

**A New Textual Analysis of the *Prelog* Erbkönig Legend:  
An Interdisciplinary Approach to Scientific History and Literary Criticism**

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***Der Erbkönig***<sup>1</sup>

*Wer rast durch das Labor mit jüdischer Hast*<sup>2</sup>?

*Es ist der Prelog mit einem Gast.*

<sup>1</sup> Of the many versions of this legend, *Goethe's* may be the best known, thanks largely to the musical setting by *Franz Schubert*, but the present version has many merits and is of particular interest because of the light it sheds on scientific activity and personal relationships at the Laboratory of Organic Chemistry (LOC) of the *Swiss Federal Institute of Technology (ETH, Zurich)* in the middle years of this century. The manuscript was uncovered (by *E.H.*) in late 1957, and the events described may be assumed to be fairly topical. *Prelog*, the central figure of the poem, is not, as many readers may assume, a mythical character but an actual person. As far as can be ascertained, he was born in Sarajevo in 1906, came to Zurich in adventurous circumstances during the Second World War, and was Professor of Organic Chemistry at the above mentioned Institute for many years. Similarly, many of the other personages mentioned can be clearly recognized as actual historic figures. However, the identity of the mysterious guest ('der Gast') is still a matter of conjecture. As in most works of this nature, reality is strangely and inextricably mixed and interwoven with legend. The poem is known to have been read at the 70th birthday celebration of the late Professor *Leopold Ruzicka* (1887–1976), held in Zurich in September 1957. Various versions containing minor textual differences have been in circulation since then, but we regard the present text as the most authentic and urge other scholars to do likewise.

<sup>2</sup> *Prelog* was known to set a fast pace in his tours of the Laboratory of Organic Chemistry and elsewhere; he always seemed to be in a hurry; but the significance of the adjective is unclear. 'Jüdisch'? Although some people may have assumed *Prelog* was Jewish because he knew a lot of jokes and told them well, he was not more Jewish than any other son of a typical Croat family. Nominally of the Roman Catholic persuasion, he described himself as agnostic, although he often admitted to uncertainty on this point.

*Die Mantelschösse<sup>3</sup> flattern im Wind,  
Wenn er die vielen Ränke<sup>4</sup> nimmt:*

*Dies<sup>5</sup> sind die Labors, Sie können es sehn,  
In denen all' meine Ausländer<sup>6</sup> stehn.  
Von ihnen ist transannular<sup>7</sup> ein jeder.  
Ja, Ja. Freund Cope<sup>8</sup>, der kam etwas später.*

*Dies ist ein Kolben, in dem etwas simmert,  
Was mich an die erste Geschichte erinnert  
Vom Sir Robert<sup>9</sup>, als er die Masern hatte<sup>10</sup>;*

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- <sup>3</sup> Almost certainly a white 'labcoat'. Each morning, on arriving at his office, *Prelog* changed into a labcoat even long after he had ceased to do any experimental work.
- <sup>4</sup> Identifies the author of the poem as Swiss! In addition to the meaning in standard German (tricks, intrigues, ruses, etc.), in Swiss dialect the word has the additional meaning: curves, as along a path, or rapid changes of direction. It is noteworthy that the sense of chirality of the curves is not mentioned.
- <sup>5</sup> A change from third to first person: *Prelog* is now speaking.
- <sup>6</sup> At the time the events described here took place, *Prelog* was himself an 'Ausländer', i.e., a resident of Switzerland without Swiss nationality. Indeed, *Prelog* counted many non-Swiss among his students and collaborators. In 1959, he acquired Swiss nationality.
- <sup>7</sup> A reference to *Prelog's* interest in transannular reactions in medium rings.
- <sup>8</sup> *Arthur C. Cope* (1909–1966), Professor of Chemistry at the Massachusetts Institute of Technology, who also studied transannular reactions at about the same time as *Prelog*.
- <sup>9</sup> Doubtless *Sir Robert Robinson* (1886–1975), then recently retired from his position as Professor of Organic Chemistry at Oxford University. This is the *Robinson* who appears in some of the best known *Prelog* stories, notably the one described vividly by *Prelog* himself in a later account: 'When we once met at Zurich airport on the way to Israel to celebrate the 25th anniversary of the Weizmann Institute, the first words we exchanged were the following: *Robinson*: 'Hello, Katchalsky. What are you doing here in Zurich?': I: 'Excuse me, Sir Robert, I am only Prelog, and I live here'. *Robinson*: 'You know, Prelog, your and Ingold's configurational notation is all wrong'. I: Sir Robert, it can't be wrong. It is just a convention. You either accept it or not'. *Robinson*: 'Well then, if it is not wrong, it is absolutely unnecessary'. The *Katchalsky* in question is undoubtedly *Ephraim Katchalsky-Katzir* (1916–) of the Weizmann Institute, later President of the State of Israel. Many observers would deny that there was much resemblance between *Prelog* and *Katchalsky*, at any rate not enough to justify *Robinson's* misidentification. However, at a scientific congress that took place several years afterwards, one of us (*J.D.D.*) remembers *Katchalsky* being addressed by the hotel concierge: 'Professor *Prelog*, I have a telegram for you'.
- <sup>10</sup> The story about *Robinson's* measles cannot be traced and remains a challenge for future scholarship.

