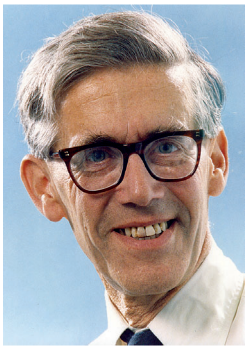
Angewandte Obituary

Angewandte Chemie International Edition

Peter Ludwig Pauson (1925–2013)

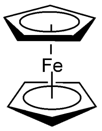

P. L. Pauson

On December 10, 2013, Peter L. Pauson, Leverhulme Emeritus Fellow at the University of Strathclyde in Glasgow, passed away at the age of 88. He was considered not only by his friends but also by his colleagues and students to be a charming and likeable person, that is, a gentleman in the true sense of the word.

Pauson was born in 1925 as the son of a Jewish family in the Bavarian town Bamberg, which he always remembered as one of the most beautiful towns he had ever seen. The increasing persecution of Jewish citizens by the Nazi government meant that his family left Germany in early 1939 for the UK. After completing his secondary education, he entered the University of Glasgow in 1942 and chose chemistry as his major discipline. His inclination "to the organic side" was greatly enhanced by the inspiring teaching of T. S. Stevens, well-known as the discoverer of the Stevens rearrangement and the Bamford–Stevens reaction. In 1946, he received a research studentship from the University of Sheffield, where he worked for his PhD under the direction of R. D. Haworth. In his thesis he elucidated the structure of the brilliant red compound called "purpurogallin", shown to be a disubstituted benzotropolone, and prepared 5-methyltropolone, the first synthetic and fully characterized simple tropolone.

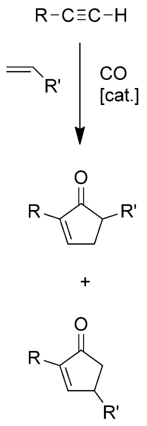
On completion of his PhD degree in 1949, Pauson moved to the Duquesne University in Pittsburgh, where he was offered the post of a temporary assistant professor. Following his interests on non-benzenoid systems, he attempted to prepare the hydrocarbon fulvalene $C_{10}H_8$, proposed by H. D. Brown to show aromatic properties. However, the reaction of C_5H_5MgBr in diethyl ether with $FeCl_3$, used as a coupling reagent and oxidant of the assumed intermediate $C_{10}H_{10}$, gave a highly stable, orange-yellow solid, which at first sight Pauson thought to be the desired fulvalene. This proved to be wrong since the microanalysis did not fit the composition $C_{10}H_8$, but seemed to be consistent with the composition $FeC_{10}H_{10}$. Though Pauson was well aware of the common belief that bonds between transition metals and hydrocarbon groups would always be unstable, he sent a note to *Nature* suggesting that the structure of $FeC_{10}H_{10}$ has two planar cyclopentadienyl rings linked to the metal, like in Frankland's dialkylzinc derivatives.

While, as Luigi Venanzi later assumed, most readers of the journal probably took no notice of the paper, the structural proposal soon attracted the interest of E. O. Fischer in Munich and both G. Wilkinson and R. B. Woodward at Harvard. They were convinced that the linear arrangement was wrong and, based on different experiments, among which the aromatic characteristics of the compound played a crucial role, came to the conclusion that a "Doppelkegel" or "sandwich" structure would fit the results. Only a few months later, two independent X-ray crystal structure determinations were published confirming the Fischer and Wilkinson/Woodward proposal. A new age in organometallic chemistry began, in which, however, Pauson was only partly involved, and in 1973 led to the Nobel Prize for Fischer and Wilkinson. With regard to the original aim of his work, Pauson later reasoned that "we (he and his student Tom Kealy) had indeed prepared a novel, non-benzenoid aromatic, but a very unexpected addition to this class".



After Pauson finished his two-year term a Duquesne, he spent the academic year 1951–1952 at the University of Chicago, working on peroxide chemistry with M. S. Kharasch. In 1953, he was appointed to a DuPont Fellowship at Harvard, getting the chance to do independent research. While the fellowship was based on a scheme to prepare the alkaloid colchicine (a tropolone), he could not escape the work on metallocenes, which at that time was in full swing in Woodward's and Wilkinson's laboratories. In 1954, he returned to the UK to take up a lectureship in organic chemistry at the University of Sheffield. He made the final move to Glasgow in 1959, where he was offered the Freeland Chair of Chemistry at the Royal College of Science and Technology which, in 1964, became the University of Strathclyde.

In Glasgow, Pauson renewed his interest in organo-transition-metal chemistry and extended his previous work with studies on butadiene and cyclohexadiene iron carbonyls, on cycloheptatriene and tropylium complexes of the chromium triad, on π pyrrolyl and π indolyl metal compounds, as well as by detailed investigations of the properties of these species. Since the 1970s, his name has also been associated with the Pauson–Khand reaction, which is a widely applicable one-pot synthetic route to cyclopentenone derivatives from an alkyne, an olefin, and a CO molecule present as a ligand in an intermediate alkyne cobalt complex. It was characteristic that, when I introduced him once at an international conference and mentioned the importance of the Pauson–Khand reaction, he corrected me by saying that it is the Khand reaction since it was not discovered by him but his long-term co-worker Ihsan Khand.



Undoubtedly, Pauson's name was well-known worldwide, and he was highly esteemed for his inspiring leadership, unfailing courtesy, and good humor. He will be sorely missed not only by his family but also his colleagues and friends.

Helmut Werner
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DOI: 10.1002/anie.201400432