

JOURNAL OF THE CHEMICAL SOCIETY

Chemical Communications

**Number 3
1982**

CONTENTS

- 145 Uniformly ^{13}C -Enriched Substrates as N.M.R. Probes for Metabolic Events *in vivo*. Application of Double Quantum Coherence to a Biochemical Problem **Neil E. Mackenzie, Robert L. Baxter, A. Ian Scott, Paul E. Fagerness**
- 147 Bonding in Electron-deficient and Electron-precise Be_2C_2 Ring Systems: *X*-Ray Crystal Structure of the Dimeric Dipropynylberyllium-trimethylamine **Norman A. Bell, Ian W. Nowell, (the late) Harrison M. M. Shearer**
- 148 Total Assignment of the Carbon-13 N.M.R. Spectrum of Monensin by Two-Dimensional Correlation Spectroscopy **John A. Robinson, David L. Turner**
- 151 E.S.R. Studies of the Bis(triethylsilyl)aminyl Radical and Trialkylsilyl(t-butyl)aminyl Radicals: a Reinvestigation **John C. Brand, Malcolm D. Cook, Allan J. Price, Brian P. Roberts**
- 153 An Efficient Stereoselective Synthesis of Co-enzyme Q₁₀ **Kikumasa Sato, Osamu Miyamoto, Seiichi Inoue, Tomoya Yamamoto, Yukihiko Hirasawa**
- 154 Prevention of Photo-oxidation of Metal-free Phthalocyanine by Incorporation into Dioctadecyldimethylammonium Bromide (DODAB) Vesicles **Sava Lukac, John R. Harbour**
- 157 Stereochemistry of Isoflavone Reduction during the Biosynthesis of (+)- and (-)-Pterocarpans: ^2H N.M.R. Studies on the Biosynthesis of (+)-Pisatin and (-)-Medicarpin **Stephen W. Banks, Melanie J. Steele, David Ward, Paul M. Dewick**
- 158 Total Synthesis of 4-Demethoxydaunomycin **Michael J. Broadhurst, Cedric H. Hassall, Gareth J. Thomas**
- 160 *anti*-Stereospecificity in the Palladium-catalysed Reactions of Alkenyl- or Aryl-metal Derivatives with Allylic Electrophiles **Hajime Matsushita, Ei-ichi Negishi**
- 162 Structures of Shikodomedin (*X*-Ray Analysis) and Shikokiamedin: New Cytotoxic 8,9-Seco-*ent*-kaurenoids from *Rabdodia shikokiana* var. *intermedia* **Tetsuro Fujita, Yoshio Takeda, Tetsuro Shingu, Masaru Kido, Zenei Taira**
- 163 Agrimonin and Potentillin, an Ellagitannin Dimer and Monomer having an α -Glucose Core **Takuo Okuda, Takashi Yoshida, Masaaki Kuwahara, M. Usman Memon, Tetsuro Shingu**
- 164 Synthesis and Reactions of Bis(*p*-methoxyphenyl)tellurone **Lars Engman, Michael P. Cava**
- 165 A ^2H N.M.R. Study of the Rearrangement Step in Aphidicolin Biosynthesis **Mark J. Ackland, James R. Hanson, Arnold H. Ratcliffe, Ian H. Sadler**
- 166 Unusual Activity of Carbon Monoxide on Co-Tetraphenylporphyrin supported by TiO₂ for the Reduction of Nitric Oxide **Isao Mochida, Katsuya Suetsugu, Hiroshi Fujitsu, Kenjiro Takeshita**
- 167 Novel Intramolecular Reductive C—C Coupling during Borohydride Reduction of a Bi-enone **Tirumalai R. Kasturi, Gonibella J. Raju**
- 169 Energy Barriers for the Enantiotopomerization of Tetrahedral Boron Chelates **Michail S. Korobov, Leonid E. Nivorozhkin, Leonid E. Konstantinovsky, Vladimir I. Minkin**
- 170 A Concise Synthesis of (\pm)-*t*-Butyl 8-*O*-*t*-Butyldimethylsilylnonactate **Anthony G. M. Barrett, Hitendra G. Sheth**
- 172 Triplet Aryl Cation ($^3\text{Ar}^+$): its Photostimulated and Thermal Conversion into Ar· and Role as the Primary Intermediate in Matrix Photochemistry of ArN₂⁺ Ions **Hanna B. Ambroz, Terence J. Kemp**
- 173 Preparation of a Carbon-11 Labelled Antibiotic, Erythromycin A Lactobionate **Victor W. Pike, Anthony J. Palmer, Peter L. Horlock, Thomas J. Perun, Leslie A. Freiberg, Daniel A. Dunnigan, Robert H. Liss**

