

## JOURNAL OF THE CHEMICAL SOCIETY

## Chemical Communications

Number 10  
1984

## CONTENTS

- 629 Textural and Structural Changes in Transition Alumina Supports **J. P. Franck, E. Freund, E. Quéméré**
- 630 Intramolecular Diels–Alder Chemistry of Pyrroles **Michael E. Jung, John C. Rohloff**
- 632 Photochemically Generated Organometallic Radicals as Reducing Agents **Albert E. Stiegman, Alan S. Goldman, Douglas B. Leslie, David R. Tyler**
- 634 Synthesis of Different Thione Complexes from Pentacarbonyl- $\alpha$ -ethoxybenzylidenetungsten and Lithium Phenylethynethiolate **Helgard G. Raubenheimer, G. J. Kruger, Charles F. Marais**
- 635  $^{13}\text{C}$  N.M.R. Spectroscopic Measurement of the Rotational Barrier in the 1-Cyclopropyl-3-methylbuta-1,2-dienyl Cation. Preference for the Bisected Conformation of an  $\alpha$ -Cyclopropyl-vinyl Cation **Hans-Ullrich Siehl**
- 637 Site Selectivity in the Reactions of Nucleophiles with  $[\text{Ru}_5\text{C}(\text{CO})_{15}]$ : X-Ray Analysis of  $[\text{Ru}_5\text{C}(\text{CO})_{14}(\mu\text{-}\eta^2\text{-MeCO})(\text{AuPPh}_3)]$  and  $[\text{Ru}_5\text{C}(\text{CO})_{13}(\eta^5\text{-C}_5\text{H}_5)(\text{AuPPh}_3)]$ , the First High Nuclearity Cyclopentadienylruthenium Cluster **Alan G. Cowie, Brian F. G. Johnson, Jack Lewis J. Nicola Nicholls, Paul R. Raithby, Alistair G. Swanson**
- 640 Photochemical Conversion of 7,7-Diphenyl-2,3-epoxybicyclo[3.2.0]heptan-6-ones into a 2-Oxabicyclo[2.1.1]hexan-3-one **H. Geoff Davies, Stanley M. Roberts, Basil J. Wakefield, John A. Winders, David J. Williams**
- 641 Synthesis and Characterization of a Ruthenyl ( $\text{Ru}^{\text{IV}}=\text{O}$ ) Complex with a Saturated Macrocyclic Tetramine **Chi-Ming Che, Tin-Wu Tang, Chung-Kwong Poon**
- 642 Energy Barriers for Exothermic Gas Phase Ion–Radical Recombinations **Peter C. Burgers, John L. Holmes, Johan K. Terlouw**
- 644 E.S.R. Evidence for the Photo-formation of  $\text{N}_2\text{O}^-$  and the Electron Transfer from It to  $\text{O}_2$  at 77 K on Titanium Oxide Grafted onto Porous Vycor Glass **Masakazu Anpo, Norikazu Aikawa, Yutaka Kubokawa**
- 645 Preparation and Properties of Cyclodextrin–Ferrocene Inclusion Complexes **Akira Harada, Shigetoshi Takahashi**
- 646 Synthesis and Photochemical Rearrangement of 1-Allyl-1,8-dihydropyrrolo[2,3-*b*]indoles **Christopher J. Moody, John G. Ward**
- 648 Regioselectivity in Organo-transition-metal Chemistry. A Remarkable Steric Effect in  $\pi$ -Allyl Palladium Chemistry **Ehud Keinan, Mahendra Sahai**
