

JOURNAL  
OF  
THE CHEMICAL SOCIETY

PERKIN TRANSACTIONS II  
Physical Organic Chemistry

CONTENTS

	PAGE
Organic carbonates. Part XIV. Polar and steric effects of substituents influencing the modes of ring-opening of highly-branched ethylene and trimethylene carbonates by various nucleophiles: a nuclear magnetic resonance study By JEOSHUA KATZHENDLER, ISRAEL RINGEL, and SHALOM SAREL . . . . .	2019
Reactivity of vinyl sulphonic esters. Part XIII. Pronounced anchimeric assistance in the solvolysis of dialkyl- $\beta$ -alkyl(or aryl)thiovinyl sulphonates By A. BURIGHEL, G. MODENA, and U. TONELLATO. . . . .	2026
Mass spectrometry of 'onium compounds Part XIV. Methiodides of methyl pyridylacetates By G. HVISTENDAHL and K. UNDHEIM. . . . .	2030
Investigations of keto-enol tautomerism by carbon-13 nuclear magnetic resonance spectroscopy By JOHN H. BILLMAN, STANLEY A. SOJKA, and PHILIP R. TAYLOR . . . . .	2034
Homolytic acylation of protonated pyridine and pyrazine derivatives By T. CARONNA, G. FRONZA, F. MINISCI, and O. PORTA . . . . .	2035
Cyclitols. Part XXXIV. X-Ray crystal and molecular structure of 1,2:5,6-di- <i>O</i> -isopropylidene-3,4-di- <i>O</i> -tosyl- <i>L</i> - <i>chiro</i> -inositol, and its conformation in solution by nuclear magnetic resonance By J. F. McCONNELL [Part (A)], S. J. ANGYAL, and J. D. STEVENS [Part (B)] . . . . .	2039
Electric dipole moments of some imidazolin-2(3 <i>H</i> )-ones, benzimidazol-2(3 <i>H</i> )-ones, and analogous thiones By C. W. N. CUMPER and G. D. PICKERING . . . . .	2045
The role of pentaco-ordinate species in the mechanism of the Arbusov reaction By C. L. BODKIN and P. SIMPSON . . . . .	2049
Electron spin resonance studies. Part XXXVI. Formation of ion-pairs by semidiones and related radicals in aqueous solution By A. J. DOBBS, B. C. GILBERT, and R. O. C. NORMAN . . . . .	2053
Intramolecular nucleophilic assistance in the reactions of <i>OO'</i> -benzylidenecatechols By B. CAPON and M. I. PAGE . . . . .	2057
Solvent effect on the dissociation of protonated tris(hydroxymethyl)methylamine and <i>p</i> -nitroanilinium ion in water-ethylene glycol media at 25 °C By K. K. KUNDU, A. L. DE, and M. N. DAS. . . . .	2063
The mechanism of the Vilsmeier-Haack reaction. Part II. A kinetic study of the formylation of thiophen derivatives with dimethylformamide and phosphorus oxychloride or carbonyl chloride in 1,2-dichloroethane By S. ALUNNI, P. LINDA, G. MARINO, S. SANTINI, and G. SAVELLI . . . . .	2070
Constitution and absolute stereochemistry of the biphenyl alkaloid lythranine: X-ray analysis of the crystal structure of bromolythranine hydrobromide ethanol solvate By R. J. McCLURE (jun.), and G. A. SIM . . . . .	2073