- 174 Synthesis of (\pm)-2-Acetyl-8-methoxy-5,6,7,8,9,10,11,12-octahydrobenzocyclodecene: a Medium-sized Ring, Ring-c Aromatic Hormone Analogue **Richard W. Thies, Stephen T. Yue**
- 175 Methyl Transfer by Endocyclic Nucleophilic Displacement **James F. King, Michael J. McGarry**
- 176 N.M.R. Evidence for the Existence of P_4S_8 **Jean-Jacques Barieux, Michel C. Démarecq**
- 178 Photodimerization of Coumarins in the Solid State **Narayanan Ramasubbu, Tayur N. Guru Row, Kailasam Venkatesan, Vaidyanathan Ramamurthy, C. N. Ramachandra Rao**
- 180 (*S*)-*o*-*N*-(*N*-Benzylprolyl)aminobenzaldehyde and (*S*)-*o*-*N*-(*N*-Benzylprolyl)aminoacetophenone as Reagents for Asymmetric Synthesis of Threonine **Yuuri N. Belokon', Irina E. Zel'tzer, Michail G. Ryzhov, Marina B. Saporovskaya, Vladimir I. Bakhmutov, Vasili M. Belikov**
- 181 Biosynthesis of Vitamin B_{12} : Preparation of Specifically Deuteriated Heptamethyl Dicyanocobyrinate for Study by 2H N.M.R. Spectroscopy **Alan R. Battersby, Clare Edington, Christopher J. R. Fookes, James H. Hook**
- 182 The Solid and Solution ^{113}Cd N.M.R. Spectra of Six and Seven Co-ordinate Cd^{2+} : Relevance to Ca-substitution Proteins **Paul F. Rodesiler, Elmer L. Amma**
- 184 Metal Stabilized Cyanoisocyanide; *X*-Ray Structure of $[Cr(CO)_5CNCN]$ **Götz Christian, Heribert Stolzenberg, Wolf P. Fehlhammer**
- 185 Synthesis of Cyclopenta[*c,d*]pyrene *via* a High Yield One-step Preparation of Pyren-4-ylacetic Acid from Pyrene **Kees Tintel, Johan Lugtenburg, Jan Cornelisse**
- 186 Light-driven Electron Transport through an Asymmetric Photosynthetic Liquid Membrane **Toyonari Sugimoto, Jinsei Miyazaki, Toshio Kokubo, Shigeo Tanimoto, Masaya Okano, Mutsuo Matsumoto**
- 188 A Facile Synthesis of Δ^2 -1,3,4-Thiadiazolines Unsubstituted at the 4-Position **D. Michael Evans, David R. Taylor**
- 189 Crystal and Molecular Structure of $Mo_6O_{10}(OPri)_{12}$: a Serpentine Chain of Molybdenum Atoms and Observation of Semibridging Alkoxy-ligands **Malcolm H. Chisholm, Kirsten Folting, John C. Huffman, Charles C. Kirkpatrick**
- 191 *X*-Ray Evidence for a Mononuclear *s-trans*- η^4 -1,3-Diene Complex; Molecular Structure of $Zr(\eta^5-C_5H_5)_2(s\text{-}trans\text{-}PhCH=CH\text{-}CH=CHPh)$ **Yasushi Kai, Nobuko Kanehisa, Kunio Miki, Nobutami Kasai, Kazushi Mashima, Kinya Nagasuna, Hajime Yasuda, Akira Nakamura**
- 192 New Biosynthetically Patterned Inhibitors of Gibberellin Plant Hormone Formation **James R. Hanson, Keith P. Parry, Jorge Triana, Christine L. Willis**
- 193 Novel 6- and 8-Membered Hg-P Rings **Johann Eichbichler, Paul Peringer**
- 194 Synthesis, *X*-Ray Crystal Structure, and Reactivity of Ternary Complexes of Crown Ethers, Organic π -Acceptors, and Salts **Jan A. A. de Boer, David N. Reinhoudt, Jos W. H. M. Uiterwijk, Sybolt Harkema**
- 196 The Crystal Structures of $[Cu(phen)_2(O_2CMe)]X$ (phen = 1,10-phenanthroline) Complexes: Pseudo *cis*-Distorted Octahedral Structures and Fluxional Copper(n) Stereochemistries **Freida Clifford, Eileen Counihan, William Fitzgerald, Karl Seff, Charles Simmons, Suresh Tyagi, Brian Hathaway**
- 198 Dimerisation of a Diplatinum to a Tetraplatinum complex during Catalysis of the Water Gas Shift Reaction: the *X*-Ray Crystal Structure of $[Pt_4(\mu_2\text{-CO})_2(\mu_2\text{-Ph}_2PCH_2PPh_2)_3\{Ph_2PCH_2\tilde{P}(:O)Ph_2\}]$ **Aileen A. Frew, Ross H. Hill, Ljubica Manojlović-Muir, Kenneth W. Muir, Richard J. Puddephatt**
- 200 Crystal and Molecular Structure of Benzo-27-crown-9 Guanidinium Perchlorate (1:1): an Encapsulated Complex **Jos W. H. M. Uiterwijk, Sybolt Harkema, Jan Gevers, David N. Reinhoudt**
- 201 Symmetrical and Unsymmetrical Bridging Carbonyl Groups in Binuclear Molybdenum Carbonyl Complexes of Alkylaminobis(difluorophosphines); *X*-Ray Crystal Structures of Two of the Complexes **M. Gary Newton, R. Bruce King, Tong-Wai Lee, Leif Norskov-Lauritzen, Vijay Kumar**
- 203 Some Remarkable Reactions of the Biscarbyne Clusters $[\mu_3\text{-}(\eta^1\text{-}CR^1)\text{-}\mu_3\text{-}(\eta^1\text{-}CR^2)\text{-}\{(\eta^5\text{-}C_5H_5)Co\}_3]$ with Electrophiles **David E. Van Horn, Peter C. Vollhardt**