Oder noch eher, warten Sie mal,  
An die Gallensteine der Frau Admiral<sup>11</sup>,  
  
Wo das Squalen<sup>12</sup>, na Sie wissen schon ...  
Übrigens das hier, das ist der Simon<sup>13</sup>,  
Und in dieses Köbli, oder vielleicht hier draus,  
Tut man etwas hinein, oder man nimmt es heraus.  
  
Und dieses Rohr hier ist eine Kapillare  
Vom Polarographen<sup>14</sup>. Und vor rund einem Jahre  
Dachte der Dewar<sup>15</sup> ein Lift sei im Schacht;  
Wir haben damals fast so gelacht,  
Wie beim letzten New Yorker<sup>16</sup>, Sie wissen schon.

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- <sup>11</sup> As a young man, *Prelog* served in the Royal Yugoslav Navy. His inability to distinguish instinctively and surely between right and left led to several minor mishaps when sailors under his command were ordered to march overboard. He was then assigned the less demanding task of analyzing gallstones. Whether, and to what extent, these actually emanated from the gall bladder of the admirals's wife is unknown. Perhaps the whole story is apocryphal.
- <sup>12</sup> (all-*E*)-2,6,10,15,19,23-Hexamethyltetracos-2,6,10,14,18,22-hexaene: an isoprenoid compound found in large quantities in shark liver oil and to a lesser extent in many other natural oils, such as olive oil, wheat germ oil, rice bran oil; an intermediate in the biosynthesis of cholesterol and hence not recommended as a dietary supplement for people with a high cholesterol level. If a model of the molecule is folded in the right way, the resulting shape resembles that of a steroid.
- <sup>13</sup> *Wilhelm Simon* (1929–1992), Professor for Instrumental Analysis at the ETH from 1965 until his untimely death. At the time of the events described here, he was still a young research assistant who merely happened to cross *Prelog*'s path. It is characteristic, however, that *Prelog* recognized this young member of the laboratory and even knew his name. The instrument described so vividly in the following two lines was a robotic device for automatic pK measurement of a series of compounds, an early example of laboratory automation.
- <sup>14</sup> The capillary was probably the only element of this instrument that *Prelog* was able to recognize and name with confidence.
- <sup>15</sup> Probably not the *Dewar* of the *Dewar* flask (*James Dewar*, 1842–1923) but *Michael Dewar* (1919–), noted racing motorist and chemist, who is known to have visited the Zurich laboratories around the period of interest.
- <sup>16</sup> The *New Yorker* Magazine, which at that time often contained amusing cartoons.

*Und was hier heiss läuft, ist der Sekretärin ihr Telefon*<sup>17</sup>.

*Hier unten treiben zwei muntre Gesellen  
Die Feinmechanik und die der Wellen*<sup>18</sup>.

*Und hier Fräulein Gut*<sup>17</sup>, *die ich gerade nicht seh',  
Wahrscheinlich raucht sie oder holt Wasser zum Tee.  
Ist ihr Sohn auch, so wie meiner brav*<sup>19</sup> ?  
*Dieser ist der Kováts*<sup>20</sup> *plus Chromatograph,*

*Was sich oben dreht ist der Propeller,  
Und diese Stoppeln sind der Gigel Keller*<sup>21</sup>.