	PAGE
Kinetics of reduction of 1,5-diarylpenta-1,4-dien-3-ones with sodium borohydride in propan-2-ol By ANTHONY F. COCKERILL and DAVID M. RACKHAM . . . . .	2076
The thermal unimolecular decomposition of 2-methoxy-3,4-dihydro-2H-pyran By H. M. FREY, R. G. HOPKINS, and N. S. ISAACS. . . . .	2082
Charge-transfer complexes in organic chemistry. Part VII. Influence of charge-transfer complexes on the quaternisation of triethylamine by tetrachlorophthalic anhydride By J. B. NAGY, O. B. NAGY, and A. BRUYLANTS . . . . .	2084
Aromatic sulphonation. Part XXXVI. The sulphuric acid sulphonation of some <i>o</i> -dialkylbenzenes, benzocycloalkenes, and their 4-sulphonic acids. Formation of polyxylylene from benzocyclobutene By H. CERFONTAIN, (MRS.) Z. R. H. NIENHUIS, and W. A. ZWART VOORSPUY . . . . .	2087
Aromatic sulphonation. Part XXXVII. The sulphur trioxide sulphonation of toluene and some <i>o</i> -dialkylbenzenes and benzocycloalkenes By H. CERFONTAIN, (MRS.) A. KOEBERG-TELDER, and E. VAN KUIPERS . . . . .	2091
Crystal structure of 1,2-bis-(4-bromophenyl)-3,5-dimethyl-4-oxo-6,7-diazabicyclo[3,2,0]hept-2-ene-6,7-dicarboxylate By P. C. CHIEH, D. MACKAY, and L. WONG . . . . .	2094
Micellar effects on the hydrolysis and aminolysis of 2,4-dinitrophenyl sulphate By J. H. FENDLER, E. J. FENDLER, and L. W. SMITH . . . . .	2097
Crystal and molecular structure of 2,3,5,6-tetrachloro-4-(methylthio)benzotrile By D. R. CARTER and F. P. BOER . . . . .	2104
Inductive and field effects in aromatic substitution. Part VI. The kinetics of hydrogen isotope exchange in quaternary salts of diazacyclophanes and in the related unbridged ions By R. DANIELI, A. RICCI, and J. H. RIDD . . . . .	2107
Kinetics of the thermal decompositions of 4-chlorocyclohexene and 3-chlorocyclohexene By J. L. HOLMES and M. DAKUBU . . . . .	2110
E1cB mechanisms. Part III. Effect of ionisation of amido-NH on reaction of hydroxide ion with methyl 3- and 4-benzamidobenzoates By ANDREW WILLIAMS and KENNETH T. DOUGLAS . . . . .	2112
Crystal and molecular structure of thiocarbonohydrazide hemihydrochloride By A. BRAIBANTI, A. TIRIPICCHIO, and M. TIRIPICCHIO CAMELLINI . . . . .	2116
Crystal and molecular structure of thiocarbonohydrazide sulphate By F. BIGOLI, A. BRAIBANTI, A. M. MANOTTI LANFREDI, and A. TIRIPICCHIO . . . . .	2121
Study of the alkaline hydrolysis of ethyl 2-(1,2-benzisothiazolin-3-ylidene)cynoacetate: spectroscopic properties, and X-ray crystal analysis of 2,4-bis-(1,2-benzisothiazol-3-yl)3-aminocrotonitrile-dimethylformamide By E. GAETANI, T. VITALI, A. MANGIA, M. NARDELLI, and G. PELIZZI . . . . .	2125
Syntheses and chiroptical properties of some optically active decahydroquinoline nitroxide radicals By J. S. ROBERTS and C. THOMSON . . . . .	2129
Insecticides. Part I. Crystal structures of 1,1-bis-( <i>p</i> -chlorophenyl)-2,2-dichlorocyclopropane and 1,1-bis-( <i>p</i> -ethoxyphenyl)-2,2-dimethylpropane By T. P. DELACY and C. H. L. KENNARD . . . . .	2141
Insecticides. Part II. Crystal structures of 1,1-bis-( <i>p</i> -chlorophenyl)-2,2,2-trichloroethane ( <i>p,p'</i> -DDT) and 1-( <i>o</i> -chlorophenyl)-1-( <i>p</i> -chlorophenyl)-2,2,2-trichloroethane ( <i>o,p'</i> -DDT) By T. P. DELACY and C. H. L. KENNARD . . . . .	2148
Insecticides. Part III. Crystal structures of endrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro- <i>endo</i> -1,4- <i>endo</i> -5,8-dimethanonaphthalene) and aldrin (1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro- <i>endo</i> -1,4- <i>exo</i> -5,8-dimethanonaphthalene) By T. P. DELACY and C. H. L. KENNARD . . . . .	2153
Kinetics of the reactions of nitrous acid with olefins. Kinetic identification of probable nitrosating agents By J. R. PARK and D. L. H. WILLIAMS . . . . .	2158

