

# **biochemical society transactions**

**1977**

**Vol. 5, No. 4**

Managing Editor  
**D. C. WATTS**

**london: the biochemical society © 1977**

**Biochemical Society Transactions.** This journal contains unedited reports of the formal presentations of data and comments communicated to the Biochemical Society at Meetings and Colloquia organized either by the Society or by the Groups of the Society. It is not a journal for the direct reporting of biochemical data. However, short reviews that survey important areas of biochemistry will be considered, but authors should consult the Managing Editor of *Biochemical Society Transactions* before preparing such articles.

Communications to be published in *Biochemical Society Transactions* should be prepared to the instructions printed in the current copy of the Agenda Papers. The general requirements for presentation will be similar to those of the *Biochemical Journal*. Should any problems arise concerning the preparation of papers for *Biochemical Society Transactions* authors are recommended to use the 'Policy of the Journal and Instructions to Authors' [*Biochem. J.* (1976) **153**, 1–21] and amendments [*Biochem. J.* (1977) **161**, 1–2] as a general guide. SI symbols for units will be used [see *Pure Appl. Chem.* (1970) **21**, 1–44; *Quantities, Units & Symbols* (1971) The Royal Society, London].

In 1977 Volume 5 will be published. This will be in six parts published at approximately bi-monthly intervals. The subscription to non-members will be £28.00, except for subscribers in U.S.A., Canada and Mexico, for whom the rate is \$60.00 or the sterling equivalent at the time of payment. Despatch will be made by air freight to these countries.

A concessionary joint subscription is available to subscribers to both the *Biochemical Journal* and *Biochemical Society Transactions*, at a saving of £10.00 (\$25.00). The joint subscription is £158.00 (air freight joint subscription \$355.00 or the sterling equivalent).

**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:

Volumes 1 and 2 each	£15.00	(\$40.00)	[single parts £3.00 (\$8.00)]
Volume 3	£18.00	(\$40.00)	[single parts £3.20 (\$8.00)]
Volume 4	£24.00	(\$60.00)	[single parts £4.20 (\$10.50)]

## INDEX OF AUTHORS

- Abeels, M. J. F. 957  
 Adams, R. L. P. 926  
 Al-Shaikhaly, M. M. 1093  
 Angal, S. 1111  
 Angarita, A. 946  
 Arlett, C. F. 1199  
 Arnstein, H. R. V. 918  
 Assimacopoulos-Jeannet, F. 890, 1002  
  
 Badawy, A. A.-B. 1035, 1037  
 Barber, B. H. 1134, 1137  
 Barel, A. O. 1124  
 Barrett-Bee, K. J. 965  
 Bartholeyns, J. 1172, 1176  
 Batley, K. E. 1097  
 Baudhuin, P. 1172, 1174  
 Baum, H. 1093  
 Baxter, A. 979  
 Baxter, E. D. 1107  
 Besser, G. M. 1063  
 Besson, F. 1122  
 Beyers, T. 838  
 Bicknell, R. J. 1051  
 Bihler, I. 1047  
 Billah, M. M. 1139  
 Bitensky, L. 1063  
 Blundell, T. L. 1119, 1120, 1121  
 Boar, B. R. 1132  
 Bollen, A. 958  
 Bolognesi, D. P. 950  
 Borghetti, A. F. 921  
 Boyd, G. S. 1009  
 Boyle, T. T. 1026  
 Brachet, J. 1184  
 Bracke, M. 1115  
 Bradbury, E. M. 943, 953  
 Bradley, T. B. 1020  
 Brewer, S. J. 1024, 1026  
 Bridges, B. 894  
 Brooks, C. J. W. 1088  
 Brown, E. G. 975  
 Brown, P. 1111  
 Brown, S. B. 1017, 1020  
 Brownsey, R. 894  
 Bruckdorfer, K. R. 1144  
 Burdon, R. H. 926  
 Butcher, F. R. 1081  
  