*Natürlich muss ich noch schnell erzählen  
Die Story vom Roberts und den Niagarafällen*<sup>22</sup>,  
*Und die, wo der Bartlett*<sup>23</sup>, *na Sie wissen schon!*

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- <sup>17</sup> *Prelog*, and almost everyone else at the time, used to refer to his secretary as *Fräulein Gut*, although she was no longer a young girl but a grown-up woman. The term 'Fräulein' was then customarily employed to describe an unmarried woman of any age. Ten years later, she would have been addressed as *Frau Gut*. In any case, she was sometimes conspicuous by her absence from the office. During these absences, the telephone would ring for long periods, as the automatic answering device had not yet been invented.
- <sup>18</sup> Surely a reference to *Hans H. Günthard* (1916–) and *Edgar Heilbronner* (1921–), who divided their time between the construction of analytical instruments and the development of quantum mechanical theories. Note that the two colleagues are described here as 'munter', *i.e.*, brisk, cheerful; this was not always the case.
- <sup>19</sup> *Jan Prelog* (1949–), now Dozent for Medieval Latin at the University of Munich.
- <sup>20</sup> *Ervin sz. Kováts* (1927–), later Professor at the Lausanne campus of the ETH (EPFL). As a young assistant he constructed an air-heated gas chromatograph for preparative purposes, of which the propeller was probably the only feature *Prelog* recognized (see *Footnote 14* for a similar comment concerning another instrument in use in the laboratory).
- <sup>21</sup> *Walter Keller-Schierlein* (1922–), known affectionately as *Gigel*, was not only a pioneer in the extraction, purification, and structure analysis of microbial metabolites with antibiotic activity but also an early proponent of what has come to be known as the 'Arafat-look', *i.e.*, a more or less constant 3–4-day growth of facial hair ('Stoppel'=bristle).
- <sup>22</sup> Presumably *J.D. Roberts* (1918–), then Professor of Chemistry at the California Institute of Technology, Pasadena, CA, but the incident is not mentioned in *Roberts's* autobiography.
- <sup>23</sup> The *Bartlett* is probably the Harvard one, *Paul* (1907–), but possibly *Prelog* is referring not to a person but to a book, *Bartlett's Dictionary of Quotations*. In any case, the text shows that *Prelog* was assuming that the guest knew whom (or what) he was talking about.

*Und die, wo ein Mann mit Namen Kohn<sup>24</sup> ...*

*Den lieben Gast erfasst das Grausen<sup>25</sup>,*

*Am liebsten wär er wieder draussen.*

*Doch unerbittlich geht es weiter,*

*Oft instruktiv, doch meistens heiter.*

*Die Parabel vom Hasen under den Schafen<sup>26</sup>,*

*Ob ächt Ziegler und Reppe bis Dezember gut schlafen<sup>27</sup> ?*

*Die Walfischhoden in der Schüssel<sup>28</sup>,*

*Der Wunderrabbi vom Pschemist<sup>29</sup>,*

*Dehydrierungs-Reaktionen<sup>30</sup>,*

<sup>24</sup> Probably a misprint for *Cahn*, namely *Robert S. Cahn* (1899–1981), co-author of the well known *Cahn-Ingold-Prelog (CIP)* rules, referred to in *Footnote 9*.

<sup>25</sup> Change from first to third person; the narrator continues the story.

<sup>26</sup> A rather long-winded story, possibly of Chinese origin, the moral of which had something to do with the need to focus one's attention on the important aspects of a problem. But what are the important aspects? On the one hand, there is *Weiskracker's* maxim: '*Nicht in der Einfachheit, sondern in der Erkennung der Komplexität der Dinge – darin liegt die wahre Aufgabe der Naturwissenschaft*', in a letter to *Lichtenberg*, October 1777 (*Opera Omnia*, Wiesbaden, 1825), but on the other hand, '*Les règles de la nature sont toujours très simples. C'est le devoir du savant de présenter cette simplicité dans toute son effroyable complexité*' (*Jean-Louis Moron*, *Science et Simplicité*, Les Cahiers des Sciences, Paris, 1904, p. 299). *Prelog* could never quite make up his mind on this point.

<sup>27</sup> A reference to the dreaded Swedish sickness ('*Svenska sjukdom*', characterized by insomnia, inability to concentrate, general irritability), endemic among potential Nobel Prize candidates in the early autumn. Indeed, *Karl Ziegler* (1898–1973) shared the Nobel prize for Chemistry in 1963 with *Giulio Natta* (1903–1979). *Walter Reppe* (1892–1969) may have been equally deserving, but, as *Prelog* himself liked to quote: '*The race is not to the swift, nor the battle to the strong*'. The line places the events described in the poem as occurring in the early autumn, as borne out a few lines later. 'Ob ächt' (Swiss dialect)=whether.

<sup>28</sup> At a somewhat earlier period, research on male sex hormones had been one of the main activities at LOC. Although this was on the wane by the time of the events described here, the reference to whale testicles indicates that it was still operative to some extent. Before the television era, the arrival of such objects must have attracted many spectators.