AUTHOR INDEX

- Ackland, Mark J., 165
 Ambroz, Hanna B., 172
 Amma, Elmer L., 182
 Bakhmutov, Vlabinir I., 180
 Banks, Stephen W., 157
 Barieux, Jean-Jacques, 176
 Barrett, Anthony G. M., 170
 Battersby, Alan R., 181
 Baxter, Robert L., 145
 Belikov, Vasili M., 180
 Bell, Norman A., 147
 Belokon', Yuuri N., 180
 Boer, Jan A. A. de, 194
 Brand, John C., 151
 Broadhurst, Michael J., 158
 Cava, Michael P., 164
 Chisholm, Malcolm H., 189
 Christian, Götz, 184
 Clifford, Freda, 196
 Cook, Malcolm D., 151
 Cornelisse, Jan, 185
 Counihan, Eileen, 196
 Démarcq, Michel C., 176
 Dewick, Paul M., 157
 Dunnigan, Daniel A., 173
 Edington, Clare, 181
 Eichbichler, Johann, 193
 Engman, Lars, 164
 Evans, D. Michael, 188
 Fagerness, Paul E., 145
 Fehlhammer, Wolf P., 184
 Fitzgerald, William, 196
 Folting, Kirsten, 189
 Fookes, Christopher J. R., 181
 Freiberg, Leslie A., 173
 Frew, Aileen A., 198
 Fujita, Tetsuro, 162
 Fujitsu, Hiroshi, 166
 Geevers, Jan, 200
 Hanson, James R., 165, 192
 Harbou, John R., 154
 Harkema, Sybolt, 194, 200
 Hassall, Cedric H., 158
 Hathaway, Brian, 196
 Hill, Ross H., 198
 Hirashawa, Yukihiko, 153
 Hook, James H., 181
 Horlock, Peter L., 173
 Huffman, John C., 189
 Inoue, Seiichi, 153
 Kai, Yasushi, 191
 Kanehisa, Nobuko, 191
 Kasai, Nobutami, 191
 Kasturi, Tirumalai R., 167
 Kemp, Terence J., 172
 Kido, Masaru, 162
 King, James F., 175
 King, R. Bruce, 201
 Kirkpatrick, Charles C., 189
 Kokubo, Toshio, 186
 Konstantinovsky, Leonid E., 169
 Korobov, Michail S., 169
 Kumar, Vijay, 201
 Kuwahara, Masaaki, 163
 Lee, Tong-Wai, 201
 Liss, Robert H., 173
 Lugtenburg, Johan, 185
 Lukac, Sava, 154
 McGarry, Michael J., 175
 Mackenzie, Neil E., 145
 Manojlović-Muir, Ljubica, 198
 Mashima, Kazushi, 191
 Matsumoto, Mutsuo, 186
 Matsushita, Hajime, 160
 Memon, M. Usman, 163
 Miki, Kunio, 191
 Minkin, Vladimir I., 169
 Miyamoto, Osamu, 153
 Miyazaki, Jinsei, 186
 Mochida, Isao, 166
 Muir, Kenneth W., 198
 Nagasuna, Kinya, 191
 Nakamura, Akira, 191
 Negishi, Ei-ichi, 160
 Newton, M. Gary, 201
 Nivorozhkin, Leonid E., 169
