. 1056  
 Docherty, K. 965  
 Dodgson, K. S. 1058
- Doherty, A. 1114  
 D'Souza, S. M. 982  
 Ducommun, Y. 913  
 Dutton, G. J. 1103
- Edgerton, M. E. 1075  
 Edwards, A. J. 998  
 Edwards, M. R. 1023  
 Eisenbarth, G. S. 1016  
 Elder, M. G. 909  
 Englis, D. J. 982  
 Evans, C. E. 947  
 Evans, W. C. 1115
- Farmer, P. B. 1073  
 Fell, D. A. 1039  
 Fennell, T. R. 1104  
 Ferguson, S. J. 870  
 Fisher, D. 937, 939  
 Fitzgerald, J. W. 1082  
 Flatt, J. P. 983  
 Flatt, P. R. 911, 1097  
 Flint, D. J. 992  
 Flockhart, D. A. 1033  
 Foster, A. B. 1073  
 Fouts, J. R. 1103  
 Fowler, B. J. 1081  
 Fowler, M. J. F. 979
- Gabbott, P. A. 895, 896  
 Gacesa, P. 1058  
 Galloway, M. J. 937  
 Garland, P. B. 945, 1112  
 Garlick, P. J. 1040  
 Garratt, C. J. 993, 995  
 George, J. R. 1082  
 Gergely, P. 1024  
 Gibson, J. F. 960  
 Gill, R. D. 910  
 Gillett, M. P. T. 974, 988, 1077  
 Girit, E. Z. 1007  
 Goddard, J. P. 1095  
 Godfrey, P. P. 947  
 Goldbach, R. W. 1085  
 Goodall, A. H. 937  
 Gordon, J. L. 1063, 1065  
 Goris, J. 1050  
 Gower, D. B. 920  
 Graham, J. M. 1011  
 Gray, G. M. 1129  
 Gray, J. C. 1114  
 Green, C. 978

- Green, J. R. 961  
 Greenwood, C. 1075  
 Gregory, G. 956  
 Griffiths, S. 1011  
 Gutweniger, H. 952, 954  
 Gwarsha, K. 990  
 Gylfe, E. 1097
- Hales, C. N. 965  
 Hall, D. O. 1117, 1119, 1122  
 Hallett, M. B. 865, 1066  
 Hallinan, T. 917  
 Hammond, S. M. 1145  
 Harkness, R. A. 1021  
 Harris, J. R. 928  
 Harris, T. J. R. 1085  
 Harrison, R. 971  
 Hart, C. A. 939  
 Hart, I. C. 910  
 Head, E. J. H. 896  
 Hearse, D. J. 1028  
 Hellman, B. 1097  
 Heyde, E. 1072  
 Hildenbrandt, G. R. 905  
 Hill, J. A. 1088, 1089  
 Hinton, R. H. 1056  
 Hocking, T. J. 935  
 Hole, C. J. 1101  
 Holland, D. L. 898  
 Honeyman, T. W. 986  
 Hopkins, C. R. 956  
 Houslay, M. D. 843  
 Hubbard, A. R. 957, 958  
 Hubbard, R. E. 993  
 Hue, L. 850  
 Hughes, A. E. 1089  
 Hughes, K. T. 941  
 Hunt, G. R. A. 1100  
 Hyland, K. 1124
- Illingworth, J. 1044  
 Iman, S. A. 1013  
 Ivanyi, J. 1014
- Jackson, C. 1122  
 Jagelman, S. 1019  
 Jarman, M. 1073  
 Jawaharlal, K. 1100  
 Johanson, A. 952  
 John, P. 870  
 Johnson, S. 1030  
 Johnson, S. M. 997, 998  
 Johnston, I. A. 1045  
 Jones, R. W. 1136
- Kacser, H. 1149  
 Kay, J. E. 1000, 1007, 1009  
 Keir, H. M. 1086  
 Kell, D. B. 870, 1111  
 Kelly, J. M. 1095  
 Kennedy, B. 1002  
 Kerbey, A. L. 854  
 Kingston, A. E. 1014  
 Kirk, C. J. 861  
 Kirk, P. R. 935  
 Knox, P. 919, 1011  
 Knox, W. E. 1048  
 Krab, K. 880
- Leakey, J. E. A. 1103  
 Letts, V. A. 976  
 Leyman, A. M. 1069  
 Light, P. A. 1035  
 Lim, L. 909  
 Linnett, P. E. 1120  
 Little, C. 922, 990  
 Llama, M. J. 1117, 1119  
 Lontie, R. 1050  
 Lovely, J. R. 1042  
 Lowe, P. N. 1127, 1131, 1133  
 Lowry, W. S. B. 1089  
 Lucy, J. A. 937  
 Lui, S. C. 1122  
 Lunt, G. G. 971  
 Luzio, J. P. 865, 1023, 1066  
 Lydon, N. B. 915
- Mabood, S. F. 924  
 MacNeil, S. 1030  
 Maden, B. E. H. 1095  
 Manning, A. S. 963, 1028  
 Marshall, P. 928  
 Mas-Oliva, J. 950  
 Mattsson, A. 1009  
 McBrien, D. C. H. 1124  
 McCollester, D. L. 1068  
 McGuire, M. B. 982  
