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## **Physicists and chemists at the University of Agriculture (Hochschule für Bodenkultur) in Vienna between 1872 and 1918**

### **(1) Introduction**

THE HOCHSCHULE FÜR BODENKULTUR in Wien (the official English translation of this old term once was “University of Agriculture” and nowadays is “University of Natural Resources and Applied Life Sciences”) was founded in 1872. After the Austrian-Hungarian “Ausgleich” the only agricultural university of the monarchy in Mosonmagyaróvár (in German: “Ungarisch-Altenburg”) became part of the Hungarian educational system. A change in the language of teaching and of the professors took place.

The great landowners of Cisleithania and the Ministry of Agriculture began to plan the construction of an agricultural Hochschule in the Austrian part of the monarchy immediately after the “Ausgleich”. Only a few years later, in 1872, the “k.k. Hochschule für Bodenkultur” opened in Vienna. The main goals of this university were — according to the original plans of the ministry and the agrarians — to educate great landholder’s managers and teachers for secondary agricultural schools. Therefore the curriculum consisted of legal, of management, and of scientific courses. First the agricultural section was established, in 1875 the section of forestry followed, and in 1883 the section of hydraulic engineering opened. There never existed a system of faculties. In the beginning the Hochschule worked rather like a school than like a university; research work was of no importance at all in this early period.

Chemistry played an important role as a core discipline for all three sections, physics served as an ancillary discipline and was taught to the beginners of all courses, too. Despite the importance of chemistry and the fact that every student had and still has to take exams out of chemistry and physics, it was impossible to study chemistry or physics as a discipline at the Hochschule für Bodenkultur. Consequently all professors in the given period had been educated at other universities. Generally speaking, in the 19<sup>th</sup> century graduates of the University of Agriculture usually had no career opportunities in the academic field.

The proposed paper will examine the professional biographies of chemists and physicists teaching at Vienna University of Agriculture between about 1880 and 1918, asking firstly for their own education, secondly for the career positions they had already reached when they changed to the University of Agriculture and finally for their professional biography after leaving this university.

### **(2) Physics**

After the foundation of the “k.k. Hochschule für Bodenkultur” the courses of physics were held at the “k.k. Technische Hochschule” by Prof. Viktor Pierre, a well-renowned professor of this university. After 1881, when State Examinations were decreed, the lectures of “Physics and Climatology” and “Physics and Mechanics” had been obligatory for all students. They became part of the “1. Staatsprüfung”. This “First State Examination” was a collection of exams that marked the end of the general part of studying at the University of Agriculture.

There existed no Chair of General Physics, but a Chair of Mathematics and Physics and a Chair of Meteorology and Climatology (“chair” is the translation of the term “Lehrkanzel”). Only four scientists with a habilitation were active in the field of physics in the period between 1880 and 1918. As far as I see no one was habilitated out of physics and climatology till the end of world War I with the possible

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exception of August Grau. He got the teaching qualification for the field of “Elektrotechnik” in 1895 and held lectures of physics.

Four persons make no relevant sample at all, but some facts are quite interesting. Three of the four scientists got their formation at Vienna University, two of them studied at the Technische Hochschule in Wien - August Grau studied on both universities, which was not unusual. None of them studied one single semester outside of Vienna, all were born in the cisleithanian part of the monarchy. But, three of the four gained their first *venia docendi*, their teaching qualification, from the University of Agriculture, one of them from the Technische Hochschule in Vienna. None of them was holding a chair when he was appointed professor of the University of Agriculture. Two of the four scientists were appointed full, two associate professors: Oskar Simony was full professor for mathematics and physics and Josef Liznar full professors for meteorology and climatology. Liznar was obliged to teach his subject at the Technische Hochschule, too. His predecessor Jakob Breitenlohner was more than twenty years active but was never appointed full professor. The mentioned August Grau had the title of an associate professor but worked as a teacher at the famous “Technologisches Gewerbemuseum”. Two of the professors, Simony and Breitenlohner, had an academic degree, Liznar and Grau had the teaching qualification for secondary schools, the so called “Lehramtsprüfung”.

One short biographical sketch: Josef Liznar (born 1852) came from Moravia to Vienna, studied at the “Allgemeine Abteilung”, the general division of the Technische Hochschule. He had the teaching qualification for secondary schools, but never worked as a teacher. He worked as scientist at the “Zentralanstalt für Meteorologie”, the “Central Institute of Meteorology” in Vienna. In 1884 Liznar habilitated at the Technische Hochschule for meteorology and terrestrial magnetism. In 1896 he was appointed associate professor of the Technische Hochschule, in 1899 full professor of the University of Agriculture. In 1918, after the end of World War 1, Liznar decided to opt for the new-built Czechoslovakian Republic. Therefore he had to leave the University of Agriculture and moved to Prague where he was appointed professor in 1922 and awarded with the honorary doctorate in 1927. Liznar died in 1932.

