

## JOURNAL OF THE CHEMICAL SOCIETY

**Chemical Communications**

**Number 13**  
**1987**

---

**CONTENTS**

- 957 Intermolecular Association of Cyanide Substituted Triruthenium Carbonyl Cluster Anions: Synthesis and Crystal Structure of  $[ppn]_2[Ru_6(CN)_2(CO)_{20}]$  [ $ppn = \text{bis}(\text{triphenylphosphine})\text{iminium cation}$ ] Guy Lavigne, Noël Lugan, Jean-Jacques Bonnet
- 959 A New Organic Material Exhibiting Highly Efficient Phase-matched Second Harmonic Generation: 4-Methoxy-4'-nitrotolan Takashi Kurihara, Hisao Tabei, Toshikuni Kaino
- 960 Drastic Change in Fluorescence Intensity of Acyclic Polyethers caused by Addition of Lithium Ion Kazuhisa Hiratani
- 961 Direct Amination of Aromatic Compounds by Nitrenium and Alkynitrenium Ions. Photolysis of 1-(Amino and alkylamino)-2-methyl-4,6-diphenylpyridinium Tetrafluoroborates in Aromatic Solvent-Trifluoroacetic Acid Hiroshi Takeuchi
- 963 The  $[6-\text{CB}_9\text{H}_{14}]^-$  Anion: the Missing Link between Parent Ten-Vertex *arachno*-Boranes and Dicarbaboranes Bohumil Štibr, Tomáš Jelinek, Jaromír Plešek, Stanislav Hérmanek
- 964 Oxetane Synthesis: Methyl Vinyl Sulphides as New Traps of Excited Benzophenone in a Stereoselective and Regiospecific Paterno-Büchi Reaction Trevor H. Morris, Edward H. Smith, Roger Walsh
- 966 Zinc, Cobalt, and Cadmium Thiolate Complexes: Models for the Zinc (*S*-cys)<sub>2</sub>(his)<sub>2</sub> Centre in Transcription Factor IIIA (cys = cysteine; his = histidine) Douglas T. Corwin, Jr., Eric S. Gruff, Stephen A. Koch
- 967 Reaction of 3,4-Dimethyl-1-oxa-6,6a $\lambda^4$ -diselena-2-azapentalene with Tetraphosphorus Decasulphide: A New Molecular Rearrangement. *X*-Ray Crystal Structures of 3,4-Dimethyl-1-oxa-6,6a $\lambda^4$ -diselena-2-azapentalene, 2,4-Dimethyl-1-thia-6,6a $\lambda^4$ -diselena-3-azapentalene, and 2,4-Dimethyl-1,6-dithia-6a $\lambda^4$ -selena-3-azapentalene Christine Allen, Jan C. A. Boeyens, Alexander G. Briggs, Louis Denner, (the late) Anthony J. Markwell, David H. Reid, Beate G. Rose
- 969 A New Route to Aryltin Compounds: Orthometallation of Schiff's Bases by Tin(IV) Halides: Crystal and Molecular Structure of *N*-Methyl-*ortho*-trichlorostannyldiphenylmethylenamine,  $2-\text{Cl}_3\text{SnC}_6\text{H}_4\text{C}(\text{Ph})=\text{NMe}$  William Clegg, Catharine M. J. Grievson, Kenneth Wade
- 970 Alkane Functionalisation on a Preparative Scale by Mercury Photosensitisation Stephen H. Brown, Robert H. Crabtree
- 971 Intramolecular, Reversible C–H Oxidative Addition–Reductive Elimination at Rhodium. Reaction of the Intermediate with Different Types of C–H Bonds and Dihydrogen Claudio Bianchini, Andrea Meli, Maurizio Peruzzini, Fabrizio Zanobini
- 973 Cluster Formation Assisted by Alkyne Ligands: Synthesis and *X*-Ray Crystal Structure of  $[\text{Co}_2\text{W}(\mu\text{-C}_2\text{Et}_2)(\mu\text{-C}_4\text{Et}_4)\text{-}(\text{CO})_8]$  Louis J. Farrugia, Michael J. Went
- 974 Synthesis, Complexation, and *X*-Ray Structure of a New Type of Binucleating Macrocycle Incorporating Both Soft and Hard Ligating Sites Catherine J. van Staveren, David N. Reinhoudt, Johan van Eerden, Sybolt Harkema
- 977 A Biogenetic Synthesis of  $(\pm)$ -Secotrinerviten- $2\beta,3\alpha$ -diol Tadahiro Kato, Toshifumi Hirukawa, Yoshinori Yamamoto
- 978 The Preparation and Dynamic Behaviour of Platinum(IV) Derivatives of Macrocyclic Sulphides; The *X*-Ray Crystal Structure of *fac*- $[\text{PtMe}_3\text{SCH}_2\text{CH}_2\text{SCH}_2\text{CH}_2\text{SCH}_2\text{CH}_2\text{S}]$  $\text{Cl}\cdot 2\text{H}_2\text{O}$  Edward W. Abel, Paul D. Beer, Ian Moss, Keith G. Orrell, Vladimir Sik, Paul A. Bates, Michael B. Hursthouse
- 980 Remarkable Differences in the Reactivities of the (*E*)- and (*Z*)-Isomers of a Phospha-alkene Andrew R. Barron, Alan H. Cowley, Stephen W. Hall
- 981 Desulphurisation–Dimerisation of Dithioacetals with  $\text{W}(\text{CO})_6$  Lam Lung Yeung, Yu Chi Yip, Tien-Yau Luh
- 983  $\sigma$ – $\eta^2$  Transformation of an Electron-rich Thioarsenic Heterocyclic Ligand: *X*-Ray Crystal Structure of  $[\text{Mo}(\eta^2\text{-AsSCH}_2\text{CH}_2\text{S})(\text{CO})_2(\eta\text{-C}_5\text{H}_5)]$  Edward W. Abel, Stephen R. Allen, Paul A. Bates, Michael B. Hursthouse, Bandana Khandelwal
- 984 Anodic Trimerization: a Facile One-step Synthesis of Tris(15-crown-5)triphenylene Veronique Le Berre, Lysiane Angely, Noëlle Simonet-Guéguen, Jacques Simonet
- 986 A Quantitative Approach to the Pseudo- $\pi$  Nature of Cyclopropane A. C. Legon, D. J. Millen
- 987 Stabilisation of Mononuclear Palladium(II). The Single Crystal *X*-Ray Structure of the  $[\text{Pd}(\text{L})_2]^{3+}$  Cation ( $\text{L} = 1,4,7$ -trithiacyclononane) Alexander J. Blake, Alan J. Holder, Timothy I. Hyde, Martin Schröder
- 989 Rearrangement vs. Dissociation of Gaseous Silicon-containing Cations: a Combined Experimental-Theoretical Approach Yitzhak Apeloig, Miriam Karni, Amnon Stanger, Helmut Schwarz, Thomas Drewello, Gregor Czekay

