

## JOURNAL OF THE CHEMICAL SOCIETY

## Chemical Communications

Number 18  
1984

## CONTENTS

- 1197 The Formation of  $\text{NO}_2\text{ClO}_4$  as an Intermediate during the Low-temperature Decomposition of Ammonium Perchlorate **Andrew K. Galwey, Mohamed A. Mohamed**
- 1198 An Unusual Photoproduct of *o*-Azidobiphenyl with Tetracyanoethylene; Trapped 2-Azacycloheptatrienyliidene **Shigeru Murata, Tadashi Sugawara, Hiizu Iwamura**
- 1199 Electrochemical Polymerization of Benzene in the Presence of Aluminium Chloride **Kyozi Kaeriyama, Masa-aki Sato, Kazuo Someno, Susumu Tanaka**
- 1200 Donor–Acceptor Accelerated Norbornadiene Rearrangements **Christine Bleasdale, David W. Jones**
- 1202 The Photogeneration of Dihydrogen from Water Catalysed by Thin Films of Tris(bipyridine)ruthenium(II) Derivatives **Melvyn C. Cooke, John Homer, Ann W. P. Jarvie, J. David Miller**
- 1204 New Systems for the Storage of Electricity using Nitrile and Iodine as the Anodic Active Substances **Tatsuya Shono, Masaya Sawamura, Shigenori Kashimura**
- 1205 Electrochemical Evidence for an Unusual Base-catalysed Chain Mechanism in an Intramolecular Homolytic Arylation **Marino Novi, Giacomo Garbarino, Carlo Dell’Erba, Giovanni Petrillo**
- 1207 Second Harmonic Generation in Inclusion Complexes **Satoru Tomaru, Sakae Zembutsu, Masao Kawachi, Morio Kobayashi**
- 1208  $^{29}\text{Si}$  Magic Angle Spinning N.M.R. Investigation of Local Ordering Effects in Zeolite ZSM-39 **George T. Kokotailo, Colin A. Fyfe, Gian C. Gobbi, Gordon J. Kennedy, Connie T. DeSchutter**
- 1210 Methanol into Hydrocarbon Conversion. A Mechanistic Study: an Oxygen Ylide Intermediate **Paul Rimmelin, Hamid Taghavi, Jean Sommer**
- 1211 Penicillin Biosynthesis: Multiple Pathways from a Modified Substrate **Jack E. Baldwin, Robert M. Adlington, Andrew E. Derome, Hong-Hoi Ting, Nicholas J. Turner**
- 1214 Generation and Trapping of a C-Unsubstituted Methylene phosphine Sulphide **Eliane Deschamps, François Mathey**
- 1216 Application of a New Reaction of  $\alpha$ -Phenylselenylketones to the Synthesis of Erysostrine **Yoshisuke Tsuda, Shinzo Hosoi, Akira Nakai, Takeshi Ohshima, Yuki Sakai, Fumiya Kuchi**
- 1217 Fulvalene Ylides. A Stevens Rearrangement of 1-Fluorene-9-ylidene-1,2,5-triphenyl- $\lambda^5$ -phosphole **Declan G. Gilheany, Deirdre A. Kennedy, John F. Malone, Brian J. Walker**
- 1219 The Mechanism of Oxidation of Alkanes by Peroxo Complexes of Iron Porphyrins in the Presence of Acylating Agents: a Model for Activation of  $\text{O}_2$  by Cytochrome P-450 **Alexander M. Khenkin, Albert A. Shteinman**
- 1220 The Absolute Stereochemistry of Isoamijiol, a Dolastane Diterpene, as determined by the C.D. Allylic Benzoate Method **Nobuyuki Harada, Yoichi Yokota, Jun Iwabuchi, Hisashi Uda, Masamitsu Ochi**
- 1221 (*S*)-(-)-1-Amino-2-(siloxyethyl)pyrrolidines: Novel and Efficient Reagents for Chromatographic Resolution of  $\alpha$ -Substituted Aldehydes **Dieter Enders, Wolfgang Mies**
- 1223 Nitrogen-15 N.M.R. Evidence for Rapid Intramolecular Interconversion of Linear and Bent Nitrosyl Ligands in  $[\text{RuCl}(\text{NO})_2(\text{PPh}_3)_2](\text{BF}_4)$ , with Observation of a Nitrogen-14,15 Equilibrium Isotope Effect **Joan Mason, D. Michael P. Mingos, Darren Sherman, Robert W. M. Wardle**
- 1225 Penicillin Biosynthesis: Active Site Mapping with Aminoacylpeptidyltransferase Variants **Jack E. Baldwin, Edward P. Abraham, Robert M. Adlington, Gulam A. Bahadur, Bulbul Chakravarti, Barbara P. Domayne-Hayman, Leslie D. Field, Sabine L. Flitsch, Gamini S. Jayatilake, Andris Špakovskis, Hong-Hoi Ting, Nicholas J. Turner, Robert L. White, John J. Usher**
- 1227 Substitution at the 4-Methyl of Lanost-8-en-3-one **Kathryn Carr, James K. Sutherland**
- 1228 The Relative Stabilities of the *R,S,S,R*, *R,S,R,R*, and *R,S,R,S* Isomers of Four-, Five-, and Six Co-ordinate (1,4,8,11-Tetramethyl-1,4,8,11-tetra-azacyclotetradecane)nickel(II) Solvento Ions as Determined by Strain Energy Minimization Calculations **Trevor W. Hambley**
- 1229 Classical Synthesis of a New Class of Compounds *via* Coupling of Sugars and Amino Acids **Abdul Malik, Wolfgang Kowollik, Peter Scheer, Nighat Afza, Wolfgang Voelter**
- 1231 Surface Photochemistry: Photocatalysed Olefin *cis-trans* Equilibrium mediated by CdS **Hussain Al-Ekabi, Paul De Mayo**
- 1233 A New Type of Water Insoluble Surfactant: Molecular Aggregation of Long Chain Phosphonium Salts  $(\text{Ph}_3\text{P}^+-\text{CH}_2\text{CH}_2\text{R}, \text{I}^-$ ; R = alkyl or fluoroalkyl) in Formamide **B. Escoula, N. Hajjaji, I. Rico, A. Lattes**
- 1234 A New Preparative Method for (*E*)-2,3-Diarylbut-2-enedials **Fumio Toda, Yoshikazu Takehira, Yutaka Kataoka, Koji Mori, Tamie Sato, Mari Segawa**

