

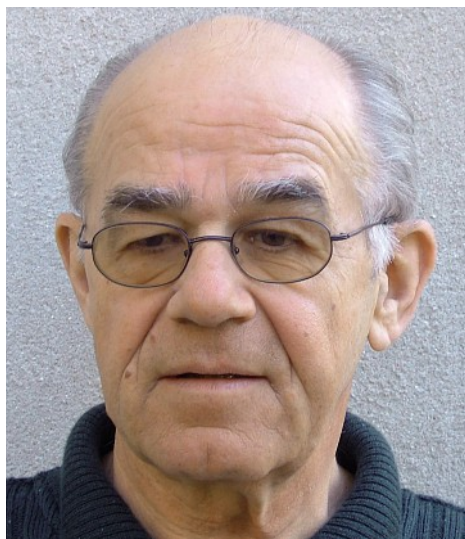
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Professor Hans Schmid's Passion for Chemistry – Reminiscences of a PhD Student

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Abstract: Selected scientific and non-scientific accounts from my time in Professor Schmid's group at the Institute of Chemistry – UZH are presented and commented in terms of the impact they had on my subsequent work at Roche.

Keywords: Institute of Chemistry · Passion for chemistry · Scientific excellence · UZH



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After completion of high school in Winterthur in the autumn of 1963, there were two boys out of seventeen students in the class interested in studying chemistry and the question was where to go. Our teacher Hans-Rudolf Christen, whose motto was 'chemistry is fun', had motivated us to study chemistry and recommended contacting Prof. E. Schumacher at the Institute of Chemistry, University of Zurich (UZH). Prof. Schumacher immediately invited us around for a discussion and offered us a two-hour tour of the institute. Very surprisingly, he didn't delegate this task but was our guide himself and we felt privileged as equal discussion partners. He introduced us to the new world of xenon fluorides, a fascinating field for two novices captivated by chemistry. Even after visiting the ETH as well, we nevertheless preferred to join the Institute of Chemistry, UZH, and for me, the key driver was that initial personal contact with Prof. Schumacher. Indeed, the first people a candidate encounters at a potential employer tend to be the ones who have a major impact on the final decision whether to accept or decline an offer.

I enjoyed the ensuing years as a student despite the fact that all of us had to work extremely hard and rarely had the time to go bathing in summer as our colleagues studying in the Phil I faculty seemed to have. In addition to the regular examinations, we had to overcome many other challenges such as the Monday evening tutorials in organic chemistry. These tests in written form were notoriously challenging. I often had the impression even the assistants couldn't

answer some of the questions. However, these tutorials prompted me to learn and to fill the many scientific gaps I had remaining in my education at the outset.

The greatest impact on an unfolding scientific career is undoubtedly the PhD supervisor. It was quite difficult for me to select a topic for my thesis as there were many interesting projects ongoing in the various scientific groups. Ultimately, I decided to join the group of Prof. Hans Schmid as the work there on pericyclic reactions was a very attractive scientific area for me. Prof. Schmid was strongly supported by Hans-Jürgen Hansen, his chief assistant. The latter played an important role during my induction period and facilitated my first steps as a scientist.

The work as a PhD student in Prof. Schmid's group from 1970–1973 was a great period in my scientific life. He was passionate about chemistry, fully committed to high scientific standards and careful experimental work and never accepted results of mediocre quality. The progress of our work was presented in regular weekly review meetings on Wednesday afternoons. New members of the group knew very well that they had needed to be able to show spectral data and microanalysis results at short notice. The data was scrutinized by Prof. Schmid at the meetings and not even small 'additional' signals in the NMR were overlooked. Provided that the student successfully passed this test, he or she was rarely asked to resubmit these data or to successfully pass a second round.

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The indoor soccer team GB5 (from left: Dave Leppard, Bob Gray, Barry Jackson, Andy Pryde (deceased) and the author)



One of the rare Schmid parties – Beer Ad (from left: Rudolf Schmid, Ursula Koch, the author, Prof. Schmid and Josef Lukáš)

Prof. Schmid led an international team containing many postdoctoral researchers from around the world. There were numerous soccer fans from the UK and not surprisingly, a soccer team was quickly assembled in summer outdoors and even in winter, indoors. Occasionally conflicting schedules between the scientific Wednesday review sessions and a football match couldn't be avoided and the speaker of the team members had then to request if it would be possible to present their results up front in order to be excused from the meeting earlier. Prof. Schmid's immediate answer was always a clear 'no', however minutes later, he would inquire whether the match was really an important one. Ultimately, we were always able to leave for the match. Under his hard exterior, Prof. Schmid was actually a boss with a lot of understanding for other people's problems. I remember well the strong private support he rendered to several chemists from Eastern Europe who had arrived in Switzerland at the end of the sixties as refugees having virtually nothing more than the clothes they wore.