- 992 A Stereoselective Approach to the  $\delta$ -Lactone Fragment of the Lankacidin Antibiotics Eric J. Thomas, Andrew C. Williams
- 994 Structural Isomers of a Terminal Phosphinidene Complex Atta M. Arif, Alan H. Cowley, Christine M. Nunn, Marek Pakulski
- 996 Epimerisations and Non-stereospecific Reactions of 1,3,2-Oxazaphospholidin-2-ones and -2-thiones Paul M. Cullis, Anna Iagrossi, Andrew J. Rous, Mark B. Schilling
- 998 Hydrogen Isotope Effects in Hydride Transfer Reactions of Formaldehyde and Glyoxal. An *Ab initio* and MNDO SCF-M.O. Study Indira H. Rajyaguru, Henry S. Rzepa
- 1000 Reversible Conformational Changes in a Poly(amino acid) Film Electrode with Attached Electroactive Groups Ajit M. Abeysekera, James Grimshaw
- 1002 Cyclopentane-annulated Pyranosides: A New Approach to Chiral Iridoid Synthesis Hiromasa Hashimoto, Kimiaki Furuichi, Toshio Miwa
- 1004 Nitrogen Insertion to Bicyclo[2.2.1]heptanones; the Photo-Beckmann Rearrangement of Oximes of (+)-Fenchone and (+)-Camphor Hiroshi Sugino, Kenji Furukawa, Kazuhiko Orito
- 1005 Formation of a Heterobimetallic Cyclohexa-1,4-dienyl-hydrido-complex from an Acetylide and Buta-1,3-diene: Crystal Structure of  $[(p\text{-MeC}_6\text{H}_4\text{C}\equiv\text{C})\text{Pt}(\mu\text{-dppm})_2(\mu\text{-H})\text{Ir}(\text{CO})\{\text{C}=\text{C}(\text{C}_6\text{H}_3\text{Me})\text{CH}_2\text{CH}=\text{CHCH}_2\}][\text{BF}_4]$  (dppm =  $\text{Ph}_2\text{PCH}_2\text{PPh}_2$ ) David P. Markham, Bernard L. Shaw, Mark Thornton-Pett
- 1007 Chain Extensions from C-1 and C-5 of D-Xylopyranose Derivatives Regine Blattner, Robert J. Ferrier, Robyn Renner
- 1008 Crystalline Pseudo- $\alpha$ -D-glucopyranose Regine Blattner, Robert J. Ferrier
- 1009 A Simple, Efficient Synthesis of Vinyl  $\beta$ -D-Glucopyranosides Anna de Raadt, Robert J. Ferrier
- 1011 Synthesis of *myo*-Inositol 1,3,4,5-Tetraphosphate and *myo*-Inositol 1,3-Bisphosphate David C. Billington, Raymond Baker
- 1013 Efficient Conversion of Alkyl Chlorides into Bromides K. B. Yoon, J. K. Kochi
- 1015 New Organometallic Derivatives of Titanium(II) containing  $\pi$ -Acids as Ligands Paolo Biagini, Fausto Calderazzo, Guido Pampaloni
- 1016 1,1'-Bi-(2-aryl-1,2-dihydrophthalazinylidene): Potential New Pigments. Relief of Strain by a *trans*-Folded Alkene Linkage Richard N. Butler, Ann M. Gillan, Patrick McArdle, Desmond Cunningham
- 1018 Stabilising Effects on the 4Fe-4S Core Analogues for High-potential Iron-Sulphur Proteins with a Hydrophobic Environment Provided by Macrocycles Yohmei Okuno, Kouichi Uoto, Osamu Yonemitsu, Takenori Tomohiro
- 1020 Biomimetic Synthesis of ( $\pm$ )-Chrysomelidial, ( $\pm$ )-Dehydroiridodial, and ( $\pm$ )-Iridodial Shinichi Uesato, Yasuko Ogawa, Masaharu Doi, Hiroyuki Inouye
- 1021 Synthesis of Oligomeric 2,5-Thienylenes; Their U.V. Spectra and Oxidation Potentials D. D. Cunningham, L. Laguren-Davidson, Harry B. Mark, Jr., Chiem Van Pham, Hans Zimmer
