

Up for Discussion

A Nobel support of Professor Thomas Hudlicky

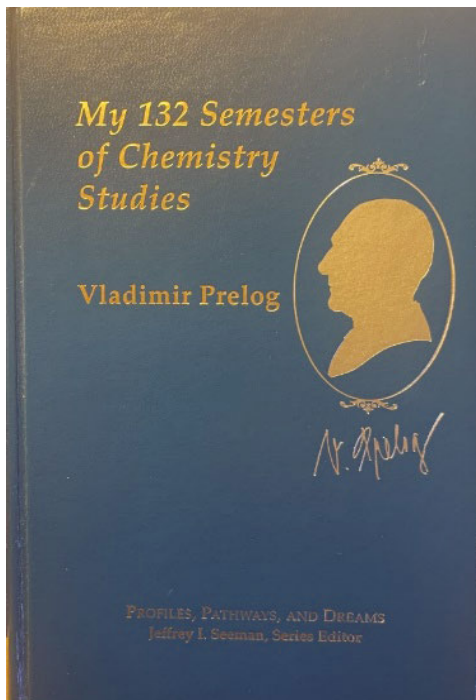
by Leiv K. Sydnes

The readers of this and other chemical magazines should be well aware of the turmoil Thomas Hudlicky caused more than three years ago when he published an essay in *Angewandte Chemie* on factors influencing the progress of organic synthesis in the last 25 years [1]. In his mind, eight factors were relevant to consider, of which five only had had a negative impact on the development. The immediate outcry the essay generated was for the most part due to a factor Hudlicky called *Diversity of the work force*, but his discussion of *Transference of skills* did indeed create harsh and inappropriate reactions as well [2].

The reaction to the latter factor is surprising. A central part in the training of chemistry students in general, but students of synthetic chemistry in particular is devoted to learning practical skills. To master the unit operations used in synthesis is indeed a tedious process; first students have to be exposed to the techniques, and then the operations have to be perfected through repetitions and supervision from more experienced chemists, well beyond what traditional university courses give nowadays. In his discussion of this aspect, Hudlicky used the relationship between a master and an apprentice, so familiar from vocational training and

most art disciplines, to describe how to teach students the practical skills and all the tricks required to excel in synthesis [1,3]. The point is that it is time consuming, it requires patience, and the long hours invested do not guarantee that the required level of competence has been acquired.

In my opinion, the reference to work as an apprentice is an excellent description of the working conditions for graduate students in organic synthesis, as long as Michael Polanyi's expression "an unconditional submission of the apprentice to his/her master" [4], which Hudlicky refers to, is limited to the educational activities belonging to the chemical profession, taught in a transparent environment, and practiced in a healthy and respectful way. But Polanyi and Hudlicky are not the only scientists comparing graduate studies in chemistry with the training students of vocational disciplines are exposed to. A firm supporter of such a comparison was Nobel Laureate Vladimir Prelog. In his interesting biography *My 132 Semesters of Chemistry Studies*, published in 1991 in Jeffrey I. Seeman's excellent series of *Profiles, Pathways, and Dreams; Autobiographies of Eminent Chemists* [5, Figure], Prelog describes his devotion to chemistry, which brought him to Prague where he enrolled as a student at the age of 18 at the Czech Institute of Technology in 1924. He obviously disliked organic chemistry at the outset because as "presented in the second year, organic chemistry



Vladimir Prelog (1906-1998) was a Croatian-Swiss organic chemist, who was educated in Prague (graduated 1929) and worked in a Czech chemical company (1929-1935) and at the University of Zagreb (1935-1941) before he started to work at the Swiss Federal Institute of Technology (Eidgenössische Technische Hochschule, ETH) where he became full professor in 1952. In 1975 he obtained the Nobel Prize in Chemistry "for his research into the stereochemistry of organic molecules and reactions." [9]

In 1991 his concise biography *My 132 Semesters of Chemistry Studies* was published.

