Sir John Cornforth Memorial Issue

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The April issue of Aust. J. Chem., is dedicated to the memory of Sir John Warcup Cornforth (usually known as Kappa to friends and colleagues), who passed away in December 2013. Cornforth studied chemistry at The University of Sydney (he entered at the age of 16), where he worked for his B.Sc. degree (obtained in 1937 with first class honours and a University Medal) with Francis Lions and Gordon K. Hughes, with whom he published several papers in J. Proc. Roy. Soc. New South Wales on such topics as the pyrolysis of phenyl cyclohexenyl ether, coumarono [3,2-b]indoles, and (with Arthur J. Birch and others) pyroles derived from acetonilactone.[3] Birch, who was a year ahead of Cornforth at Sydney, recounts how Francis Lions used to make cocktails from distilled alcohol, and that “his student John Cornforth in about 1938 invented a ‘cocktail’ that contained absolute ethanol flavoured with ethyl acetate and vanillin – which effectively smooths down the tissues – coloured by methylene blue and named ‘Satan’s Sparking Plugs’. It produced chromatographic urinary effects after imbibing, dismaying to the uninitiated”.2 Cornforth was known for his quick wit and making up limericks on the run. He got his own back on Birch:

“That outpost of empire, Australia,
Produces some curious mammalia,
The kangaroo rat,
The bloodsucking bat,
and Arthur J. Birch inter alia."[3]

His successful studies at Sydney were achieved under difficult conditions. He had become completely deaf, so that there was no point attending lectures, but even though deaf, he learned German so that he could read the original literature, and he had already taught himself glassblowing in his home laboratory in his mother’s laundry room before entering university, so that he could make his own equipment, on which he used to engrave a κ, hence his nickname. This is how, in his second year at Sydney, he worked for his B.Sc. degree (obtained in 1937 with first class honours and a University Medal) with Francis Lions and Gordon K. Hughes, with whom he published several papers in J. Proc. Roy. Soc. New South Wales on such topics as the pyrolysis of phenyl cyclohexenyl ether, coumarono [3,2-b]indoles, and (with Arthur J. Birch and others) pyroles derived from acetonilactone.[3] Birch, who was a year ahead of Cornforth at Sydney, recounts how Francis Lions used to make cocktails from distilled alcohol, and that “his student John Cornforth in about 1938 invented a “cocktail” that contained absolute ethanol flavoured with ethyl acetate and vanillin – which effectively smooths down the tissues – coloured by methylene blue and named “Satan’s Sparking Plugs”. It produced chromatographic urinary effects after imbibing, dismaying to the uninitiated”.2 Cornforth was known for his quick wit and making up limericks on the run. He got his own back on Birch:

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In Aust. J. Chem., we have started a new, prestigious review series, the Cornforth Reviews. These reviews are invited, and they are published open access. The first Cornforth Review, by Lara R. Malins and Richard Payne (The University of Sydney) on synthetic amino acids for applications in peptide ligation–desulfitation chemistry, is published in this issue.4

Damon Ridley (formerly of The University of Sydney), who worked with Sir John at Sussex, contributes a foreword with narratives and comments on several of Cornforth’s publications.3 Andrew Holmes (the 2015 Cornforth Lecturer at The University of Sydney) and co-workers at The University of Melbourne and Oxford University report a synthesis of highly water-soluble adamantyl phosphonostatide derivatives.6 Len Lindoy (The University of Sydney) with colleagues Jack Clegg at the University of Queensland, John McMurtie at Queensland University of Technology, Kate Jolliffe at The University of Sydney, and Kerstin and Karsten Gloe at the Technische Universität Dresden describe selective solvent extraction of silver(i) by tris-pyridyl tripodal ligands, including an X-ray structure of a silver(i) coordination polymer incorporating one such ligand.9 Chris McErlean (The University of Sydney) contributes a study on accessing brominated natural product motifs using phosphoramidate catalysis.10 Gareth Rowlands at Massey University, New Zealand (formerly of Sussex University, where he was a colleague of Cornforth) and co-workers report an asymmetric variant of the Bischler-Mühlaub indole synthesis.11 Louis Rendina et al. (The University of Sydney) describe the synthesis and DNA-binding of a dinuclear gadolinium(ii)-platinum(ii) complex (for use in positron emission tomography).12 Peter Lay and co-workers (The University of Sydney) report EXAFS and EPR studies of the alkene oxidation catalyst species, trans-[CrIII(bpb)(L)2]n+ and trans-[CrVO(bpb)L] (bpb = N,N′-bis(2-pyridinecarboxamido)-1,2-benzene).13 Martin Banwell and co-workers (ANU) report the rearrangement of levoglucosone, a compound that will soon be available in tonne quantities through the pyrolysis of acid-treated biomass, to isolevoglucosone.14 Michael Kassiou et al. (The University of Sydney) report recent advances in the development of sigma-1 receptor ligands, which are implicated in various central nervous system diseases.15 Steve Davies (Oxford) and co-workers write on the epoxidation of trans-4-aminoocyclohex-2-en-1-ol derivatives and the competition of hydroxyl-directed and ammonium-directed pathways.16 Bert Meijer (a former Cornforth Lecturer at The University of Sydney) and co-workers at Nijmegen, The Netherlands, describe new and subtle chiral effects on helicality: ‘From Majority Rules to Minority Rules’.17 Kate Jolliffe and co-workers at The University of Sydney describe a synthesis of dichotomin A and the use of a penicillamine-derived pseudoproline to furnish native valine residues.18 Martyn
Coles and Robin Fulton (Victoria University of Wellington, New Zealand; formerly Sussex) together with Morgan Taylor of Sussex University report on the reactivity of \( \beta \)-diketiminate magnesium alkyl complexes obtained from carbamidimes and phosphines. Another paper by Coles and Fulton and their colleagues in Wellington and Christchurch report on the coordination of \( \beta \)-ketimine derived ligands at main group and transition metals. Ray M. Carman, Paul V. Bernhardt and Tri T. Le (The University of Queensland) present a highly unusual phenomenon: the formation of a ‘pseudoracemate’, i.e. a \( \sim 70 : 30 \) mixture of diastereomers instead of a racemate. This is ascribed to a little-known interaction between remote chiral centres. Craig Williams (The University of Queensland) and co-workers report on the isolation of new pimarane diterpenes from Croton insularis found in the Australian rainforest. Bernard Golding and co-workers at Newcastle University, UK, report the synthesis and activity of putative small-molecule inhibitors of the Fbox protein SKP2. Margaret Brimble and collaborators at The University of Auckland report the synthesis of novel water-soluble triazole-containing phosphonate polymers. This writer with co-workers Carsten Plig and Hussein Kanaani report a versatile synthesis of ketenes by flash vacuum pyrolysis of \( \text{N-(2-pyridyl)amides} \). Steven Ley and Sonja Kamptmann at Cambridge University describe an interesting example of flow chemistry: facilitating biomimetic syntheses of Borreire-derived alkaloids by means of flow-chemical methods.

Sir Harry Kroto (Florida State University, Talahassee), formerly of Sussex University, where he was a colleague and close friend of Cornforth, ends the issue with some personal recollections, giving an idea of the delightful and multifaceted personality of one of Australia’s greatest scientists, and highlighting his humanitarian, wide-ranging intellectual, and humorous character.

References