- 1023 Associative Substitution Reactions in 17 Electron Organometallic Radicals: Direct Observation of the Reaction of  $[(\text{C}_5\text{H}_5)\text{Fe}(\text{CO})_2]$  with  $\text{P}(\text{OMe})_3$  using Very Fast Time-resolved I.R. Spectroscopy Andrew J. Dixon, Steven J. Gravelle, Lambertus J. van de Burgt, Martyn Poliakoff, James J. Turner, Eric Weitz
- 1025 Regioselective Germyl-Stannylation of  $\alpha,\beta$ -Acetylenic Esters Edward Piers, Renato T. Skerlj
- 1026 The Total Synthesis of (-)-Phyllanthostatin-1 Amos B. Smith III, Karl J. Hale, Henry A. Vaccaro
- 1028 Remarkable Structural Effects in the Intramolecularly Assisted Hydrolysis of Aryl Chloroalkyl Ketones Nagabushanam Kalyanam, M. A. Likhate
- 1029 Observation of Bridged-Terminal Hydrido Equilibria in a Series of Iron-Platinum Bimetallic Complexes John Powell, Michael R. Gregg, Jeffery F. Sawyer
- 1031 Influence of Surface Structure on the Interaction of Allyl Iodide with  $\text{MoO}_3$  Catalysts A. Guerrero-Ruiz, M. Abon, J. Massardier, J. C. Volta
- 1033 Phosphine Complexes of Main Group Elements. A Bis-phosphinomethyl Lithiate as an Anionic Diphosphine Ligand to Lithium: Synthesis and Structure of  $\{[\text{Me}_2\text{N}(\text{CH}_2)_2\text{NMe}_2]\text{Li}[(\text{Me}_2\text{P})\text{C}(\text{SiMe}_3)_2]\text{Li}\}$  Hans H. Karsch, Armin Appelt, Brigitte Deubelly, Gerhard Müller
- 1035 Unexpectedly Low Extent of Adsorption of Non-ionic Ethoxylated Surfactants on Alumina S. A. Lawrence, J. A. Pilc, J. R. Readman, P. A. Sermon
- 1036 Stereoselective Total Synthesis of (S)-(-)-Dolichol-20 Seiichi Inoue, Toshihiko Kaneko, Yuichi Takahashi, Osamu Miyamoto, Kikumasa Sato
- 1038 Direct Evidence for the Participation of Extrinsic Surface Sites in the Enhancement of Photocatalytic Activity of Luminescent Zinc Sulphide Catalysts Masakazu Anpo, Atsushi Matsumoto, Sukeya Kodama
- 1039 Metal Complex and Phase Transfer Catalysed Nitric Oxide Reactions Slavomir Falicky, Howard Alper
- 1041 Highly Enantioselective Route to (R)-Proline Derivatives via Enzyme Catalysed Hydrolysis of *cis*-N-Benzyl-2,5-bismethoxycarbonylpyrrolidine in an Aqueous Dimethyl Sulphoxide Medium Fredrik Björkling, John Boutelje, Mats Hjalmarsson, Karl Hult, Torbjörn Norin
- 1043 Radiosensitizers targeted to DNA using Platinum. Synthesis, Characterisation, and DNA Binding of *cis*-[PtCl<sub>2</sub>(NH<sub>3</sub>)-(Nitroimidazole)] Nicholas Farrell, Kirsten A. Skov
- 1044 Synthetic Studies on Quassimarin: Construction of the Pentacyclic Carbon Skeleton Paul A. Grieco, Junji Inanaga, Hing Leung Sham, Shigeki Sasaki, Hongbum Kim
- 1046 Gas-Solid Chlorination of 4-Phenylthiazole-2(1*H*)-thione Veerapaneni Nalini, Gautam R. Desiraju
- 
- Corrigendum**
- 1048 Efficient Functional Group Transformations on a Cyclic Nitroalkene System Jih Ru Hwu, Naelong Wang