seemed to consist of endless details, compounds, and reactions without connection.” [6] But that changed when he was hired as assistant to Rudolf Lukes, who conducted the laboratory course in organic chemistry and later advanced to professor at the institute. Prelog became an apprentice: “Lukes needed a co-worker; thus I became his apprentice.” [6] This apprenticeship influenced Prelog profoundly; not only did he decide to shift focus to organic chemistry, he also reached the conclusion that being an apprentice is the best way to study science. “I have more than once expressed my view that the best way to study science is as an apprentice to a master who is a model both in his field and in his personal characteristics. Through this collaboration, I learned that, in the beginning, it was important for a chemist to be confronted with reality and that sometimes it is better to follow the maxim “Work now, understand later”. [7]

What a Nobel support of Thomas Hudlicky, who passed away on 10 May last year during a visit to Prague where he was born 73 years earlier [8].

References

- (All websites were visited 10 March 2023.)
1. Dr. Hudlicky's essay appeared with DOI 10.1002/anie.202006717, but that code does not give access to the article any longer. Announcement of withdrawal: <https://onlinelibrary.wiley.com/doi/10.1002/anie.202006717>

(2023.03.06). The article is available elsewhere:

- <https://sci-hub.se/10.1002/anie.202006717> (2023.03.06)
2. Leiv K. Sydnnes, The Hudlicky case - A reflection on the current state of affairs, *Chemistry International* 2021, 43 (January-March), 42-44. <https://doi.org/10.1515/ci-2021-0127>.
3. Leiv K. Sydnnes, Hudlicky and his analysis of (organic) chemistry, *Kjemi* 2021, (2), 16-23. <https://www.kjemidigital.no/dm/2-2021/16>
4. Michael Polanyi (1891-1976), Hungarian-British scientist who made significant theoretical contributions to physical chemistry, economics, and philosophy.
5. Vladimir Prelog, My 132 Semesters of Chemistry Studies. In Jeffrey I. Seeman (Ed.) *Profiles, Pathways, and Dreams; Autobiographies of Eminent Chemists*; American Chemical Society, Washington, DC USA; 1991.
6. Ref. 5, p. 9.
7. Ref. 5, p. 10.
8. For an obituary, see Trond V. Hansen, Yngve Stenstrøm, Rolf Carlson, and Leiv K. Sydnnes, Professor Tomáš Hudlický in Memoriam, *Kjemi* 2022, (5), 23-25. <https://www.kjemidigital.no/dm/5-2022/22>
9. The website for the Nobel Prize; <https://www.nobelprize.org/prizes/chemistry/1975/prelog/facts>

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Bookworm (cont. from p. 39)

respective positions (often quite similar), in several scientific respects. One example in that sense was one of the last of his papers, which we liked to share (F. Pavese, P. De Bièvre, *Fostering diversity of thought in measurement*, 2015, in ISBN 978-981-4678-61-2; https://doi.org/10.1142/9789814678629_0001).

We also became good friends personally. I have rarely met another people with so wide a range of interests and high level of competence, demonstrated by the wide range of his activities, and of formal positions that he performed, namely in IUPAC, with excellence until his very last days. In particular, he was an excellent metrologist (I am a full metrologist), in the frame of his own research and of the research in metrology worldwide, and an important and competent contributor to one of the basic metrological documents, the *International Vocabulary of Metrology*, 3rd Edition.

In Memoriam, members of the IUPAC Commission on Isotopic Abundances and Atomic Weights recalled

“Paul had a penchant for philosophy of science and he believed that great measurements start with great thinking. His writings on metrology in chemistry appeared frequently in *Accreditation and Quality Assurance* (Springer) of which he was the Founding Editor-in-Chief (1995). He was a straightforward, cheerful person and his colleagues fondly remember his passion for science.” (<https://www.ciaaw.org/debievre.htm>)

We will remember for a long time the contributions of Paul De Bièvre to science and to metrology, not only in Chemistry, and as a very special person and scientist.

Franco Pavese, former Research Director in Metrology (Thermodynamics), National Research Council of Italy, member of the IUPAC Commission on Physicochemical Symbols, Terminology, and Units (Commission I-1).

<https://link.springer.com/journal/769/volumes-and-issues/28-3>