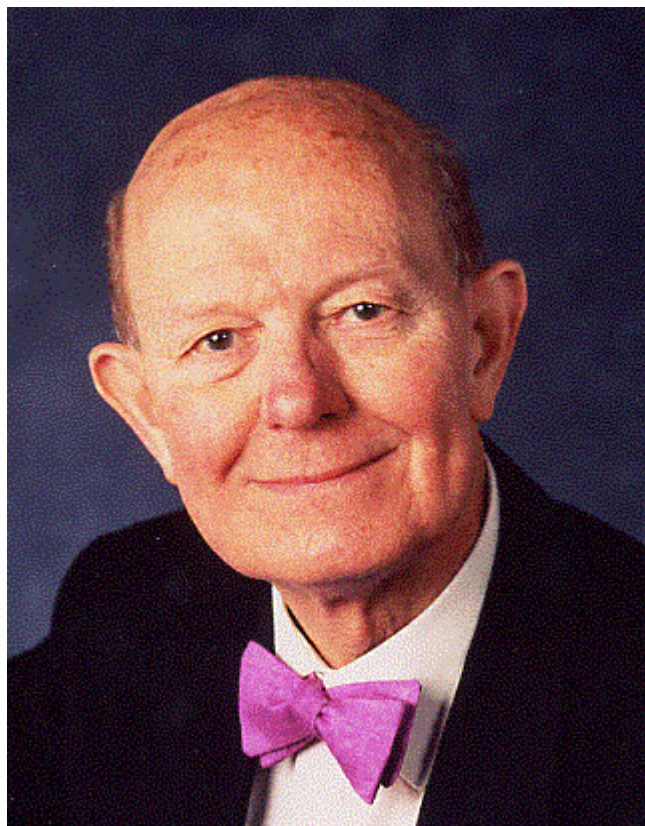


Charles W Rees CBE, FRS

A Tribute



This Special Issue of *ARKIVOC* is to celebrate the 75th anniversary of Charles Rees' birth on 15 October 1927

Charles W Rees was born in Egypt, was educated at Farnham Grammar School and, after three years as a laboratory technician at the Royal Aircraft Establishment, Farnborough went to University College of Southampton (later the University of Southampton) where he graduated in 1950. He took his PhD there with Professor N. B. Chapman and then spent two years as a postdoctoral fellow with Professor A Albert at the Australian National University – then in the Euston Road, London. He was then appointed Assistant Lecturer at Birkbeck College, London in 1955 (moving in at the bottom as Professor Derek Barton moved out at the top to take up the Regius Chair in Glasgow). After two years at Birkbeck, Charles moved to King's College London where he spent eight years as Lecturer and Reader. He collaborated for several years with Professor D H Hey on various aspects of heterocyclic chemistry. He was appointed to his first Chair at the University of Leicester in 1965, and four years later moved to Liverpool as Professor of Organic Chemistry, and in 1977 he succeeded George Kenner there as Heath

Harrison Professor of Organic Chemistry. In 1978 he was appointed Hofmann Professor of Organic Chemistry at Imperial College London (thus following Sir Derek Barton for a second time) and remained there until his retirement in 1993. He still works at Imperial College as Emeritus Professor.

Charles was the Royal Society of Chemistry's Tilden Lecturer in 1974 and Pedler Lecturer in 1984 and received the (first) RSC Award in Heterocyclic Chemistry in 1980 and the International Award in Heterocyclic Chemistry in 1995. He was elected a Fellow of the Royal Society in 1974. He was awarded an Honorary DSc by the University of Leicester in 1994, a CBE in the New Years Honours List in 1995, the Fellowship of King's College London in 1999, and an Honorary DSc by the University of Sunderland in 2000.

Charles has served the chemical community in many ways: he was the President of the Royal Society of Chemistry from July 1992 for two years. He has served on its Council and many Boards and Committees at various times; he was Chairman of the Publication and Information Board for four years. He has been President of the Perkin (Organic) Division of the RSC, and President of the Chemistry Section of the British Association for the Advancement of Science. In addition, he has co-edited three major reference works *Comprehensive Heterocyclic Chemistry I & II*, and *Comprehensive Organic Functional Group Transformations*.

Research Interests

Charles' research interests have ranged widely over mechanistic and synthetic organic chemistry. Much of his work has been concerned with heterocyclic chemistry, particularly the synthesis and chemistry of new heterocyclic rings, with an emphasis on aromatic and antiaromatic systems, on the role of reactive intermediates in heterocyclic chemistry, and on rings systems with an unusually high proportion of nitrogen and sulfur heteroatoms. Charles' contributions to heterocyclic chemistry are as important and diverse as the subject itself.

Charles' early work was concerned with the chemistry of reactive species such as nitrenes, arynes and antiaromatic heterocycles. His two 1965 *Chemical Communications* describing the brilliantly conceived generation of 1,2-didehydrobenzene (benzyne) and 1,8-didehydronaphthalene by the lead (IV) acetate oxidation of *N*-amino heterocycles remain classic papers from this era. His interest in new ring systems is exemplified by the syntheses of 1,2,3-triazepines and 1,2,3-benzotriazines. The extrusion of nitrogen from the latter ring system to give the formally antiaromatic benzazete, a derivative of azacyclobutadiene, was a landmark in the chemistry of highly reactive small ring heterocycles.

Work on nitrene intermediates continued at Liverpool through the 1970s, leading to the generation and rearrangement of the unusual 3*aH*-benzimidazole ring system. The subsequent study of the carbon analogue of this ring system, 3*aH*-indene, led to synthesis of an entirely new class of aromatic compound, the tricyclic [10] annulenes.

In the 1980s, Charles' work was characterised by the use of nitrene intermediates in the synthesis of natural products, and the start of his studies on sulfur-nitrogen ring systems. The simple thermal decomposition of azidocinnamates to give, *via* vinylnitrene intermediates, important heterocycles such as indoles in high yield, has become a standard method in indole chemistry and is now widely used by other synthetic chemistry groups. Charles' 1983 synthesis of coenzyme PQQ using this methodology was followed by routes to naturally occurring pyrroloindole inhibitors of phosphodiesterase, the isoquinolone siamine, and culminated in a formal synthesis of the potent antitumour agent CC-1065 in which all six heterocyclic ring nitrogen atoms are incorporated by a nitrene cyclisation.

Charles' love of new ring systems is reflected in his most recent work on heterocyclic systems that are rich in sulfur and nitrogen. This work, from its beginning in the early 1980s which involved the reaction of S₄N₄ with organic substrates, through to the present day has uncovered a number of totally new heterocyclic ring systems. Charles has succeeded in bringing a fresh new approach to an exciting area of heterocyclic chemistry that was once regarded as the province of inorganic chemistry.

Heterocyclic chemistry is a vast subject which because of its immense importance has attracted many investigators over the years. Occasionally one comes across a person whose total grasp of the subject, flair and ability to translate completely new ideas into practice, makes him stand out above others. Charles Rees is such a person.

However Charles Rees is more than a distinguished researcher. His wise advice and conviviality as a teacher, research mentor, colleague, and friend have been appreciated by many. We all count ourselves fortunate to have been, for so long, his friends.

Christopher Moody
Exeter, May 2002.