Spin trapping by use of nitroso-compounds. Part IV. Electron spin resonance studies on oxidation with nickel peroxide By SHIGERU TERABE and RYUSEI KONAKA . . . . .	2163
Aziridines related to some $\beta$ -adrenergic blocking agents. Kinetics of formation and reaction, and some unusual salt effects By G. A. COCKAYNE and P. J. TAYLOR. . . . .	2173
Kinetic isotope effects and aliphatic diazo-compounds. Part I. General acid catalysis and the Brønsted coefficients By W. J. ALBERY, A. N. CAMPBELL-CRAWFORD, and K. S. HOBBS . . . . .	2180
Kinetic isotope effects and aliphatic diazo-compounds. Part II. Experiments at high buffer concentrations By W. J. ALBERY, J. S. CURRAN, and A. N. CAMPBELL-CRAWFORD . . . . .	2185
Kinetic isotope effects and aliphatic diazo-compounds. Part III. Solvent isotope effects for 3-diazobutan-2-one and ethyl diazopropionate By W. J. ALBERY and A. N. CAMPBELL-CRAWFORD . . . . .	2190
Kinetic isotope effects and aliphatic diazo-compounds. Part IV. Primary isotope effects in general acid catalysis By W. J. ALBERY, A. N. CAMPBELL-CRAWFORD, and R. W. STEVENSON . . . . .	2198
Kinetic isotope effects and aliphatic diazo-compounds. Part V. Secondary isotope effects in general acid catalysis By W. J. ALBERY, J. R. BRIDGELAND, and J. S. CURRAN . . . . .	2203
Kinetic isotope effects and aliphatic diazo-compounds. Part VI. The values of $\alpha$ and the Marcus theory By W. J. ALBERY, A. N. CAMPBELL-CRAWFORD, and J. S. CURRAN . . . . .	2206
Hydrogen abstraction from 2- and 3-methylthiophens investigated by spin trapping By L. LUNAZZI, G. PLACUCCI, M. TIECCO, and G. MARTELLI . . . . .	2215
Nitro-heteroaromatic derivatives of amino-acids and peptides. Part V. Photochemical formation of 2-isobutylpyrido[2,3- <i>d</i> ]imidazole 1-oxide from 3-nitro-2-pyridyl-DL-leucine By G. G. ALOISI, E. BORDIGNON, and A. SIGNOR . . . . .	2218

---

• The author to whom correspondence should be addressed is indicated by an asterisk after his name in the heading of the Paper.