## AUTHOR INDEX

- Abel, Edward W., 978, 983  
 Abeysekera, Ajit M., 1000  
 Abon, M., 1031  
 Allen, Christine, 967  
 Allen, Stephen R., 983  
 Alper, Howard, 1039  
 Angély, Lysiane, 984  
 Anpo, Masakazu, 1038  
 Apeloig, Yitzhak, 989  
 Appelt, Armin, 1033  
 Arif, Atta M., 994  
 Baker, Raymond, 1011  
 Barron, Andrew R., 980  
 Bates, Paul A., 978, 983  
 Beer, Paul D., 978  
 Biagini, Paolo, 1015  
 Bianchini, Claudio, 971  
 Billington, David C., 1011  
 Björkling, Fredrik, 1041  
 Blake, Alexander J., 987  
 Blattner, Regine, 1007, 1008  
 Boeyens, Jan C. A., 967  
 Bonnet, Jean-Jacques, 957  
 Boutelje, John, 1041  
 Briggs, Alexander G., 967  
 Brown, Stephen H., 970  
 Butler, Richard N., 1016  
 Calderazzo, Fausto, 1015  
 Clegg, William, 969  
 Corwin, Jr., Douglas T., 966  
 Cowley, Alan H., 980, 994  
 Crabtree, Robert H., 970  
 Cullis, Paul M., 996  
 Cunningham, D. D., 1021  
 Cunningham, Desmond, 1016  
 Czekay, Gregor, 989  
 de Raadt, Anna, 1009  
 Denner, Louis, 967  
 Desiraju, Gautam R., 1046  
 Deubelly, Brigitte, 1033  
 Dixon, Andrew J., 1023  
 Doi, Masaharu, 1020  
 Drewello, Thomas, 989  
 Falicky, Slavomir, 1039  
 Farrell, Nicholas, 1043  
 Farrugia, Louis J., 973  
 Ferrier, Robert J., 1007, 1008, 1009  
 Furuichi, Kimiaki, 1002  
 Furukawa, Kenji, 1004  
 Gillan, Ann M., 1016  
 Gravelle, Steven J., 1023  
 Gregg, Michael R., 1029  
 Grieco, Paul A., 1044  
 Grievson, Catharine M. J., 969  
 Grimshaw, James, 1000  
 Gruff, Eric S., 966  
 Guerrero-Ruiz, A., 1031  
 Hale, Karl J., 1026  
 Hall, Stephen W., 980  
 Harkema, Sybolt, 974  
 Hashimoto, Hiromasa, 1002  
 Heřmánek, Stanislav, 963  
 Hiratani, Kazuhisa, 960  
 Hirukawa, Toshifumi, 977  
 Hjalmarsson, Mats, 1041  
 Holder, Alan J., 987  
 Hult, Karl, 1041  
 Hursthouse, Michael B., 978, 983  
 Hwu, Jih Ru, 1048  
 Hyde, Timothy I., 987  
 Iagrossi, Anna, 996  
 Inanaga, Junji, 1044  
 Inoue, Seiichi, 1036  
 Inouye, Hiroyuki, 1020  
 Jelinek, Tomáš, 963  
 Kaino, Toshikuni, 959  
 Kalyanam, Nagabushanam, 1028  
 Kaneko, Toshihiko, 1036  
 Karni, Miriam, 989  
 Karsch, Hans H., 1033  
 Kato, Tadahiro, 977  
 Khandelwal, Bandana, 983  
 Kim, Hongbum, 1044  
 Koch, Stephen A., 966  
 Kochi, J. K., 1013  
 Kodama, Sukeya, 1038  
 Kurihara, Takashi, 959  
