

Rolf Huisgen: A Gentleman Scholar with Energy and Passion

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A brief personal tribute to *Professor and Mrs. Rolf Huisgen* is presented. The essay describes *Rolf Huisgen's* energy and passion for science and art. Quotations from *Huisgen's* autobiography '*The Adventure Playground of Mechanisms and Novel Reactions*' as well as many quotes from his correspondence with the author are presented. The essence and personality of this gentleman scholar are further highlighted by a number of photographs of him and of Trudl and other friends and colleagues.

The combined effect of the cold rain and the sudden, relentless wind replaced my memories of our cheerful dinner just minutes earlier. My dismay for the abrupt change in weather was matched by their hardiness. The three of us – *Rolf and Trudl Huisgen* and I – did share a common goal: their home, at least a mile farther through the English Garden of Munich. We also shared an umbrella. In the latter context, 'share' is not quite exact. Neither of my companions, both of whom are in their 80's, was the least bit interested in the umbrella's protection. I admired their spirit and bravado.

Solid people are *Rolf and Trudl*, strong-willed and self-disciplined, making a difference in every day. *Trudl* describes *Rolf* as a man with '*intellectual curiosity combined with strong ambition*'. As the editor of *Rolf's* personal and scientific



Fig. 1. *Rolf and Trudl in their home, surrounded by their art, 2003.* Their African masks are far more beautiful than the dark spots shown in the upper left hand corner of the photograph. Courtesy *Jeffrey I. Seeman*.

autobiography, *'The Adventure Playground of Mechanisms and Novel Reactions'* [1], I entered their lives as few others have done: as a simultaneous colleague, supervisor, and servant. These roles merged kindly and naturally into a warm friendship that has grown deeper and more meaningful with time.

Trudl and *Rolf* met in Munich in the chemistry laboratories in the early 1940s.

'Together we watched Munich crumble under the air raids that started in 1943, a rather inhospitable setting for our romance. Jointly we removed rubble and broken glass from the laboratory benches and reglazed the windows...'

'How much of a private life can a dedicated, if not to say single-minded, scientist expect? How much if both partners are professionals? I was lucky and got far more than expected' [1]¹).



Fig. 2. The ruins of the University of Munich chemistry building shortly after World War II (from W. Prandtl, *'Geschichte des Chemischen Laboratoriums der Bayerischen Akademie der Wissenschaften in München'*, Verlag Chemie, 1952)

I can attest to the wonderful relationship that *Rolf* and *Trudl* enjoy. There is a level of companionship, a degree of sweetness, and a measure of softness that speak to decades of close sharing and boundless love. My visits to Munich are two-part affairs: art, history, and science during the day with *Rolf*; and varied conversations with *Trudl* and him over early evening wine in their home and over dinner in local restaurants, in many of which the *Huisgens* are recognized with special greetings. Time with my friends influences the model for me and my family.

Friendships especially blossom in the presence of mutual interests and, for me, diversity of experiences. I did not know that this giant of chemistry would bring to the *Profiles* series and to our friendship a mutual interest in history of science. What I surely could not have anticipated was *Rolf's* extraordinary love for and dedication to art. In the last decade, we have together enjoyed hours and hours of gazing at masterpieces from around the world. I am pleased that our very first such adventure

¹) Reprinted with permission from R. Huisgen, *'The Adventure Playground of Mechanisms and Novel Reactions'* in *'Profiles, Pathways, and Dreams. Autobiographies of Eminent Chemists'*, Ed. J. I. Seeman, American Chemical Society, Washington, D.C., 1994. Copyright 1994, American Chemical Society.

was in Manhattan, where I hosted *Rolf* to a spectacular show of ancient Chinese art, including some *Xian* warriors, at the *Guggenheim Museum*. It was a warm spring day, and we later walked along Fifth Avenue to the Metropolitan Museum of Art, behind which sits *Cleopatra's Needle*, an obelisk from Karnak in Upper Egypt. There we sat for a reflective hour, the gentleman scholar from Munich and I, encouraged by the monumental antiquity pointing to the heavens.

Writing this essay led me to pull out my '*Huisgen files*' from the *Profiles* days and revisit with *Rolf* in a special retrospective fashion. It is now more than 15 years since I read many of his communications, so this adventure is like meeting an old friend again, but one whom you have gotten to know and appreciate far more than ever before – surely far more than 15 years ago!

Rolf once described himself to me as '*somewhat formal*'. For him, formality is a protective shield, and he may be right. When teased about his habit of wearing a tie all the time, he quipped, '*Well, I use a rubber tie under the shower*'. After some years of formal though friendly and cordial interactions with *Rolf*, I began – consistent with my New York raised culture [2] – to joke and tease him. *Rolf* always joined me in the hearty laughter that made us both feel good. For many years now, I can sense a real air of pleasure when *Rolf* first hears my voice on the telephone. And always there is the welcome question, '*When will you be in Munich next?*'



Fig. 3. *Rolf* receiving the Roger Adams Award in 1975. The hat was a special present from colleagues from the Department of Chemistry, Colorado State University, Fort Collins (from [1]).