## INDEX OF AUTHORS' NAMES

- ALBERY, W. J., Bridgeland, J. R., and Curran, J. S., 2203  
Albery, W. J., and Campbell-Crawford, A. N., 2190  
Albery, W. J., Campbell-Crawford, A. N., and Curran, J. S., 2206  
Albery, W. J., Campbell-Crawford, A. N., and Hobbs, K. S., 2180  
Albery, W. J., Campbell-Crawford, A. N., and Stevenson, R. W., 2198  
Albery, W. J., Curran, J. S., and Campbell-Crawford, A. N., 2185  
Aloisi, G. G., Bordignon, E., and Signor, A., 2218  
Alunni, S., Linda, P., Marino, G., Santini, S., and Savelli, G., 2070  
Angyal, S. J. See McConnell, J. F., 2039  
Bigoli, F., Braibanti, A., Manotti Lanfredi, A. M., and Tiripicchio, A., 2121  
Billman, J. H., Sojka, S. A., and Taylor, P. R., 2034  
Bodkin, C. L., and Simpson, P., 2049  
Boer, F. P. See Carter, D. R., 2104  
Bordignon, E. See Aloisi, G. G., 2218  
Braibanti, A., Tiripicchio, A., and Tiripicchio Camellini, M., 2116  
Braibanti, A., See also Bigoli, F., 2121  
Bridgeland, J. R. See Albery, W. J., 2203  
Bruylants, A. See Nagy, J. B., 2084  
Burighel, A., Modena, G., and Tonellato, U., 2026  
Campbell-Crawford, A. N. See Albery, W. J., 2180, 2185, 2190, 2198, 2206  
Capon, B., and Page, M. I., 2057  
Caronna, T., Fronza, G., Minisci, F., and Porta, O., 2035  
Carter, D. R., and Boer, F. P., 2104  
Cerfontain, H., Koeberg-Telder, A., and van Kuipers, E., 2091  
Cerfontain, H., Nienhuis, Z. R. H., and Voorspuy, W. A. Z., 2087  
Chieh, P. C., Mackay, D., and Wong, L., 2094  
Cockayne, G. A., and Taylor, P. J., 2173  
Cockerill, A. F., and Rackham, D. M., 2076  
Cumper, C. W. N., and Pickering, G. D., 2045  
Curran, J. S. See Albery, W. J., 2185, 2203, 2206  
Dakubu, M. See Holmes, J. L., 2110  
Danieli, R., Ricci, A., and Ridd, J. H., 2107  
Das, M. N. See Kundu, K. K., 2063  
De, A. L. See Kundu, K. K., 2063  
DeLacy, T. P., and Kennard, C. H. L., 2141, 2148, 2153  
Dobbs, A. J., Gilbert, B. C., and Norman, R. O. C., 2053  
Douglas, K. T. See Williams, A., 2112  
Fendler, E. J., See Fendler, J. H., 2097  
Fendler, J. H., Fendler, E. J., and Smith, L. W., 2097  
Frey, H. M., Hopkins, R. G., and Isaacs, N. S., 2082  
Fronza, G. See Caronna, T., 2035  
Gaetani, E., Vitali, T., Mangia, A., Nardelli, M., and Pelizzi, G., 2125  
Gilbert, B. C. See Dobbs, A. J., 2053  
Hobbs, K. S. See Albery, W. J., 2180  
Holmes, J. L., and Dakubu, M., 2110  
Hopkins, R. G. See Frey, H. M., 2082  
Hvistendahl, G., and Undheim, K., 2030  
Isaacs, N. S. See Frey, H. M., 2082  
Katzhendler, J., Ringel, I., and Sarel, S., 2019  
Kennard, C. H. L. See DeLacy, T. P., 2141, 2148, 2153  
Koeberg-Telder, A. See Cerfontain, H., 2091  
Konaka, R. See Terabe, S., 2163  
Kundu, K. K., De, A. L., and Das, M. N., 2063  
Linda, P. See Alunni, S., 2070  
Lunazzi, L., Placucci, G., Tiecco, M., and Martelli, G., 2215  
McClure, R. J., jun., and Sim, G. A., 2073  
McConnell, J. F., Angyal, S. J., and Stevens, J. D., 2039  
Mackay, D. See Chieh, P. C., 2094  
Mangia, A. See Gaetani, E., 2125  
Manotti Lanfredi, A. M. See Bigoli, F., 2121  
Marino, G. See Alunni, S., 2070  
Martelli, G. See Lunazzi, L., 2215  
Minisci, F. See Caronna, T., 2035  
Modena, G. See Burighel, A., 2026  
Nagy, J. B., Nagy, O. B., and Bruylants, A., 2084  
Nagy, O. B. See Nagy, J. B., 2084  
Nardelli, M. See Gaetani, E., 2125  
Nienhuis, Z. R. H. See Cerfontain, H., 2087  
Norman, R. O. C. See Dobbs, A. J., 2053  
Page, M. I. See Capon, B., 2057  
Park, J. R., and Williams, D. L. H., 2158  
Pelizzi, G. See Gaetani, E., 2125  
Pickering, G. D. See Cumper, C. W. N., 2045  
Placucci, G. See Lunazzi, L., 2215  
Porta, O. See Caronna, T., 2035  
Rackham, D. M. See Cockerill, A. F., 2076  
Ricci, A. See Danieli, R., 2107  
Ridd, J. H. See Danieli, R., 2107  
Ringel, I. See Katzhendler, J., 2019  
Roberts, J. S., and Thomson, C., 2129  
Santini, S. See Alunni, S., 2070  
Sarel, S. See Katzhendler, J., 2019  
Savelli, G. See Alunni, S., 2070  
Signor, A. See Aloisi, G. G., 2218  
Sim, G. A. See McClure, R. J., jun., 2073  
Simpson, P. See Bodkin, C. L., 2049  
Smith, L. W. See Fendler, J. H., 2097  
Sojka, S. A. See Billman, J. H., 2034  
Stevens, J. D. See McConnell, J. F., 2039  
Stevenson, R. W. See Albery, W. J., 2198  
Taylor, P. J. See Cockayne, G. A., 2173  
Taylor, P. R. See Billman, J. H., 2034  
Terabe, S., and Konaka, R., 2163  
Thomson, C. See Roberts, J. S., 2129  
Tiecco, M. See Lunazzi, L., 2215  
Tiripicchio, A. See Bigoli, F., 2121; and Braibanti, A., 2116  
Tiripicchio Camellini, M. See Braibanti, A., 2116  
Tonellato, U. See Burighel, A., 2026  
Undheim, K. See Hvistendahl, G., 2030  
van Kuipers, E. See Cerfontain, H., 2091  
Vitali, T. See Gaetani, E., 2125  
Voorspuy, W. A. Z. See Cerfontain, H., 2087  
Williams, A., and Douglas, K. T., 2112  
Williams, D. L. H. See Park, J. R., 2158  
Wong, L. See Chieh, P. C., 2094