<sup>29</sup> Countless stories are attributed to this personality. It is impossible to identify the one that *Prelog* was referring to.

<sup>30</sup> Gas-phase dehydrogenation of cyclodecane yields azulene as well as naphthalene. This observation was the origin of *Prelog's* unpublished theory of why the sky is blue. Volatile terpenes produced by plants are dehydrogenated in the upper atmosphere to yield substituted azulenes. This proposal needs to be taken up again in connection with the ozone problem.

*Arigoni's Wunderbohnen*<sup>31</sup>,  
*Hier ein Kolben, dort ein Sieb*<sup>32</sup>,  
*Hier ein Lift (ausser Betrieb)*<sup>33</sup>,  
*Woodwards Whisky*<sup>34</sup>, *teure Weine*<sup>35</sup>,  
*Moulin Rouge und Damenbeine*<sup>36</sup>,  
*Gregorianik, Jazz Synkopen*<sup>37</sup> –  
*Thomas Mann – Zwei Isotopen*<sup>38</sup> –  
*Anekdote – Doktorhut* –

- <sup>31</sup> *Duilio Arigoni* (1928–), then a young assistant, from 1962 Professor at *Prelog's* Institute. *Arigoni's* wonderful beans? The most likely explanation is that this refers to a Italian-Swiss version of the *Jack and the Beanstalk* fairy tale, which appears to be widely spread among many many folk cultures throughout the entire Northern hemisphere; examples are known as far apart as American Indian tribes and nomadic Lapp peoples. Indeed, the old Norse name for a bean, *Queggonna*, can easily be transformed by a series of consonant and vowel changes, to *Arigoni*.
- <sup>32</sup> Self-explanatory.
- <sup>33</sup> Due to an oversight in planning, the so-called 'Neubau' (new building), which *Prelog* and his guest had reached, had only a single lift (elevator). It was somewhat erratic and frequently out of service.
- <sup>34</sup> *Woodward's* whisky is a little known brand of Scotch malt whisky, under no circumstances to be confused with *Dewar's* whisky. The two do not mix well.
- <sup>35</sup> It is surprising that *Prelog*, who has always tended to favor *Coca-Cola*<sup>\*</sup>, should start talking about expensive wines. Maybe he was trying to impress the guest.
- <sup>36</sup> The reader may well assume that *Prelog* is again trying to impress the guest with a reference to the *Moulin Rouge* girlie show in Paris and to the ladies legs that featured there so prominently (recall that this would still have had a rather risqué flavor). Indeed, our researches show that at the 1957 *IUPAC Congress* in Paris, shortly before the events described here, *Prelog* and some of his younger colleagues, together with their wives, took part in a Congress Social Program excursion to the *Moulin Rouge* and found themselves seated in the very front row, in a position where they were in almost direct confrontation with the whirling legs of the dancers, a quite unexpected and potentially embarrassing situation for the members of the party. At the close of the performance, *Albert Eschenmoser* (1925–) commented: 'What a waste of ATP!', thus expressing for that time a remarkably farsighted concern for the world's energy resources. *Prelog* used to tell this story to anyone who would listen.
- <sup>37</sup> An indication of the wide range of *Prelog's* musical appreciation.
- <sup>38</sup> It appears that a manuscript entitled 'Zwei Isotopen' by the great German author (1875–1955) was inadvertently sent to *Helvetica Chimica Acta* and forwarded for review to *Prelog*, who did not consider it suitable for publication in that journal. His review stated that the manuscript would benefit from extensive rewriting, that it contained much extraneous material, that the sentences were far too long, and, in general, that the text should be drastically shortened.

*Massenspektrograph (kaputt) –  
 Vakuum – Treppe – Gänge – Witz<sup>39</sup> –  
 Manser<sup>40</sup> – Poldi<sup>41</sup> – Geistesblitz –  
 Seufzerbrücke<sup>42</sup> – erster Zehnter<sup>43</sup> –  
 nochmals Witz (bereits erwähnter)<sup>44</sup>.  
 Zweimal rechtsum<sup>45</sup>, Höllenschuss,  
 Nochmals Witz und Rundgangsschluss<sup>46</sup>.*

*Sie erreichen das Büro, mit Mühe und Not,  
 Pg<sup>47</sup>, munter plaudernd, doch der Gast ist tot<sup>48</sup>.*

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<sup>39</sup> The themes here follow one another so rapidly that individual explanations become impractical.