As this essay finds its way into a most prestigious scientific journal, *Helvetica Chimica Acta*, I am only momentarily tempted to review in detail *Rolf's* scientific achievements and his professional accomplishments. This has been done in numerous reviews and, above all, in his autobiography [1]. The scholarly reader will surely know of many of *Rolf's* accomplishments, reported in more than 580 publications. Likely, his name will be associated with his most popular discovery and development: 1,3-dipolar cycloaddition reactions, which, characteristically for him, had its origin in mechanistic considerations. These reactions '*opened the sluices and a flood of five-membered*

heterocycles broke loose [3]. As *Rolf* has said, ‘*The number of organic compounds is potentially infinite. Nowhere does one feel confronted with this profusion to a higher extent than in heterocyclic chemistry [3]*’.

Chemistry at the University of Munich has a long and glorious tradition. *Justus von Liebig*, pioneer and great promoter of the chemical sciences, directed the Chemical Laboratory from 1852 until his death in 1873. He was followed by *Adolf von Baeyer* (active in Munich from 1875 to 1915), *Richard Willstätter* (1915–1924), and *Heinrich Wieland* (1925–1952). Following trends and necessities, the Chemical Laboratory was divided into four institutes in 1952. *Rolf* became full professor and head of the Institut für Organische Chemie at the age of 32 in 1952. As *Rolf* recounted,

‘I received the Chair at Munich, rich in tradition, not as a reward for scientific merits but rather as a trust for the future [1]’.



Fig. 4. *Rolf* with his successor Wolfgang Steglich under the watchful eye of Adolf von Baeyer in the courtyard of the Munich Institute, 1992 (from [1])

Having followed three successive *Nobel* laureates and coming to an institution whose buildings were in ruins following World War II, *Rolf's* challenges were enormous indeed. *Rolf's* studies on reaction mechanisms and novel reactions brought him, his students, and Munich much recognition. He received numerous awards and honors, clearly a sign of his imagination, creativity, hard work, perfectionism, and the help of excellent students. Professor Emeritus for the past 17 years, *Rolf* still continues to publish scientific papers, to attend guest lectures, and – occasionally – *Rolf* goes on a lecture trip.

I have served as *Rolf's* editor and, by the nature of our interactions, I have been his colleague as well. By the numerous communications between us, I am reminded of *Rolf's* extraordinary drive for completion and perfection. I am also reminded of his prodigious memory and his commitment to order. Many of his letters have long lists of

matters for resolution. These letters often reference earlier communications between us, referring to dates and specific promises or requests.

In the galley proofs of his autobiography, *Rolf* added a number of short introductory philosophical statements. One of these adds significantly to our understanding of *Rolf* and his own understanding of himself. He wrote,

‘Stubborn pursuit of a goal is often praised as a virtue and sometimes leads to success. However, accidental observations can disclose new horizons, far off the original target and sometimes more valuable. The lucky chance might lurk outside the experimenter’s door, but this door is not always opened. Opening it brings serendipity, – acceptance of Fortuna’s gift [1]’.

The matter of English usage and style in *Rolf*’s autobiography was surely an example of his drive for perfectionism. This subject came up in his message to me of June 24, 1992. I had sent him a wonderful reprint of a review article written by *Bernard Witkop*, three years his senior in *Wieland*’s laboratory and a very senior NIH scholar during my own youth at NIH. *Rolf* wrote of *Witkop*,

‘He writes in a splendid style. When he emigrated to the U.S. in 1947, I asked him about his feeling, not only to speak, but also to think English in the future. His answer was he fears the worst, since his English is so much better than that of the Americans’.

Rolf taught himself English only in adulthood. His gymnasium education was in Greek, Latin, and French. Regarding his use of English, *Rolf* wrote to me on June 2, 1992, *‘Perfectionism’ probably is a pathological condition; even the understanding of the ‘principle of diminishing returns’ does not provide a cure’.* In fact, *Rolf*’s autobiography manuscript drafts were most carefully reviewed by him, by me, and by his ‘American daughter *Birge*’, a professor of mathematics at the University of California at Santa Barbara. *Rolf* related to me *Birge*’s help,

‘She reads a sentence or paragraph, considers how to express it less stilted, lighter, and she does not shrink back from colloquialisms. The obstacle is that Birge is permanently under stress. Thus, I send her only a few pages at a time and wait patiently. The last batch was corrected by her on the flight from Seattle to Los Angeles...’