- 1235 Synthesis of *trans*-2,6-Dialkylpiperidines by Intramolecular Amidomercuration **William Carruthers, Michael J. Williams, Michael T. Cox**
- 1236 Selective Reduction of the 7(8)-Double Bond in Ergosterol **Derek H. R. Barton, Xavier Lusinchi, Léon Magdzinski, Jesus Sandoval Ramirez**
- 1238 Electronic Structures of Solids by Electron-energy-loss Spectroscopy carried out using an Electron Microscope: Oxygen-*K* and Metal-*L* Edges of Transition Metal Oxides **C. N. Ramachandra Rao, Timothy G. Sparrow, John M. Thomas, Brian G. Williams**
- 1240 Design Synthesis and Preliminary Evaluation of a Potent  $\alpha$ -Mannosidase Inhibitor: 1,4-Dideoxy-1,4-imino-D-mannitol **George W. J. Fleet, Paul W. Smith, Stephen V. Evans, Linda E. Fellows**
- 1242 Biosynthesis of the Meroterpenoid, Austin, by *Aspergillus ustus*: Incorporation of  $^{18}\text{O}_2$ , Sodium  $[1-^{13}\text{C}, ^{18}\text{O}_2]$ Acetate, and  $[Me-^{13}\text{C}, ^2\text{H}_3]$ Methionine **Thomas J. Simpson, Desmond J. Stenzel, Richard N. Moore, Laird A. Trimble, John C. Vederas**
- 1244 Photoinduced Irreversible Insertion of  $\text{CO}_2$  into a Metal-Hydride Bond **B. Patrick Sullivan, Thomas J. Meyer**
- 1245 Reissert Compound Formation with Five-membered Ring Heterocycles using Trimethylsilyl Cyanide **Barrie C. Uff, S. L. Anne A. Chen, Yee-Ping Ho, Frank D. Popp, Joydeep Kant**
- 1246 Resolution of  $[\text{Fe}(\text{CO})_3(1-5-\eta\text{-Dienyl})]^+$  Cations and Assignment of Absolute Configuration by Circular Dichroism Spectroscopy **Jennifer G. Atton, David J. Evans, Leon A. P. Kane-Maguire, G. Richard Stephenson**

