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## Professor William B. Motherwell\*

*Recipient of one of the RSC 1998–1999 Tilden Medals and Lectureships*

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COVER FEATURE  
**PERKIN**

### Career

William Motherwell received his BSc and PhD degrees from the University of Glasgow, completing his doctoral thesis in 1972 as a Carnegie scholarship holder under the direction of Dr James S. Roberts. He was then awarded an ICI fellowship for independent research and in 1975 moved to Imperial College as a Schering–Plough postdoctoral fellow with Professor Sir Derek Barton. Two years later, he moved with Barton to the Institut de Chimie des Substances Naturelles of the French CNRS at Gif-sur-Yvette near Paris, where he was *Chargé de Recherche* during a highly creative period which saw the invention of free radical chain reactions using Barton esters and the birth of the Gif system for the oxidation of saturated hydrocarbons.

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In 1983 he returned to Imperial College, first as lecturer and then as reader, prior to moving to University College London in 1993 as the first incumbent of the Alexander Williamson chair of chemistry.

He has previously held visiting professorships at the universities of Auckland, Paris-Sud at Orsay, and Bordeaux, and been a Merck–Frosst lecturer in Canada as well as the recipient of the Royal Society of Chemistry's Corday–Morgan medal and Bader award.

### Research

The interests of our research group have concentrated on the invention and discovery of new reactions and reagents for Organic Synthesis. At first sight, as illustrated on the cover, the range and types of reaction studied seem somewhat diverse, particularly in an age which tends to favour the specialist. The underlying philosophy however, which is driven by a simple but fundamental curiosity, has been to concentrate on those mechanistic pathways which are less commonly used in traditional synthetic sequences. In this way, reactions involving free radicals, electron transfer and organometallic intermediates have all evolved.

Overlaying this approach in selecting research areas has been the knowledge that the constraints of the modern day chemical industry provide a never ending series of challenges. Our hope, easily stated but much more difficult to achieve, is that a certain element of practical simplicity will lead to reactions which can be readily taken up by other organic chemists. The regio- and stereoselective generation of enolate anions *via* transition metal mediated isomerisation of preformed allylic alkoxides, the cyclopropanation of alkenes using organozinc carbenoids derived from carbonyl compounds rather than diazo precursors, and the photochemical osmium tetroxide catalysed polyhydroxylation of arenes were all conceived with this background in mind.

There is absolutely no question that spectacular advances have been made in synthetic organic chemistry over the last twenty years. Nevertheless, a considerable challenge still remains, and, in the next millenium, if every organic chemist were to write a balanced equation for each reaction performed, and then restrict themselves to the production of side products such as water, then Organic Synthesis could claim to be highly efficient! At this moment in time, as every practitioner at the lab bench knows all too well, there is no substitute for a well planned experiment. We still have much fundamental knowledge to acquire, and our lack of predictive power in response to the simple question “What if . . .?” should only convince us that many more useful and efficient reactions remain to be discovered.