 Laguren-Davidson, L., 1021  
 Lavigne, Guy, 957  
 Lavigne, Guy, 957  
 Lawrence, S. A., 1035  
 Le Berre, Véronique, 984  
 Legon, A. C., 986  
 Likhate, M. A., 1028  
 Lugan, Noël, 957  
 Luh, Tien-Yau, 981  
 McArdle, Patrick, 1016  
 Mark, Jr., Harry B., 1021  
 Markham, David P., 1005  
 Markwell, (the late) Anthony J., 967  
 Massardier, J., 1031  
 Matsumoto, Atsushi, 1038  
 Meli, Andrea, 971  
 Millen, D. J., 986  
 Miwa, Toshio, 1002  
 Miyamoto, Osamu, 1036  
 Morris, Trevor H., 964  
 Moss, Ian, 978  
 Müller, Gerhard, 1033  
 Nalini, Veerapaneni, 1046  
 Norin, Torbjörn, 1041  
 Nunn, Christine M., 994  
 Ogawa, Yasuko, 1020  
 Okuno, Yohmei, 1018  
 Orito, Kazuhiko, 1004  
 Orrell, Keith G., 978  
 Pakulski, Marek, 994  
 Pampaloni, Guido, 1015  
 Peruzzini, Maurizio, 971  
 Pham, Chiem Van, 1021  
 Piers, Edward, 1025  
 Pilc, J. A., 1035  
 Plešek, Jaromír, 963  
 Poliakoff, Martyn, 1023  
 Powell, John, 1029  
 Rajyaguru, Indira H., 998  
 Readman, J. R., 1035  
 Reid, David H., 967  
 Reinoudt, David N., 974  
 Renner, Robyn, 1007  
 Rose, Beate G., 967  
 Rous, Andrew J., 996  
 Rzepa, Henry S., 998  
 Sasaki, Shigeki, 1044  
 Sato, Kikumasa, 1036  
 Sawyer, Jeffery F., 1029  
 Schilling, Mark B., 996  
 Schröder, Martin, 987  
 Schwarz, Helmut, 989  
 Sermon, P. A., 1035  
 Sham, Hing Leung, 1044  
 Shaw, Bernard L., 1005  
 Šík, Vladimir, 978  
 Simonet, Jacques, 984  
 Simonet-Guéguen, Noëlle, 984  
 Skerlj, Renato T., 1025  
 Skov, Kirsten A., 1043  
 Smith, Edward H., 964  
 Smith III, Amos B., 1026  
 Stanger, Amnon, 989  
 Štíbr, Bohumil, 963  
 Sugino, Hiroshi, 1004  
 Tabei, Hisao, 959  
 Takahashi, Yuichi, 1036  
 Takeuchi, Hiroshi, 961  
 Thomas, Eric J., 992  
 Thornton-Pett, Mark, 1005  
 Tomohiro, Takenori, 1018  
 Turner, James J., 1023  
 Uesato, Shinichi, 1020  
 Uoto, Kouichi, 1018  
 Vaccaro, Henry A., 1026  
 van de Burgt, Lambertus J., 1023  
 van Eerden, Johan, 974  
 van Staveren, Catherina J., 974  
 Volta, J. C., 1031  
 Wade, Kenneth, 969  
 Walsh, Roger, 964  
 Wang, Naelong, 1048  
 Weitz, Eric, 1023  
 Went, Michael J., 973  
 Williams, Andrew C., 992  
 Yamamoto, Yoshinori, 977  
 Yeung, Lam Lung, 981  
 Yip, Yu Chi, 981  
 Yonemitsu, Osamu, 1018  
 Yoon, K. B., 1013  
 Zanobini, Fabrizio, 971  
 Zimmer, Hans, 1021