 Cabezón, T. 958  
 Calberg-Bacq, C.-M. 1142  
 Caldwell, J. 1005, 1006  
 Campbell, A. K. 866, 962, 1151  
 Carrick, D. T. 1038  
 Carswell, L. M. 979  
 Caubergs, R. 1049  
 Caygill, C. P. J. 1056  
 Chantrenne, H. 950  
 Chapman, D. 1132  
 Chayen, J. 1063  
 Chesterton, C. J. 918, 927  
 Christophe, A. 1041, 1167  
 Christophe, J. 903, 981, 1162  
 Claeysens, M. 1111  
 Clement, E. M. 1076, 1077  
 Cleuter, Y. 936, 950  
 Clingan, D. 937  
 Clissold, P. M. 918  
 Cole, J. A. 1232  
 Coleman, R. 1139  
 Cooper, D. M. F. 973  
 Coore, H. G. 834, 1000  
 Cooreman, W. 1115  
 Corbett, S. 943  
 Cottrell, R. C. 1011, 1013  
 Coupar, B. E. H. 927  
 Crokaert, R. 1096  
 Crichton, R. R. 1126, 1128, 1130  
 Crumpton, M. J. 1134, 1137  
  
 Daniels, A. 1149  
 Danni, O. 1029  
 Davies, J. I. 995, 997  
 Davies, M. I. 949  
 Davis, B. 884  
 Davison, A. N. 917, 1075  
 Dean, P. D. G. 1099, 1111  
 De Asua, L. J. 937  
 De Brabander, M. 1118  
 De Bruyne, C. K. 1111, 1113  
 Debruyne, I. 1109  
  
 Defreyne, G. 978  
 De Greef, J. A. 1049, 1114  
 Dehaye, J.-P. 903, 1162  
 Delcambe, L. 1122  
 Delcuve, G. 958  
 Delforge, A. 981  
 De Loecker, W. 912  
 Demeester, J. 1115  
 Demeure, M. 946  
 De Mey, J. 1118  
 Denton, R. 894  
 Depicker, A. 931  
 de Ridder, M. 1158  
 de Schrijver, C. 1170  
 De Vlieghe, M. 1043  
 De Wever, F. 912  
 Dickson, A. J. 983  
 Dierick, W. S. H. 1045  
 Docherty, J. C. 1020  
 Dockerill, S. 1121  
 Doms, D. 912  
 Donnellan, J. F. 852  
 Dormer, R. L. 962, 1151  
 Douglas, J. T. 926  
 Dumont, J. E. 883  
 Durham, J. P. 979, 1081  
  
 Edelman, G. M. 1190  
 Edwards, M. 975  
 Ekins, R. P. 1064  
 Elliott, R. M. 917  
 Emudianughe, T. S. 1006  
 Engler, G. 930  
 Evans, G. 894  
 Evans, M. 1035, 1037  
  
 Farthing, J. E. 1024  
 Feller, A. 1043  
 Ferré, P. R. 982  
 Finean, J. B. 1131, 1139  
 Ford, C. C. 1190  
 Foreman, J. C. 879  
 Forrest, I. S. 1154  
 François, C. 1142  
 Freychet, P. 890  
  
 Gallwitz, D. 936  
 Gamble, D. R. 1058  
 Gangolli, S. D. 1011, 1013  
 Gaston-Parry, O. 1067  
 Geers, R. 1167  
 Gepts, P. 946