- 650 Structure and Mechanism of Formation of  $[\text{Fe}(\text{CO})_2(\text{PMe}_3)_2\{\text{C}(\text{=CH}_2)\text{-NC}_6\text{H}_{11}\text{-C}(\text{=N}+\text{HC}_6\text{H}_{11})\}]\text{BPh}_4^-$ . A New Type of Intramolecular Oxidative Addition to Isocyanide Co-ordinated to Iron **Giuseppe Cardaci, Gianfranco Bellachioma, PierFrancesco Zanazzi**
- 652 A Novel Preparative Method for  $\gamma$ -Butyrolactams *via* Carbon–Carbon Bond Formation: Copper or Ruthenium-catalysed Cyclization of *N*-Allyl Trichloroacetamides **Hideo Nagashima, Hidetoshi Wakamatsu, Kenji Itoh**
- 653 New Bimetallic, Phosphido-bridged Iron Complexes derived from  $[\text{Fe}_2(\mu\text{-CO})(\mu\text{-PPh}_2)(\text{CO})_5(\text{PPh}_2)]^{2-}$  **Yuan-Fu Yu, Judith Gallucci, Andrew Wojcicki**
- 655 Reaction of Acetyl Hypofluorite with Aromatic Mercury Compounds: a New Selective Fluorination Method **Gerard W. M. Visser, Bert W. v. Halteren, Jacobus D. M. Herscheid, Gerard A. Brinkman, Arend Hoekstra**
- 656 Non-stoichiometric Zn–Cr Spinel as Active Phase in the Catalytic Synthesis of Methanol **Gastone Del Piero, Ferruccio Trifiro, Angelo Vaccari**
- 658 The X-Ray Crystal Structure of *trans*-Tri-iodobis(trimethylphosphine)manganese(III). The First Example of a Trigonal Bipyramidal Manganese(III) Tertiary Phosphine Complex **Brian Beagley, Charles A. McAuliffe, Karl Minten, Robin G. Pritchard**
- 659 Stereospecific Introduction of an Asymmetric Centre at C-6 in a Glycoside **Deborah Nicoll-Griffith, Larry Weiler**
- 661 Prototropic Generation of Dipoles. A New Synthesis of Indole-3-carboxylic Acids **Ronald Grigg, H. Q. Nimal Gunaratne**
- 662 Unusual, Thermally Stable, Sublimable Aminoboranes  $\text{B}(\text{NHAr})\text{X}_2$  ( $\text{X} = \text{Cl, F, or NH}_2$ ); X-Ray Crystal Structure of Bis(amino)(2,4,6-tri-*t*-butylphenylamino)borane,  $\text{B}(\text{NH}_2)_2(\text{NHAr})$  **Peter B. Hitchcock, Hatam A. Jasim, Michael F. Lappert, Hugh D. Williams**
- 664 The Unexpected Behaviour of Potassium Aluminosilicate Solutions **Lesley S. Dent Glasser, Gillian Harvey**
- 666 The Oxirane Radical Cation **Timothy Clark**
- 667 A Photochemical Route to a Thromboxane  $\text{A}_2$  Ring Analogue **Howard A. J. Carless, G. K. Fekarurhobo**
- 669 A New Diterpene with a Novel Carbon Skeleton from a Marine Alga **Antonio G. González, Julio D. Martín, Benigno González, José L. Ravelo, Cirilo Pérez, Shahin Rafii, Jon Clardy**