# **NEW BOOKS FOR ORGANIC CHEMISTS AND BIOCHEMISTS**

## **Amino Acids and Peptides Vol. 18**

This series was previously entitled 'Amino Acids, Peptides, and Proteins'. The latest volume in the series covers the literature published on the subject during 1985.

Senior Reporter: J. H. Jones,  
*University of Oxford*

**Brief Contents:**

Amino Acids; Peptide Synthesis; Analogue and Conformational Studies on Peptide Hormones and Other Biologically Active Peptides; Cyclic Modified and Conjugate Peptides;  $\beta$ -Lactam Antibiotic Chemistry; Metal Complexes of Amino Acids and Peptides.

**Hardcover 314pp**  
**ISBN 0 85186 164 4**  
**Price £64.00 (\$96.00)**  
**RSC Members price £42.00**

*Specialist Periodical Report*

## **General and Synthetic Methods Vol. 9**

**Hardcover 734pp**  
**ISBN 0 85186 904 1**  
**Price £120.00 (\$230.00)**  
**RSC Members price £65.00**

A review of the literature published during 1984.

**Brief Contents:**

Saturated and Unsaturated Hydrocarbons; Aldehydes and Ketones; Carboxylic Acids and Derivatives; Alcohols, Halogeno-compounds, and Ethers; Amines, Nitriles, and Other Nitrogen-containing Functional Groups; Organometallics in Synthesis; Saturated Carbocyclic Ring Synthesis; Saturated Heterocyclic Ring Synthesis; Highlights in Total Synthesis of Natural Products; Reviews on General and Synthetic Methods.

*Specialist Periodical Report*

Senior Reporter:  
G. Pattenden,  
*University of Nottingham*

## **Topics in Lipid Research**

### ***From structural elucidation to biological function***

Over the last decade many lipid chemists and biochemists have made a conscious effort to move from purely structural investigations to those which throw more light on the biological function of lipid molecules.

For many years lipids were considered to be molecules containing just C, H and O, related to fatty acids and hydrocarbons, with high oil - water partition co-efficients; more recently, however, it has been realized that the more complex structures such as glycolipids and lipoproteins, and indeed glycolipoproteins, are fascinating both as structural challenges and as functional elements of the cell.

This book includes both reviews and research papers dealing with recent developments in lipid research.

Edited by R. A. Klein  
and B. Schmitz  
*Molteno Inst.*  
*University of Cambridge*

**Brief Contents:**

Platelet Activating Factor; Eicosanoids; Glycolipids; Probes and Anaesthetics; Membrane Structure and Function; Environmental Adaptation.

**Hardcover 348pp**  
**ISBN 0 85186 353 1**  
**Price £37.50 (\$65.00)**  
**RSC Members price £24.50**



**ROYAL  
SOCIETY OF  
CHEMISTRY**  
Information  
Services

### **ORDERING:**

RSC Members should send their orders to: The Royal Society of Chemistry, Membership Manager, 30 Russell Square, London WC1B 5DT, UK. Non-RSC Members should send their orders to: The Royal Society of Chemistry, Distribution Centre, Blackhorse Road, Letchworth, Herts SG6 1HN, UK.