- Ghysdael, J. 950  
 Gibbons, G. F. 1003  
 Gilbert, D. M. 1063  
 Gill, D. L. 1064  
 Gillis, E. M. 956  
 Girard, J. R. 982  
 Glynn, P. 973  
 Goheer, M. A. 834, 1000  
 Gordon, J. L. 1178, 1181  
 Goris, J. 978  
 Gosselin, L. 1142  
 Gosselin-Rey, C. 1142  
 Gove, C. D. 986  
 Green, C. 1160  
 Grimble, G. K. 913  
 Grundy, M. S. 1017  
 Guidotti, G. G. 921  
 Guinand, M. 1122
- Hales, C. N. 866, 959  
 Hallett, M. B. 879  
 Harper, R. D. 900, 989  
 Harris, R. 852  
 Hart, R. J. 1078  
 Harvey, M. J. 1111  
 Hauser, P. 1091  
 Hemming, F. W. 1223  
 Hems, D. A. 886, 986, 992  
 Herod, I. A. 1011  
 Hers, H.-G. 1124  
 Herzog, A. 958  
 Hill, R. L. 838  
 Hirom, P. C. 1033  
 Hope, M. J. 1144  
 Howell, S. L. 875, 1058  
 Hubert, E. 936, 950  
 Huez, G. 936, 950  
 Hughes, L. 1060  
 Hughes, W. 894
- Idle, J. R. 1033  
 Inglis, R. J. 953  
 Irving, S. N. 1078
- Jagelman, S. 1085  
 Jay, F. T. 916  
 Jeanrenaud, B. 890, 1002  
 Jenkins, J. A. 1119, 1120  
 Jollès, P. 840  
 Jones, D. S. 916  
 Joniau, M. 1118
- Kanarek, L. 1156, 1158  
 Karakash, C. 890, 1002  
 Kay, J. E. 967  
 Kehoe, P. 863  
 Kersters-Hilderson, H. 1113  
 Kirby, C. J. 1160  
 Kondorosi, E. 967  
 Konvalinkova, V. 941  
 Kozma, S. 1142  
 Krebs, J. 1149  
 Kuhn, N. J. 840, 1038, 1040  
 Kummert, J. 946
- Lagrou, A. R. 1045  
 Lake, B. G. 1011, 1013  
 Langslow, D. R. 983  
 Laskey, R. A. 1190  
 Lauwers, A. 1115  
 Lazarus, N. R. 884  
 Leaver, H. A. 1009  
 Lehmann, A. R. 1199  
 le Marchand, Y. 890, 1002  
 Leroy, J. G. 1117  
 Leyland, M. J. 1111  
 Lim, L. 917, 1069, 1072  
 Lim, T.-K. 970  
 Lloyd, A. G. 1013  
 Low, M. G. 1131  
 Lucy, J. A. 1144  
 Luzio, J. P. 866
- Ma, G. Y. 986  
 Machtelinckx, V. 1156  
 MacIntyre, D. E. 1178  
 Malaisse, W. J. 872  
 Marbaix, G. 936, 950  
 Marliss, E. B. 982  
 Marshall, N. J. 1064  
 Martin, J.-J. R. 1045  
 Massamba, N. 1169  
 Matthews, H. R. 943, 953  
 Matthys, F. 1167  
 Mayer, R. J. 1101  
 Mayes, P. A. 1000, 1001  
 McIlwain, H. 1074  
 McKay, E. L. 926  
 McLaren, E. 932  
 McMillan, R. M. 1178  
 Meiners, B. 863  
 Mergeay, M. 941  
 Merlevede, W. 978
- Mertens-Strijthagen, J. 1170  
 Meza, A. T. 1140  
 Michel, G. 1122  
 Michell, R. H. 1139  
 Michel-Lipowsky, M. 1005  
 Millburn, P. 1033  
 Miller, S. 943  
 Millward, D. J. 913  
 Mockel, J. 883  
 Moereels, E. 1114  
 Mongar, J. L. 879  
 Morris, H. R. 1097  
 Muir, T. C. 1081
- Newman, G. R. 1151  
 Newman, M. E. 1074  
 Newton, R. P. 975  
 Nicholls, D. G. 908  
 Nurse, P. 1191
- O'Farrell, M. K. 937, 940  
 Olins, P. O. 916  
 Olsen, R. W. 863  
 Ord, M. G. 923  
 Osborne, N. N. 858  
 Osterrieth, P. M. 1142  
 Overman, H. J. 1181  
 Owen, J. S. 1144
- Pâques, E. P. 1130  
 Patel, H. M. 1054  
 Pearson, J. D. 1181  
 Pegorier, J.-P. 982  
 Pentreath, V. W. 854  
 Petre, J. 958  
 Peypoux, F. 1122  
 Phillips, J. C. 1011, 1013  
 Pitts, J. E. 1119  
 Ponce-Ortiz, Y. 1128  
 Popelier, G. 1167  
 Portetelle, D. 946, 950  
 Potter, C. 1078  
 Prieels, J.-P. 838  
 Pring, J. B. 1056  
 Pullinger, C. R. 1003
- Quinn, P. J. 1132  
 Quintart, J. 1174
- Radman, M. 1194  
 Rasmussen, H. 866  
 Rathe, J. 981  
 Riddall, D. R. 1075