 McKillop, D. 1073  
 McLeod, R. J. 967  
 McMullan, J. M. 963  
 Meats, J. E. 982  
 Merlevede, W. 1050  
 Michell, R. H. 861  
 Micklem, K. J. 960  
 Mitchell, P. 887  
 Montague, W. 913  
 Montecucco, C. 952, 954
- Moon, T. W. 1045  
 Moore, A. L. 1120, 1122  
 Moore, C. H. 945, 1112  
 Morch, M.-D. 1095  
 Morgan, N. G. 913  
 Morris, G. 1111  
 Morris, P. 1122  
 Moseby, A. M. 973  
 Moyle, J. 887  
 Mullock, B. M. 1056  
 Munro, J. O. 926  
 Myatt, L. 909
- Nairn, A. C. 966  
 Naylor, W. G. 950  
 Newby, A. C. 1030  
 Newman, P. F. J. 924  
 Nicholls, D. G. 969, 1126  
 Nimmo, I. A. 924  
 Nowak, M. 1035
- O'Connor, M. C. 1021  
 Olavesen, A. H. 1058  
 Ollis, C. 1030  
 Olsen, L. F. 1117  
 Olverman, H. J. 1063  
 Ottaway, J. H. 1161  
 Owen, J. S. 974, 1077
- Pacifici, G. M. 1060  
 Pain, V. M. 1040  
 Parke, D. V. 1109  
 Pasternak, C. A. 960, 1011  
 Pearson, C. K. 1093  
 Pearson, J. D. 1063, 1065  
 Pearson, J. P. 904  
 Perry, S. V. 966  
 Phipps, D. A. 1081  
 Piedimonte, G. 1137  
 Pitotti, A. 954  
 Pluskal, M. G. 1091  
 Ponnudurai, T. B. 995  
 Poole, T. W. 1109  
 Preedy, V. R. 1040
- Radcliffe, P. M. 854  
 Ramsay, G. M. 1018  
 Randle, P. J. 854  
 Rao, K. K. 1117, 1119  
 Reading, H. W. 933  
 Richardson, P. J. 1066  
 Robinson, R. 998  
 Rose, R. 933

- Rowe, M. 997  
 Roy, R. K. 1091  
 Rumsby, M. G. 922, 931, 943, 990  
 Russell, R. G. G. 982
- Saeed, S. A. 1037, 1042  
 Saggerson, E. D. 854  
 Sale, G. J. 854  
 Salmon, D. M. 983, 986  
 Samson, A. C. R. 1084  
 Sanders, E. 941  
 Sargent, D. F. 846  
 Sargent, J. 1047  
 Sarkar, S. 1091  
 Schiffmann, Y. 1140, 1142  
 Schoch, P. 846  
 Schulster, D. 846  
 Schwyzer, R. 846  
 Scott, I. D. 969, 1126  
 Scudder, P. 1079  
 Serra, J. L. 1117, 1119  
 Sharma, R. K. 1061  
 Sharpe, R. M. 837  
 Sheppard, R. N. 960  
 Shuttleworth, J. 935  
 Sibrian, A. M. K. 974  
 Siddiqui, A. R. 1088  
 Siddle, K. 865, 1032, 1033
- Simmonds, R. J. 1021  
 Singh, J. 1055  
 Smith, B. R. 842  
 Smith, J. E. 1011  
 Snell, K. 902, 1048  
 Sooranna, S. R. 854  
 Sorgato, M. C. 870  
 Sparrow, S. 922  
 Sprandel, U. 957, 958  
 Stanley, K. K. 1023  
 Stansfield, D. A. 915  
 Stephenson, F. A. 971  
 Stott, D. I. 1004, 1006  
 Stratford, M. R. L. 902  
 Strong, P. 1044  
 Sturdee, A. P. 935  
 Suckling, A. J. 1019  
 Suckling, K. E. 926, 967  
 Swanston-Flatt, S. K. 911  
 Szekely, M. 979
- Taylor, W. A. 1037  
 Tellier, C. 962, 1071  
 Tipping, L. R. H. 1100  
 Tovey, L. A. D. 931, 943  
 Tramacere, M. 1137  
 Trevethick, M. A. 1063
- Ungpakorn, G. 1000
- Venables, C. W. 904
- Vernon, R. G. 992  
 Verplaetse, J. 1050
- Waldock, M. J. 898  
 Wallace, D. M. 1000  
 Wallace, H. M. 1086  
 Walsh, F. S. 1016  
 Watkins, J. 907  
 Watts, D. C. 907  
 Watts, R. L. 907  
 Webb, H. E. 1019  
 Webster, A. D. B. 1021  
 Westwood, S. A. 1032  
 Whateley, J. G. 919, 1011  
 Wheeler, K. P. 929  
 White, M. 931  
 White, R. J. 1129  
 Whitmore, D. A. 929  
 Whittaker, J. 1055  
 Whittle, M. A. 895  
 Wikström, M. 880  
 Williams, A. 950  
 Wisdom, G. B. 1018  
 Wright, J. 982, 1030
- Yates, D. W. 1101  
 York, D. A. 1055  
 Young, J. L. 915
- Zaba, B. N. 900