 Norskoy-Lauritzen, Leif, 201
 Nowell, Ian W., 147
 Okano, Masaya, 186
 Okuda, Takuo, 163
 Palmer, Anthony J., 173
 Parry, Keith P., 192
 Peringer, Paul, 193
 Perun, Thomas J., 173
 Pike, Victor W., 173
 Price, Allan J., 151
 Puddephatt, Richard J., 198
 Raju, Gonibella J., 167
 Ramamurthy, Vaidyanathan, 178
 Ramasubbu, Narayanan, 178
 Rao, C. N. Ramachandra, 178
 Ratcliffe, Arnold H., 165
 Reinhoudt, David N., 194, 200
 Roberts, Brian P., 151
 Robinson, John A., 148
 Rodesiler, Paul F., 182
 Row, Tayur N. Guru, 178
 Ryzhov, Michail G., 180
 Sadler, Ian H., 165
 Saporovskaya, Marina B., 180
 Sato, Kikumasa, 153
 Scott, A. Ian, 145
 Seff, Karl, 196
 Shearer, (the late) Harrison M. M., 147
 Sheth, Hiten G., 170
 Shingu, Tetsuro, 162, 163
 Simmons, Charles, 196
 Steele, Melanie J., 157
 Stolzenberg, Heribert, 184
 Suetsugu, Katsuya, 166
 Sugimoto, Toyonari, 186
 Taira, Zenei, 162
 Takeda, Yosho, 162
 Takeshita, Kenjiro, 166
 Tanimoto, Shigeo, 186
 Taylor, David R., 188
 Thies, Richard W., 174
 Thomas, Gareth J., 158
 Tintel, Kees, 185
 Triana, Jorge, 192
 Turner, David L., 148
 Tyagi, Suresh, 196
 Uiterwijk, Jos W. H. M., 194, 200
 Van Horn, David E., 203
 Venkatesan, Kailasam, 178
 Vollhardt, K. Peter C., 203
 Ward, David, 157
 Willis, Christine L., 192
 Yamamoto, Tomoya, 153
 Yasuda, Hajime, 191
 Yoshida, Takashi, 163
 Yue, Stephen T., 174
 Zel'tzer, Irina E., 180

Publications from The Royal Society of Chemistry

SPECIALIST PERIODICAL REPORTS

Catalysis Vol. 4

Senior Reporters: C. Kemball and D. A. Dowden

This volume reviews the recent literature published up to mid 1980.

Brief Contents:

The Design and Preparation of Supported Catalysts; Aspects of Characterization and Activity of Supported Metal and Bimetallic Catalysts; Metal Clusters and Cluster Catalysis; Olefin Metathesis; Superbasic Heterogeneous Catalysts; Hydration and Dehydration by Heterogeneous Catalysts; Sulphide Catalysts: Characterization and Reactions including Hydrodesulphurization; Carbon as a Catalyst and Reactions of Carbon.

