

Editorial



Peter Vollhardt lecturing brilliantly at the Max-Planck-Institut für Kohlenforschung in Mülheim an der Ruhr on September 13th, 2007 (blurred photo by the author).

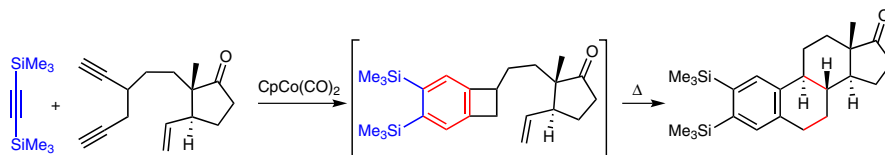
Dear Readers,

With this Special Issue of **SYNLETT**, we are honoring Peter Vollhardt, who has not only created this wonderful journal but also served as its Editor-in-Chief for over 25 years. As a longtime admirer and, quite possibly, as a distant nephew, it gives me great pleasure to write here a few words about Peter.

Peter was born in Madrid to German parents and grew up in Madrid and Buenos Aires. After moving to Munich, Germany, he obtained his high school degree (*Abitur*) there and began studying chemistry at the Ludwigs-Maximilians-Universität (LMU). Coincidentally, parts of his studies were supervised by Johann Mulzer, who was also at LMU at the time and later became my own PhD supervisor. Peter then moved to England and continued studying chemistry at the University College London, where he obtained his PhD in 1972 working with Peter J. Garratt. This interaction must have been rather productive as they published ten papers together on Peter's studies on biphenylene analogues, including one paper concerning 'homophthalaldehyde' that was published in **SYNTHESIS**. After obtaining his PhD, he moved to California, and he hasn't left since. Following two years as a postdoctoral fellow in the laboratory of Bob Bergman at the California Institute of Technology (Caltech), he accepted an Assistant Professorship at the University of California at Berkeley in 1974. He quickly moved through

the ranks and became a full professor there in 1982. He was also a principal investigator at the Lawrence Berkeley National Laboratory from 1983 until 1987. His fondness of France and everything French has been expressed in his multiple visiting professorships, including at the Universities of Paris XI in Orsay (1979), Bordeaux (1985), Lyon (1987), Rennes (1991), Paris VI (1992), and Marseille (2000). He also spent time at the University of Rome (Tor Vergata, 2004), where he was awarded an honorary PhD in 2004. He has visited Germany twice as a Humboldt awardee.

His research has always focused on synthetic and mechanistic organic chemistry and organometallic chemistry, and their application in the synthesis of natural and unnatural products. Peter is a true pioneer in applying modern transition-metal-catalyzed reactions in natural product synthesis. He recognized, early on, the true power of co-oligomerizations of acetylenes into cyclic products for chemical synthesis. His bold and elegant application of the cobalt-catalyzed alkyne trimerization in a total synthesis of estrone (see Scheme on the next page), published in 1977 only three years after starting his independent career, immediately catapulted him into the cream of the crop in chemistry. Peter Vollhardt also pioneered the phenylenes that first became accessible using his methodologies and made 'energetic molecules' that could be used in chemical energy conversions, among many other things.



Cobalt-catalyzed alkyne trimerization in a total synthesis of estrone

The Inaugural Issue of **SYNLETT** appeared in September 1989, including Peter's first **SYNLETT** article on η^5 -cyclopentadienylcobalt complexes that induce the co-cyclizations of alkynes with aldehydes and ketones.

Science; in 1996 he was awarded the Prize of the Stiftung Buchkunst; in 1998 he received the National Science Foundation Special Creativity Award; in 1999 he was given the American Chemical Society Edward Leete Award; and in 2000 he was awarded the Medal of the Université Aix-Marseille.

LETTERS

η^5 -Cyclopentadienylcobalt-Mediated Inter- and Intramolecular [2+2+2] Cycloadditions of Alkynes to Aldehydes and Ketones: A Novel Synthesis of Fused 2*H*-Pyrans

Daniel F. Harvey, Barry M. Johnson, Christopher S. Ung, K. Peter C. Vollhardt*

Department of Chemistry, University of California at Berkeley, and the Materials and Chemical Sciences Division, Lawrence Berkeley Laboratory, Berkeley, California 94720, USA

Received 16 February 1989

Abstract: η^5 -Cyclopentadienylcobalt complexes induce the cyclization of alkynes with aldehydes and ketones to furnish mainly complexed bi- and tricyclic 2*H*-pyrans (7 examples) and/or their $\alpha,\beta,\gamma,\delta$ -unsaturated carbonyl isomers (7 examples). The latter are derived formally from the former by electrocyclic ring-opening, in three cases possibly preceded by [1,5] hydrogen shifts.

Recent advances in cobalt-mediated [2+2+2] cycloadditions of double bonds to alkynes include heteroaromatic examples¹ and the C=N fragment of the isocyanato group.² While in several synthetic applications of this reaction the compounds subjected to cyclization contained carbonyl functions, the incorporation of the

employing the aldehyde or ketone component either in large excess or appended to the alkyne. Fourth, although the transformations depicted in Table I generally result in the desired organic compounds complexed to cobalt, preliminary experiments with **10** and **12** reveal that the metal can be removed to liberate the respective ligands (as pale yellow oils)³ (CuCl₂·2 H₂O, Et₃N, CH₃CN, 0 °C, 1-2 min) with the same facility as that observed for the corresponding cyclohexadiene analogs.^{1,2} Fifth, structural (in particular, stereochemical) proof of the ligands was facilitated by ¹H and ¹³C NMR (including COSY and DEPT), exploiting the strong magnetic anisotropy of the metal.^{1,2} When necessary, these

He is also well known for his famous and extremely popular text book 'Organic Chemistry', which has been translated into German, French, Spanish, Japanese, Korean, Portuguese, and Serbian languages and has provided the resources for his first Ferrari.

In this Special Issue, many of Peter's students and friends have contributed beautiful manuscripts, and I am very grateful to all of our authors. Here at **SYNLETT**, though, we are most grateful for Peter's installation of

SYNLETT as a top journal for communications and accounts in chemical synthesis. His creativity and originality have always been, and will continue to be, highly influential and inspirational to us all. I am glad that Peter with his great experience and sense for originality has agreed to continue editing the **Account** and **Synfacts** sections.

I would like to take this opportunity to congratulate Peter on the many remarkable achievements of his life so far. Thank you, Peter!

Ben List
Mülheim, June 2015

Peter's first **SYNLETT** article

Throughout his career, Peter Vollhardt has won several of the most distinguished awards. For example, in 1983 he received the Adolf Windaus Medal of the Georg-August-Universität Göttingen; also in 1983 he was named by Science Digest as one of the '100 Outstanding Young Scientists in America'; in 1985 he obtained the Miller Research Professorship in Residence; also in 1985 he received the Humboldt Award; in 1987 he was given the American Chemical Society Award in Organometallic Chemistry; also in 1987 he became an Elected Member of the Organic Division Committee of IUPAC; in 1990 he obtained the prestigious Otto Bayer Prize; in 1991 he won the American Chemical Society Arthur C. Cope Scholar Award; in 1995 he received the Award of the Japan Society for the Promotion of