‘I am afraid that [Chapter] XII is now too much of a good thing. I kindly ask you [Jeff Seeman] to take a pencil and mark sentences and paragraphs which you regard as superfluous. When you find sentences stilted and pathetic, write your corrected version between the lines and return it as soon as possible to me’.

I only remember, and my files support this memory, that I continuously asked for more, deleting very little.

All communications from *Rolf* combine an extraordinary professionalism with a vibrant breadth of scholarship, intellectual value, and artistic style and perspective. His 12 May 1987 note is handwritten on The Hebrew University of Jerusalem stationery during his extended visit as *Albert Einstein* Visiting Professor of the Israel Academy of Science. He was in part responding to my request that the authors place their work in historical context. *Rolf* wrote, *‘I feel deeply rooted in the tradition and I am highly*

interested in the historical aspects of science'. As indicated above, *Justus von Liebig* [4], *Adolf von Baeyer* [5], *Richard Willstätter* [6], and *Heinrich Wieland* [7] worked in Munich. *Rolf* has written essays or obituaries on the four scientists mentioned as well as on his friends *Rudolf Criegee* [8–10], *Fritz Kröhnke* [11], and many others [12–19].

For reasons inexplicable in 2005, the following paragraph was omitted from *Rolf's* autobiography. It describes, in his words, the background for his use of art cards in his communications.

'Occasionally, my colleagues and friends joke about my custom of sending scientific or personal messages on art postcards, my way of demonstrating the close relation between science and art. In the past decade my Christmas cards have combined a reproduction from my art collection with an aphorism, sharp or profound. I admit to the spleen of stockpiling aphorisms by classic or modern authors. We should allow them to enter the chemical literature, because they often express a conclusion most concisely.'

I have saved many of these cards, especially Christmas cards, received from *Rolf* and *Trudl*. Each contains a very personal, handwritten message. I have followed *Rolf's* tradition of using art cards, even art postal cards, as the medium for various messages.

In 1991, he chided me,

'Obviously, you are not in a mood for answering letters (September 11 and October 10, 1990) and I will not tempt you... Retirement diminishes duties and offers the chance to reorganize the personal list of wishes. When people claim to have 'no opportunity' for something, they are just not assigning sufficient priority. I am still living with the clock, but dedicate more time to art.'

From Santa Barbara in April 1992 came the assurances that even the busy *Rolf Huisgen* enjoys time with family.

'The beach-combing on four Hawaiian Islands was not interrupted by work... Twelve vacation days, how immoral for a scientist! Back in California, I write every afternoon... Aloha.'

In the 1992 Christmas card containing a picture of *Paul Klee's Seiltänzer*, *Rolf* wrote,

'I guess the rope-dancer is a fitting symbol for human life and aspirations; keeping the balance requires incessant corrections. It might even be a metaphor for fate and fortune of nations, the protection of peace being a tightrope act.'

Clearly, the experiences of the young *Huisgen* in the Nazi era have left profound anti-war feelings. As *Rolf* retraced in his autobiography:

'I was 12 years old when Hitler seized power in 1933... Youngsters were often torn between the political influence of their school and the opposing spirit they experienced at home. I remember my father [Dr. Edmund Huisgen, 1888–1939] speaking of Joseph Goebbels, Hitler's minister of propaganda, as the devil incarnate; I contradicted him at the time.'

'People in free countries find it hard to understand how individuals may live with a dictatorial regime, seemingly acquiescent, in order to maintain some

freedom of thought. In my own case, the personal confidence I had in my father increasingly outweighed the pressure of school and the media. Needless to say, I never joined the NSDAP (Hitler's party), but I am sorry to add that neither did I engage in active resistance. When Hans and Sophie Scholl and their Weisse Rose (White Rose) group risked – and lost – their lives in open political opposition in 1943, their act appeared to us, the passive resisters, as foolhardy rather than heroic. Only much later did I begin to fully value their self-sacrifice as a beacon of light during a dark age. Now I view the 'strategy of avoidance' in a different light. I consider it one of the principal reasons that more than half of the human race still bears the yoke of oppressive regimes [1].

Rolf and I have spoken often of the politics of armed combat, most recently dealing with terrorism and Iraq. We have felt overwhelmed with the enormity of even hypothesizing possible miracle solutions. I believe that Rolf's association with Israeli scientists and his extended visits at the Technion in 1980 – David Ginsburg was a good friend – and at the Hebrew University of Jerusalem 1987 – a friendship connected him with Joseph Klein – represent part of his personal atonement for the atrocities of World War II. As Rolf said, *'Although relations between Israel and Germany are naturally burdened by the past, scientists may help to mend the severed bonds [1]'*.