"All the reviews have the same high quality, being critical and selective, and this renders them valuable tools for information and research."—*Applied Catalysis* reviewing Vol. 3

Hardcover 266pp 0 85186 554 2 Price £29.00 (\$62.00) RSC Members £17.50

Aliphatic and Related Natural Product Chemistry Vol. 2

Senior Reporter: F. D. Gunstone

This second volume in the series reviews the literature published during 1978 and 1979.

Brief Contents:

Natural Acetylenic and Olefinic Compounds, excluding Marine Natural Products; Acyclic Terpenoids; Insect Pheromones and Related Behaviour-modifying Chemicals; Olefinic Microbial Metabolites, including Macrocyclic Compounds; Prostaglandins; Fatty Acids and Glycerides; Polar Lipids.

"The volume contains many references and should provide an excellent start for anyone initiating a research programme in any areas indicated. Every library should have a copy of this book."—Daniel Swern, *JAOCS*, reviewing Vol. 1

Hardcover 278pp 0 85186 652 2 Price £40.00 (\$85.00) RSC Members £24.00

Foreign Compound Metabolism in Mammals Vol. 6

Senior Reporter: D. E. Hathway

This volume reviews the literature published during 1978 and 1979.

Brief Contents:

Drug Kinetics; Enzymic Mechanisms of Oxidation, Reduction, and Hydrolysis; Enzymic Mechanisms of Conjugation; Species, Strain, and Sex Differences in Metabolism; Mechanisms of Chemical Carcinogenesis; Drugs Acting on the Central Nervous System; Cardiovascular Drugs; Biotransformation of Sympathomimetic Agents and Bronchodilators; Anti-infective Agents; Steroids and Antihormones; Food Additives; Agricultural Chemicals; Industrial Chemicals and Miscellaneous Organic Compounds; Cancer Chemotherapeutic Agents.

"Overall, this volume is recommended highly as an organised source of metabolism-pharmacokinetics literature on important xenobiotics of many kinds."—*Journal of Pharmaceutical Sciences* reviewing Vol. 5

Hardcover 309pp 0 85186 058 3 Price £64.00 (\$136.00) RSC Members £35.00

Ordering

RSC Members Orders should be sent to: The Royal Society of Chemistry, The Membership Officer, 30 Russell Square, London WC1B 5DT.

Non-RSC Members Orders should be sent to: The Royal Society of Chemistry, Distribution Centre, Blackhorse Road, Letchworth, Herts SG6 1HN.



The Royal Society of Chemistry
Burlington House
Piccadilly
London W1V 0BN



CLASSIFIED ADVERTISEMENTS

Senior Postdoctoral Research Fellow

Applications are invited for the above position ("chargé de recherches") from chemical spectroscopists having experience in the field of radio-frequency for research in Nuclear Quadrupole Resonance and related topics. The appointment is initially for one year with a possible prolongation for one or more two-year periods. The gross annual salary is approximately SFr 60,000.—. Applications should be accompanied by a brief curriculum vitae, a list of publications and the names of two referees and addressed to: Professor E. A. C. Lucken, Physical Chemistry Department, Sciences II, 30, Quai E. Ansermet, 1211 Geneva 4, Switzerland.

QUEEN MARY COLLEGE University of London

ORGANIC CHEMISTRY RESEARCH

Applications are invited for a POSTDOCTORAL FELLOWSHIP, supported by SERC, for work on the chemistry of vitamin B₁₂ in collaboration with Professor R. Bonnett. Appointment from June (or as soon as possible thereafter) for 1 year in first instance, with extension for 2 more years possible by mutual agreement. Salary in range £7037-£7847 p.a. Applications, including cv and names of 2 referees, to The Secretary (cc), Queen Mary College, Mile End Road, London E1 4NS, as soon as possible.

Oxford Scientific Tapes has compiled on a single cassette the everyday scientific words and expressions of Organic Chemistry distinctly pronounced in English. Listening to this tape would benefit research chemists anticipating a work period or lecture tour abroad. Topics include stereochemistry, n.m.r., mechanisms and synthesis. Price £9 (includes air mail postage) PO Box 132, Oxford OX2 7NL, England.

Please mention

Chemical Communications

when replying to advertisements