- 670 Phenylthionitromethane: a Versatile Reagent for the Conversion of Aldehydes into  $\alpha$ -Substituted *S*-Phenyl Thioesters  
**Bernard J. Banks, Anthony G. M. Barrett, Mark A. Russell**
- 671 Incipient Nucleophilic Attack on a Nitrogen–Nitrogen Triple Bond: Crystal Structure of Quinoline-8-diazonium-1-oxide  
Tetrafluoroborate at 95 K **John D. Wallis, Jack D. Dunitz**

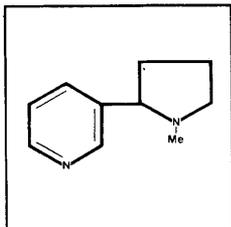
**AUTHOR INDEX**

- |                              |                               |                               |                             |
|------------------------------|-------------------------------|-------------------------------|-----------------------------|
| Aikawa, Norikazu, 644        | Goldman, Alan S., 632         | Lewis, Jack, 637              | Siehl, Hans-Ullrich, 635    |
| Anpo, Masakazu, 644          | González, Antonio G., 669     | McAuliffe, Charles A., 658    | Stiegman, Albert E., 632    |
| Banks, Bernard J., 670       | González, Benigno, 669        | Marais, Charles F., 634       | Swanson, Alistair G., 637   |
| Barrett, Anthony G. M., 670  | Grigg, Ronald, 661            | Martín, Julio D., 669         | Takahashi, Shigetoshi, 645  |
| Beagley, Brian, 658          | Gunaratne, H. Q. Nimal, 661   | Minten, Karl, 658             | Tang, Tin-Wu, 641           |
| Bellachioma, Gianfranco, 650 | Halteren, Bert W. v., 655     | Moody, Christopher J., 646    | Terlouw, Johan K., 642      |
| Brinkman, Gerard A., 655     | Harada, Akira, 645            | Nagashima, Hideo, 652         | Trifiro, Ferruccio, 656     |
| Burgers, Peter C., 642       | Harvey, Gillian, 664          | Nicholls, J. Nicola, 637      | Tyler, David R., 632        |
| Cardaci, Giuseppe, 650       | Herscheid, Jacobus D. M., 655 | Nicoll-Griffith, Deborah, 659 | Vaccari, Angelo, 656        |
| Carless, Howard A. J., 667   | Hitchcock, Peter B., 662      | Pérez, Cirilo, 669            | Visser, Gerard W. M., 655   |
| Che, Chi-Ming, 641           | Hoekstra, Arend, 655          | Poon, Chung-Kwong, 641        | Wakamatsu, Hidetoshi, 652   |
| Clardy, Jon, 669             | Holmes, John L., 642          | Pritchard, Robin G., 658      | Wakefield, Basil J., 640    |
| Clark, Timothy, 666          | Itoh, Kenji, 652              | Quéméré, E., 629              | Wallis, John D., 671        |
| Cowie, Alan G., 637          | Jasim, Hatam A., 662          | Rafii, Shahin, 669            | Ward, John G., 646          |
| Davies, H. Geoff, 640        | Johnson, Brian F. G., 637     | Raithby, Paul R., 637         | Weiler, Larry, 659          |
| Del Piero, Gastone, 656      | Jung, Michael E., 630         | Raubenheimer, Helgard G., 634 | Williams, David J., 640     |
| Dent Glasser, Lesley S., 664 | Keinan, Ehud, 648             | Ravelo, José L., 669          | Williams, Hugh D., 662      |
| Dunitz, Jack D., 671         | Kruger, G. J., 634            | Roberts, Stanley M., 640      | Winders, John A., 640       |
| Fekarurhobo, G. K., 667      | Kubokawa, Yutaka, 644         | Rohloff, John C., 630         | Wojcicki, Andrew, 653       |
| Franck, J. P., 629           | Lappert, Michael F., 662      | Russell, Mark A., 670         | Yu, Yuan-Fu, 653            |
| Freund, E., 629              | Leslie, Douglas B., 632       | Sahai, Mahendra, 648          | Zanazzi, PierFrancesco, 650 |
| Gallucci, Judith, 653        |                               |                               |                             |

# NEW Publications

from The Royal Society of Chemistry

Specialist Periodical Reports



## The Alkaloids Vol. 13

Senior Reporter: M. F. Grundon

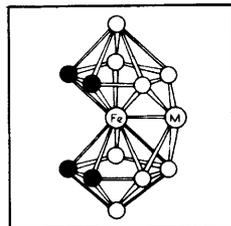
A review of the literature published during the period July 1981 and June 1982.

### 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.

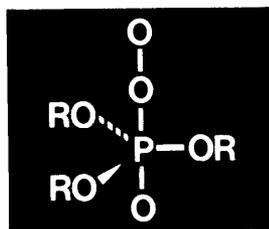
### Brief Contents:

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.

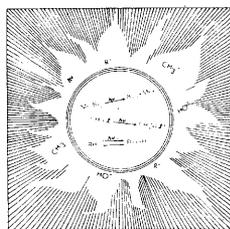
### Brief Contents:

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

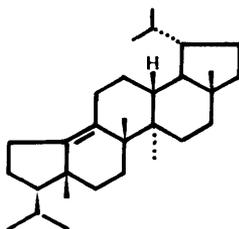
A review of the literature published between July 1981 and June 1982.

### 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



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