## AUTHOR INDEX

- Abraham, Edward P., 1225  
 Adlington, Robert M.  
 Adlington, Robert M., 1211, 1225  
 Afza, Nighat, 1229  
 Al-Ekabi, Hussain, 1231  
 Atton, Jennifer G., 1246  
 Bahadur, Gulam A., 1225  
 Baldwin, Jack E., 1211, 1225  
 Barton, Derek H. R., 1236  
 Bleasdale, Christine, 1200  
 Carr, Kathryn, 1227  
 Carruthers, William, 1235  
 Chakravarti, Bulbul, 1225  
 Chen, S. L. Anne A., 1245  
 Cooke, Melvyn C., 1202  
 Cox, Michael T., 1235  
 Dell'Erba, Carlo, 1205  
 De Mayo, Paul, 1231  
 Derome, Andrew E., 1211  
 Deschamps, Eliane, 1214  
 DeSchutter, Connie T., 1208  
 Domayne-Hayman, Barbara P., 1225  
 Enders, Dieter, 1221  
 Escoula, B., 1233  
 Evans, David J., 1246  
 Evans, Stephen V., 1240  
 Fellows, Linda E., 1240  
 Field, Leslie D., 1225  
 Fleet, George W. J., 1240  
 Flitsch, Sabine L., 1225  
 Fyfe, Colin A., 1208  
 Galwey, Andrew K., 1197  
 Garbarino, Giacomo, 1205  
 Gilheany, Declan G., 1217  
 Gobbi, Gian C., 1208  
 Hajjaji, N., 1233  
 Hambley, Trevor W., 1228  
 Harada, Nobuyuki, 1220  
 Homer, John, 1202  
 Hosoi, Shinzo, 1216  
 Ho, Yee-Ping, 1245  
 Iwabuchi, Jun, 1220  
 Iwamura, Hiizu, 1198  
 Jarvie, Ann W. P., 1202  
 Jayatilake, Gamini S., 1225  
 Jones, David W., 1200  
 Kaeriyama, Kyozi, 1199  
 Kane-Maguire, Leon A. P., 1246  
 Kant, Joydeep, 1245  
 Kashimura, Shigenori, 1204  
 Kataoka, Yutaka, 1234  
 Kawachi, Masao, 1207  
 Kennedy, Deirdre A., 1217  
 Kennedy, Gordon J., 1208  
 Khenkin, Alexander M., 1219  
 Kiuchi, Fumiyuki, 1216  
 Kobayashi, Morio, 1207  
 Kokotailo, George T., 1208  
 Kowollik, Wolfgang, 1229  
 Lattes, A., 1233  
 Lusinchi, Xavier, 1236  
 Magdzinski, Léon, 1236  
 Malik, Abdul, 1229  
 Malone, John F., 1217  
 Mason, Joan, 1223  
 Mathey, François, 1214  
 Meyer, Thomas J., 1244  
 Mies, Wolfgang, 1221  
 Miller, J. David, 1202  
 Mingos, D. Michael P., 1223  
 Mohamed, Mohamed A., 1197  
 Moore, Richard N., 1242  
 Mori, Koji, 1234  
 Murata, Shigeru, 1198  
 Nakai, Akira, 1216  
 Novi, Marino, 1205  
 Ochi, Masamitsu, 1220  
 Ohshima, Takeshi, 1216  
 Petrillo, Giovanni, 1205  
 Popp, Frank D., 1245  
 Ramirez, Jesus Sandoval, 1236  
 Rao, C. N. Ramachandra, 1238  
 Rico, I., 1233  
 Rimmelin, Paul, 1210  
 Sakai, Yuki, 1216  
 Sato, Masa-aki, 1199  
 Sato, Tamie, 1234  
 Sawamura, Masaya, 1204  
 Scheer, Peter, 1229  
 Segawa, Mari, 1234  
 Sherman, Darren, 1223  
 Shono, Tatsuya, 1204  
 Shteinman, Albert A., 1219  
 Simpson, Thomas J., 1242  
 Smith, Paul W., 1240  
 Someno, Kazuo, 1199  
 Sommer, Jean, 1210  
 Špakovskis, Andris, 1225  
 Sparrow, Timothy G., 1238  
 Stenzel, Desmond J., 1242  
 Stephenson, G. Richard, 1246  
 Sugawara, Tadashi, 1198  
 Sullivan, B. Patrick, 1244  
 Sutherland, James K., 1227  
 Taghavi, Hamid, 1210  
 Takehira, Yoshikazu, 1234  
 Tanaka, Susumu, 1199  
 Thomas, John M., 1238  
 Ting, Hong-Hoi, 1211, 1225  
 Toda, Fumio, 1234  
 Tomaru, Satoru, 1207  
 Trimble, Laird A., 1242  
 Tsuda, Yoshisuke, 1216  
 Turner, Nicholas J., 1211, 1225  
 Uda, Hisashi, 1220  
 Uff, Barrie C., 1245  
 Usher, John J., 1225  
 Vederas, John C., 1242  
 Voelter, Wolfgang, 1229  
 Walker, Brian J., 1217  
 Wardle, Robert W. M., 1223  
 White, Robert L., 1225  
 Williams, Brian G., 1238  
 Williams, Michael J., 1235  
 Yokota, Yoichi, 1220  
 Zembutsu, Sakae, 1207