Long working hours were standard in the group and Saturday was considered a normal working day. On arriving at the institute in the morning, Prof. Schmid would typically go to the coffee machine near my lab. If I was not yet there, he would write on the blackboard in my lab:

08/12/71, 07:50.

'Good morning, fat dormouse'

H. Schmid

The morning of Nov. 3, 1972, he passed by with a cup of coffee and asked me 'Where is Mr. X', who I knew was not an early riser. Prof. Schmid was not satisfied at all with my reply that the guy had most likely not yet turned up. "Take a notebook and follow me", Prof. Schmid instructed. He told me to list all absent members of his large group. After the second empty lab, I hesitantly suggested it would possibly be easier to

Prof. H. Schmid
Organisch-chemisches Institut
der Universität Zürich

Zürich, 3. November 1972

Liebe Mitarbeiter,

Aufgrund gewisser Erfahrungen sehe ich mich veranlasst, Ihnen die nachfolgenden Zeilen zuzustellen. Jeder von Ihnen muss selber entscheiden, wie weit sie ihn betreffen.

Für die Ausbildung in Chemie zur Erlangung eines Doktorgrades genügt es nicht, während der Doktorarbeit im Laboratorium eine gute und gewissenhafte Arbeit zu verrichten. Neben der täglichen Laboratoriumsarbeit soll der Kandidat sich an Feiertagen und in den Abendstunden noch mit theoretischen Problemen beschäftigen. Auch der Besuch der in Zürich ja sehr zahlreich angebotenen chemischen Vorträge ist angezeigt. Gerade für die Theorie gilt der Spruch "Wer rastet rostet". Für den Studienabschluss genügt es somit nicht, am Schluss für 1 - 2 Monate rasch etwas zu lernen. Man muss auf die Tätigkeit früherer Jahre aufbauen können!

Ich möchte Ihnen also nochmals ans Herz legen, sich in vermehrtem Masse der Theorie zu widmen. Einen durchschnittlich zehnstündigen Arbeitstag für Diplomanden, Doktoranden und Postdoktoranden erachte ich als durchaus angemessen.

Mit freundlichen Grüßen

H. Schmid

Hans Schmid's memo to his research group

simply note the few people already at work. He became quite upset and on the same day issued a memo which is still hanging on the wall in my office at Roche reminding me and all coworkers that hard intellectual and experimental work are essential factors in being successful in science.

After completion of my PhD studies, I continued as a postdoctoral researcher within the Schmid group and prepared a research proposal on intramolecular Diels-Alder reactions which he quite automatically rejected. "It will not work", he stated bluntly. Fortunately for me, he then left for a long tour of Japan and I worked feverishly to validate my concept with experiments. On returning from his trip, he was welcomed by a nice convincing NMR spectrum on his desk and immediately he came over to my lab to offer me a handshake. It still transpires that research proposals are rejected despite the fact that there is no literature evidence to the contrary preventing a scientist from beginning experimental work. Chemistry can truly be capricious and supervisors are indeed not always right – a good take home message to be noted and applied by all supervisors, whether in academia or in industry.

Prof. Schmid asked us to progress with our projects quickly and he favored swiftness in his private life also as he loved to drive fast cars. I can certainly attest he was not the slowest driver about Zurich. One December morning when he left his home, it was snowing and the roads were quite hazardous. Undoubtedly he was driving far too fast and his undesired off-road excursion ended unfortunately against a tree rather than at the Institute of Chemistry. He duly went to the hospital to have his minor head injury treated but, needless to say, he

returned to the institute soon thereafter, his wound dressed in a large white bandage. He then went on to work the entire day despite a severe headache from a slight concussion. I am quite sure that his passion for chemistry helped him to ignore the painful injury.

From the very beginning of my studies in chemistry, my goal was to join the pharmaceutical industry as a discovery chemist. Prof. Schmid was a consultant to Roche Research Basel and he was instrumental in assisting me to attain a position at the company. Towards the end of 1976 it was quite difficult to locate such a job and I'm certain that without his strong support, I wouldn't be where I am now.

I left the Institute of Chemistry, UZH more than 30 years ago. It was a fascinating period in my life, one which fostered my own passion for chemistry and in particular for finding solutions to synthetic problems. The conclusions and the take home messages at the end of these few anecdotes in this review reflect my personal opinion. I am very convinced that the scientifically challenging environment at the Institute of Chemistry, UZH and many other experiences outside of science as well have had a great impact on my career at Roche. Throughout this time, I have endeavoured to live the value of hard work, diligence, perseverance and high scientific standards, however never losing sight that social competence and empathy are equally important assets of a leader.

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