<sup>40</sup> One of *Prelog's* best stories involved *Werner Manser*, who was in charge of the microanalytic laboratory and enjoyed a worldwide reputation. When *K. Wiesner* (1919–1986), who had worked in the LOC and grown to appreciate *Manser's* microanalytic skills, emigrated to Canada and became Professor of Chemistry at the University of New Brunswick, Fredericton, he periodically sent samples to *Prelog*, who passed them, under his own name, to *Manser's* laboratory. Occasionally, samples containing sulfur passed along this path, much to *Manser's* annoyance. Everyone knows that sulfur ruins the normal oxidation catalyst, and that sulfur-containing samples must, therefore, be specifically marked as such and directed to special handling procedures. After experiencing *Manser's* complaints on such occasions, *Prelog* used to write to *Wiesner* (no FAX or e-mail in those times) with the very understandable request that sulfur-containing samples should be clearly marked, so that he could give *Manser* the necessary information. Sometimes it worked, sometimes not. One day, it is told, an angry *Manser* burst into *Prelog's* office. 'My equipment is ruined because you again sent me a compound for analysis that contained sulfur! After so many years as professor of chemistry, you should know enough about the subject as not to send me sulfur-containing samples that are not marked as such! You should be ashamed of yourself'. When *Manser* left, slamming the door behind him, *Prelog* sent a note to *Wiesner*, roughly as follows: 'Dear Professor *Wiesner*, this is to inform you about Professor *Prelog's* tragic death. He was found this morning in his office with a glass tube through his heart. On questioning by the police, the Institute's microanalyst, Mr. *Manser*, confessed to the crime but claimed extenuating circumstances, as *Prelog* had submitted a sulfur-containing compound for microanalysis without special mention and had thereby caused his instrument to be ruined. The investigating authorities agreed that this was sufficient justification for *Manser's* misdeed'. This message was sent to *Wiesner's* home address and arrived when he was at the University. His wife, recognizing the Zurich postmark, and knowing that *Wiesner* always looked forward eagerly to news from there, opened the letter and tried to make sense of it. All she really understood was that *Prelog* was dead, so she telephoned her husband at the University, where he

was called out of his lecture, to give him the news. *Wiesner* was so shocked that he dismissed his class, sent his coworkers home, and declared the day as *Day of Mourning* for *Prelog*. When *Prelog* heard about this, he confessed that he was deeply moved by *Wiesner*'s reaction. Whether this had any effect on subsequent samples sent for microanalysis is unknown.

- 41 'Poldi' is *Leopold Ruzicka* (1887–1976), *Prelog*'s famous predecessor as head of LOC. It is remarkable that he should make his appearance so late in the poem. One unanswered question is whether *Prelog*'s tour of the laboratory took place before or after the transfer of power. According to the records, this transfer took place on October 1st, 1957, shortly after *Ruzicka*'s 70th birthday. In our opinion, the cryptic words at the end of the immediately following line refer to October 1st, written in the European fashion as 1.10, *i.e.*, 'erster Zehnter'. *Prelog* would surely be talking to his guest about the great future he foresaw for himself rather than about his past achievements, about which he has always been characteristically modest.
- 42 Not the famous Ponte dei Sospiri in Venice but the bridge connecting the 'old' and the 'new' buildings. Students coming from the old building to *Prelog*'s office for examinations had to pass over this bridge, hence, perhaps, the name.
- 43 See *Footnote 41* for a possible interpretation.
- 44 A skillful reference to *Prelog*'s habit of repeating the same joke (with slight variations).
- 45 The end of the tour was approaching. *Prelog*'s office lay along a route from the 'old' to the 'new' building. On entering the latter over the Bridge of Sighs (see *Footnote 42*), the two travellers would turn once right into the secretary's office and then another right into *Prelog*'s office.
- 46 The wording suggests that the tour not only ended at *Prelog*'s office but also started there.
- 47 Pronounced: peh-geh (German) or pee-gee (American English). An obvious abbreviation for *Prelog*, much used by junior colleagues who wished to avoid such formal modes of address as: 'Herr Professor', 'Herr Laboratoriumsvorsteher', or even plain 'Herr Prelog', but did not feel intimate enough with our hero to address him as *Vlado* or *Vladimir*. Suggests that the unknown author of the poem may have been in this ambivalent relationship to *Prelog*.
- 48 The available documents fail to record that any academic visitor to the ETH ever actually died during a tour of the laboratories, although several cases of extreme exhaustion, with symptoms resembling those of mountain sickness, have been reported.

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This contribution appears almost simultaneously also in the Special 'Festschrift' Issue of *Croatica Chemica Acta*, dedicated to Prof. *Vladimir Prelog*.