# NEW Publications

from The Royal Society of Chemistry

Specialist Periodical Reports

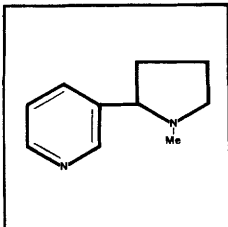
## The Alkaloids Vol. 13

Senior Reporter: M. F. Grundon

A review of the literature published during the period July 1981 and June 1982.

### Brief Contents:

Biosynthesis; Pyrrolidine, Piperidine, and Pyridine Alkaloids; Tropane Alkaloids; Pyrrolizidine Alkaloids; Indolizidine Alkaloids; Quinolizidine Alkaloids; Quinoline and Acridone Alkaloids;  $\beta$ -Phenylethylamines and the Isoquinoline Alkaloids; Aporphinoid Alkaloids; Amaryllidaceae Alkaloids; *Erythrina* and Related Alkaloids; Indole Alkaloids; *Lycopodium* Alkaloids; Diterpenoid Alkaloids; Steroidal Alkaloids; Miscellaneous Alkaloids.



"The Royal Society of Chemistry publication on *The Alkaloids* is the central point of the alkaloid year."—*J. David Phillipson, University of London, reviewing Vol. 10.*

Hardcover 343pp 0 85186 367 1  
Price £33.00 (\$59.00)  
RSC Members £19.00

## Organometallic Chemistry Vol. 11

Senior Reporters: E. W. Abel and F. G. A. Stone.  
A review of the literature published during 1981.