- Rieber, M. 1140  
 Robinson, A. M. 829  
 Robinson, V. J. 943  
 Rodrigues, L. M. 992  
 Roelants, P. 941  
 Roman, F. 1126  
 Rudland, P. S. 937  
 Ryman, B. E. 1054, 1146
- Saggerson, E. D. 900, 989  
 Saman, E. 1111  
 Sasaki, K. 1121  
 Sattelle, D. B. 849  
 Sawh, C. 1047  
 Sawyer, B. C. 1029  
 Schell, J. 930, 931  
 Schimpfessel, L. 1096  
 Schneider, Y.-J. 1164  
 Schoental, R. 1016  
 Schofield, J. G. 1051  
 Schulster, D. 973  
 Semal, J. 946  
 Seurinck-Opsomer, C. 956  
 Sewell, T. 1120  
 Shall, S. 932, 949  
 Sharma, P. 1146  
 Siddle, K. 866, 959  
 Skidmore, C. J. 949  
 Slater, T. F. 1029  
 Smith, A. D. 1159  
 Smith, A. G. 1088  
 Smith, C. J. 975  
 Smith, J. A. 1190  
 Smith, R. L. 1005, 1006  
 Sooranna, S. R. 900, 989  
 Souness, J. E. 995, 997  
 Stansbie, D. 894  
 Stas, M. L. 912
- Stocken, L. A. 923  
 Stockx, J. 1104, 1109  
 Strang, R. H. C. 1076, 1077  
 Suckling, A. J. 1085
- Taylor, K. W. 1058  
 Templeton, D. 1081  
 Theunissen, J. 1156  
 Thrower, S. 1069, 1072  
 Tickle, I. J. 1119, 1120, 1121  
 Ticku, M. K. 863  
 Topping, D. L. 1000, 1001  
 Tramacere, M. 921  
 Travniček, M. 950  
 Trouet, A. 1164  
 Tsang, W. M. 1159  
 Tsopanakis, A. 932  
 Tsopanakis, C. 932  
 Tulkens, P. 1164  
 Turner, M. K. 1024, 1026  
 Tyrrell, D. A. 1146
- Usherwood, P. N. R. 845
- Vaes, G. 1091  
 Vandermeers, A. 981  
 Vandermeers, M. C. 981  
 Vanderwinkel, E. 1043  
 Van Dessel, G. A. F. 1045  
 van de Werve, G. 1124  
 Van Doorslaer, E. 1113  
 Van Elsen, A. F. 1117  
 Van Hoof, R. 1049  
 Van Montagu, M. 930, 931  
 Vanneuville, F. J. 1117
- Verbelen, J.-P. 1114  
 Verdonk, G. 1041, 1167  
 Verloes, R. 1156, 1158  
 Versee, V. 1124  
 Vigo, C. 1132
- Walker, J. H. 1101  
 Walker, R. J. 841  
 Wallis, M. 1067  
 Walsh, F. S. 1134, 1137  
 Watson, D. H. 1099, 1111  
 Wattiaux-de Coninck, S. 1170  
 Wattiaux, R. 1170  
 Webb, H. E. 1085  
 Weinberg, E. 936  
 Wérenne, J. 1176  
 Weyman, C. 1159  
 Whish, W. J. D. 948  
 Whitby, A. J. 948  
 White, C. J. B. 1083  
 White, D. A. 1022  
 White, J. O. 1069, 1072  
 Whitton, P. D. 992  
 Wiesenfeld, M. 1096  
 Wilde, C. J. 1040  
 Williams, R. J. P. 1149  
 Williams, R. T. 1033  
 Williamson, D. H. 829  
 Wilson, R. G. 1078  
 Winand, J. 903, 1162  
 Wiseman, A. 970  
 Wood, S. P. 1119, 1121  
 Wouters, J. 1104  
 Wright, P. 1149
- Young, P. J. 1011
- Zaenen, I. 930  
 Zaheer, F. 1058  
 Zanker, K. 953

**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.

Vol. 5