Fig. 5. Rolf, Hemdah and David Ginsburg, and Trudl in Haifa, Israel, 1980 (from [1])

Rolf's April 24, 1990 card of Raoul Dufy's *'Reclining Nude'*, spoke of the effects of time. *'A three-week's trip to the U.S. brought me to seven chemistry Departments on the East Coast. I noticed ups and downs; nothing guarantees permanent quality'*. On December 6, 1994, Rolf wrote,

'ACS has approached the German publisher VCH with the idea of a German translation of my Profiles volume. I would be willing to prepare the German version... With 16 lectures, the schedule of my four-week's trip to Japan was a bit

tough for a septuagenarian; I did not feel strained, however, but enjoyed the excellent new chemistry'.

Rolf's autobiography is 248 pages of small type with lots of chemistry and 612 references! Thus, his offer to prepare a translation was remarkably generous, especially coming from a busy, globe-trotting septuagenarian.

Time can bring friends and colleagues together or be the reason for distance. Time has its own reckoning, but we do make choices and set priorities. *Rolf* also has said,

'The rationalist welcomes the saving of time whereas the romanticist deplors the loss of a fascinating game. Playfulness is an incentive for the scientist and a motor of progress [1]'.

Rolf's Christmas card of 15 December 2004, also spoke of time.

'The time when our life was a festival of roses is over. Our rhythm of life is still governed by seasonal changes, but other forces, mercilessly acting in one direction only, are superimposed'.

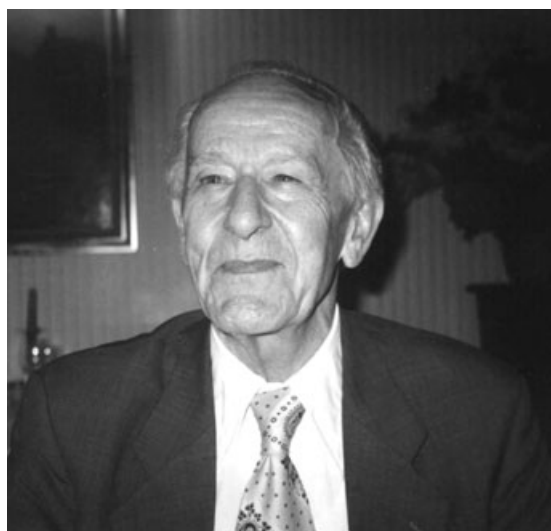


Fig. 6. *Rolf, a warm and gracious friend and host in a Munich restaurant, 2003. Courtesy Jeffrey I. Seeman.*

Rolf became my editor, as I sent to him my gift of a draft of this manuscript. On January 27th, he responded with many helpful suggestions but with a simultaneous deep sadness,

'Your essay was a surprise and likewise a highly appreciated document of friendship. The rejoicing is the higher as it involves Trudl, my partner of nearly 60 years. . . [who is ill] and is now in the hospital'.

My own hopes include more visits with *Rolf* and *Trudl*, summer walks through the English Garden, visits to the *Old* and *New Pinakothek* (to see the first landscape painting by *Albrecht Altdorfer*, *Albrecht Dürer's* self portrait in the pose of *Christ*, and

the first *Madonna of Leonardo da Vinci*), and admiring moments in front of incomparable German expressionists. We shall stand in awe of *August Macke's 'Mädchen unter Bäumen'*, produced in this artist's last year, his life taken away as a soldier in World War I at the age of 27. We shall continue to be astounded by the greatness of *Max Beckmann, Erich Heckel, Ernst Ludwig Kirchner, Otto Mueller, Emil Nolde, and Karl Schmidt-Rottluff*.

There are a few paintings that I insist we see; *Rolf* knows these quite well and leads me to them with especial pleasure and a big smile, like a child about to open his Christmas presents. We will talk of art and of history. We will talk of chemistry and of chemists. We will talk of politics, but politely so. We will gently talk of our families. But mostly, we will talk of man's wonderful and wondrous capabilities to add beauty and spirit to our lives and our own responsibilities to contribute to the present and to the future.

Trudl Huisgen passed away on 27 February 2005. I join *Rolf* and *Trudl's* family, and many friends who mourn her passing. She will be warmly remembered by all who knew her. We miss her.

I especially thank *Rolf* and *Trudl Huisgen* for their many years of friendship, and *Rolf* who, under trying hours, reviewed the draft. I sincerely thank *Birge Huisgen-Zimmermann* (Santa Barbara), *Eva Eliel* (Chapel Hill), and *Manfred Schlosser* (Lausanne) for their very helpful and kind assistance, and *Albert Padwa* (Atlanta) and *Susan A. Scott* (Charlottesville) for their hearty encouragement. I also thank *Philip Morris USA Inc.* for its significant support of the *Profiles, Pathways and Dreams* series, including *Rolf Huisgen's* autobiography [1].

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