

Professor Michael Anthony McKervey

A Tribute



Tony McKervey was born in Ederney, Co. Fermanagh in Northern Ireland on 27th September 1938. He obtained a B.Sc. degree in Chemistry from Queen's University, Belfast in 1961 and remained there for postgraduate research with Professor Henbest. He was awarded a Ph.D. in Organic Chemistry in 1964. He then moved to Massachusetts Institute of Technology to work with the late Professor A.C. Cope, and in 1965 was appointed as an Assistant Professor of Chemistry at MIT. He returned to Queen's University, Belfast as a lecturer in 1966, where he was awarded a D.Sc. in 1972. Following a year in Cambridge University as a Visiting Scholar in 1972-73, he was appointed as a Reader in Organic Chemistry at Queen's University, Belfast. In 1976 he moved to University College Cork as Professor of Organic Chemistry, until 1990. During his time in Cork he was Head of the Department of Chemistry for six years. He returned to Queen's University Belfast in 1990 as Professor of Organic Chemistry and Head of the Research Division on the School of Chemistry until 1998. From 1997-2000 he was Managing Director of QUCHEM Ltd., now known as Almac-CSS, a privately owned chemical synthesis services company, of which he is currently Vice President. Since 1999 he has been a member of the Scientific Advisory Board of Syntex Chiral Technologies.

Throughout his career he has held visiting professorships at Cambridge, Erlangen-Nurnberg, Barcelona, MIT and Hannover and has a particularly successful long standing connection with the University of Strasbourg since 1986 as Professor of Organic Chemistry, Corps Associe (Etablissements Etrangers), Ecole Européenne Des Hautes Etudes Des Industries Chimique De Strasbourg (EHICS, now known as ECPM).

His awards include the ASTRA Award of the Royal Dublin Society in 1986, to mark his collaboration with Loctite (Ireland) Ltd., the ACE award of the Ciba-Geigy Foundation Trust, 1988, in recognition of the collaboration between his research group in Cork and researchers in Strasbourg, and the Boyle-Higgins Gold Medal of the Institute of Chemistry of Ireland in 1993.

He is a Fellow of the Royal Society of Chemistry, a Fellow of the Institute of Chemistry of Ireland and a Member of the Royal Irish Academy.

His career has been marked by outstanding academic achievement with approximately 270 research papers, in addition to success in the industrial field both through research collaborations and also directly through QUCHEM / Almac-CSS. His early research studies with Henbest were focused on epoxidation of substituted alkenes, work he built on later when he studied the synthesis of optically active peracids. His work with Cope focused on synthesis and reactivity of cyclooctane derivatives including transannular reactions and acid-catalysed rearrangements. While at Cambridge he extended his interest in the chemistry of cyclooctatriene derivatives in collaboration with Ralph Raphael's group.

When establishing an independent research group, he became interested in strained hydrocarbons; adamantane derivatives, their synthesis and reactivity especially rearrangements became a major focus of his research, work which later extended to include diamantane, triamantane and dodecahedrane derivatives. Rearrangements of alkanes over noble metal catalysts were studied in collaboration with John Rooney.

In 1977 his first paper on crown ethers appeared, marking the start of his interest in macrocyclic host-guest chemistry which continued throughout his academic career. Synthesis of crown ethers bearing intraannular functional groups marked his early work in this area. Notably, his work on synthetic modification of calixarene derivatives as ion complexing agents led to many interesting applications *e.g.* in ion selective electrodes and, in collaboration with Loctite (Ireland) Ltd., as accelerators in cyanoacrylate adhesives. Collaboration with many research teams, *e.g.* Gyula Svehla, Dermot Diamond, Marie Jose Schwing, Volker Boehmer, Malcolm Smyth, Jeremy Glennon, George Ferguson and the late Steve Harris, in exploring the properties of the novel calixarenes synthesised by the group proved very fruitful.

A publication on intramolecular diazoketone dimerisation in 1978 marked the start of his work on α -diazocarbonyl derivatives, again an area which he continued to explore throughout his career. Indeed some of his early work in this area employed OH insertion reactions of bis-diazoketones to form macrocyclic oxo-crown ethers, linking his work in supramolecular chemistry with the avenue of research focused on the synthetic applications of diazoketones. Insertions of diazoketones into thiols, sulfenyl chlorides and selenium-based reagents demonstrated the versatility of these reagents, and led to an interest in the chemistry of α -chlorosulfides. An extensive programme of research focused on both inters- and intramolecular addition of α -diazoketones to aromatic systems was undertaken. Application of this methodology to the synthesis of hydroazulene lactones was demonstrated *e.g.* in the synthesis of confertin. In collaboration with Mike Doyle, application of rhodium catalysed intramolecular aromatic additions to arenes and furans to form macrocycles was demonstrated. In 1990, enantioselective C-H insertion, cyclopropanation and aromatic addition catalysed by rhodium carboxylates derived from mandelic acid and *N*-benzenesulphonylproline was reported, which has led to extensive investigation of these catalysts by a number of research groups since this time. As a development of this initial discovery, investigation of novel asymmetric rhodium

catalysts for enantioselective transformations of diazoketones such as N-H insertions was undertaken. In parallel, application of diazoketones derived from amino acids in asymmetric synthesis was explored. This work has led to an interest in amino acid and peptide chemistry, especially glyoxal derivatives.

More recently investigation of oxidants such as dimethyldioxirane, methyltrioxorhenium and urea hydrogen peroxide has been undertaken, especially in reaction with furans, diazoketones and diazophosphonates. Evidently the early interest in oxidations sparked during his postgraduate studies lasted throughout his career.

In addition to being a distinguished researcher, Tony McKervey is widely acknowledged by his many co-workers as a very fine teacher and mentor, transmitting an enthusiasm for organic chemistry which will never be forgotten. We count ourselves fortunate to have had the opportunity to work with him, and gain from his insight, advice and experience.

Anita R. Maguire
Cork, 2002