### Brief Contents:

Group I: The Alkali and Coinage Metals, Group II: The Alkaline Earths and Zinc and its Congeners; Group III: Boron; The Carboranes, including their Metal Complexes; Group III: Aluminium, Gallium, Indium, and Thallium; Group IV: The Silicon Group; Arsenic, Antimony, and Bismuth; Metal Carbonyls; Organometallic Compounds containing Metal—Metal Bonds; Substitution Reactions of Metal and Organometal Carbonyls with Group V and VI Ligands; Sigma-Bonded Organometallic Compounds of Transition Elements of Groups IIIA to VIIA; Complexes containing Metal—Carbon  $\sigma$ -Bonds of the Groups Iron;

Cobalt, and Nickel; Metal—Hydrocarbon  $\pi$ -Complexes,  $\pi$ -Cyclopentadienyl,  $\pi$ -Arene, and Related Complexes; Homogeneous Catalysis by Transition-metal Complexes; Organometallic Compounds in Biological Chemistry; Diffraction Studies of Organometallic Compounds.

"All organometallic chemists will want to read all or parts of this book."—*D. A. Sweigart, J. Am. Chem. Soc., reviewing Vol. 9.*

Hardcover 567pp 0 85186 591 7  
Price £77.00 (\$138.00) RSC Members £38.00

## Organophosphorus Chemistry Vol. 14

Senior Reporters: D. W. Hutchinson and J. A. Miller

A review of the literature published between July 1981 and June 1982.

### Brief Contents:

Phosphines and Phosphonium Salts; Quinquevalent Phosphorus Compounds; Halogenophosphines and Related Compounds; Phosphine Oxides and Related Compounds; Tervalent Phosphorus Acids; Quinquevalent Phosphorus Acids; Phosphates and Phosphonates of Biochemical Interest; Nucleotides and Nucleic Acids; Ylides and Related Com-

pounds; Mass Spectrometry of Organophosphorus Compounds; Physical Methods.

"The whole series of volumes represents an extremely useful reference work on progress in this area of chemistry over the past 10 years and, ideally, every chemist active in the field should keep a set of these volumes on his bookshelf."—*Kurt Moederitzer, Monsanto Company, reviewing Vol. 10.*

Hardcover 360pp 0 85186 126 1  
Price £56.00 (\$100.00) RSC Members £34.00

## Photochemistry Vol. 14

Senior Reporter: D. Bryce-Smith

A review of the literature published between July 1981 and June 1982.

### Brief Contents:

Part I: Physical Aspects of Photochemistry; Part II: Photochemistry of Inorganic and Organometallic Compounds; Part III: Organic Aspects of Photochemistry; Part IV: Polymer Photochemistry; Part V: Photochemical Aspects of Solar Energy Conversion.

"The latest in this series of reviews of literature continues to be indispensable to physical and organic photochemists and makes interesting reading for those active on the periphery of this subject."—*David I. Schuster, Jnl. of Medicinal Chemistry, reviewing Vol. 10.*

Hardcover 592pp 0 85186 125 3  
Price £88.00 (\$157.00) RSC Members £46.00

## Terpenoids and Steroids Vol. 12

Senior Reporter: J. R. Hanson

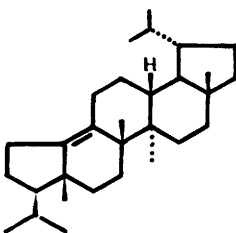
A review of the literature published between September 1980 and August 1981.

### Brief Contents:

Part I: Terpenoids: Monoterpenoids; Sesquiterpenoids; Diterpenoids; Triterpenoids; Carotenoids and Polyterpenoids; Part II: Steroids: Physical Methods; Steroid Reactions and Partial Syntheses.

"Everyone interested in the chemistry of terpenoids and/or steroids should have access to this volume and the others in the series."—*Norman J. Doorenbos, Jnl. of Pharmaceutical Sciences, reviewing Vol. 10.*

Hardcover 366pp 0 85186 356 6  
Price £56.00 (\$100.00)  
RSC Members £34.00



ROYAL SOCIETY OF CHEMISTRY