### (3) Chemistry

Chemistry was much more important than physics, because this discipline was not only one of the basic parts of the curriculum but played an important role in the second and the third part as well. Two chairs (one of chemistry and one of applied chemistry) existed since the foundation of the Hochschule. Chemistry was part of the “First State Examination”, too. The first full professor of chemistry was Philipp Zoeller, a former student of Justus Liebig. He left Göttingen University for the University of Agriculture. After his early death in 1885 two famous chemists succeeded. Hugo Weidel held the chair of chemistry between 1885 and 1891, when he left for Vienna University, Guido Goldschmiedt’s professorship lasted for only one year till he was appointed full professor at Prague University. In 1894 Simon Zeisel was appointed full professor of chemistry. He held the chair for more than 30 years (till 1925) and founded a school of analytical chemistry. Zeisel was elected rector of the University of Agriculture in 1899/1900. In his inauguration speech he claimed the construction of a forth section of his University, a section of food chemistry — a vision which should become partly true in 1945.

The chair for applied chemistry was held from the beginning by Franz Schwackhöfer, a chemist who had studied three years at the Technische Hochschule and went to the industry afterwards. He held the Chairs of agricultural-chemical and of forestal-chemical technology for more than thirty years till his death in 1903. After Schwackhöfer’s death Adolf Cluss was offered the chair for agricultural-chemical technology. He was an expert for brewery. In 1911 the chair was divided and Wilhelm Leiningen-Westerburg was appointed full professor for forestal-chemical technology.

Franz Schwackhöfer (born 1843) held the chairs for agricultural-chemical technology and for forestal-chemical technology. Schwackhöfers career is astonishing: He came from a poor family, attended Realschule and worked for years as a craftsman at the well known firm of Lenoir’s which produced chemical and physical instruments. At an age of 22 he started to study at the Technische Hochschule, but was not satisfied with the theoretical approach towards chemistry. After leaving the Technische Hochschule Schwackhöfer had several jobs. In 1871 he became deputy head of the agricultural-chemical research institute. In 1872 the 29-year-old Schwackhöfer was one of the founding professors of the “k.k. Hochschule für Bodenkultur” though he had neither an academical degree nor a

qualification as a teacher for secondary schools nor a habilitation. In 1887 Schwackhöfer founded the research institute of the brewing industry. In his last years he did research work in the field of caloric technologies. He died in 1903.

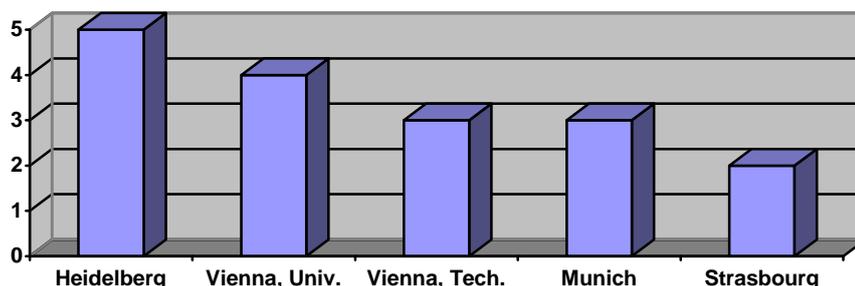
Simon Zeisel was born in Moravia in 1853. He studied chemistry at Vienna University, where he received his doctorate in 1879. He worked as an assistant till 1887 when he habilitated. In 1892 he moved to the Hochschule für Bodenkultur. His successor was Milan Stritar, one of his assistants. Richard Fanto, who was Zeisel's closest collaborator in the field of food chemistry, was appointed associate professor in 1912, but died in 1926. Zeisel's last years at the Hochschule had been darkened by the growing anti-Semitism among his colleagues. He retired in 1925 and died in 1933.

Resuming the careers of chemists with *venia docendi* at the University of Agriculture between 1872 and 1918, we see a completely different picture compared to the physicists: Most of the chemists had spent some semesters at German universities. Heidelberg, where Bunsen held his Chair, was the most popular spot to write a dissertation. Three (out of six) full professors for chemistry came from Germany, which is not unusual for the first and second generation of professors at University of Agriculture. But on the other side we have to notice, that none of them ever attended a University outside the German speaking countries, none of them came from the Hungarian part of the monarchy. Although the University of Agriculture was the only one of its type in the Austrian part of the monarchy all chemists came from the German speaking areas, no Czech, no Polish, no Italian, no Slovenian chemist got a call.

It is of no surprise, that there are no graduates from the University of Agriculture among the professors, because the right to confer doctoral degrees was given to the University of Agriculture in 1907, but it is astonishing that 6 out of 14 of the habilitated chemists had no academic degree at all. For most of this small sample of chemists the University of Agriculture was the end of their career: Only three of them, Hugo Weidel, Rudolf Scharizer and Guido Goldschmiedt got a call to a University. Six died during their active time, three reached the age for retirement, one became head of a research institute, and one became a high-ranked public servant at the Ministry of Agriculture.

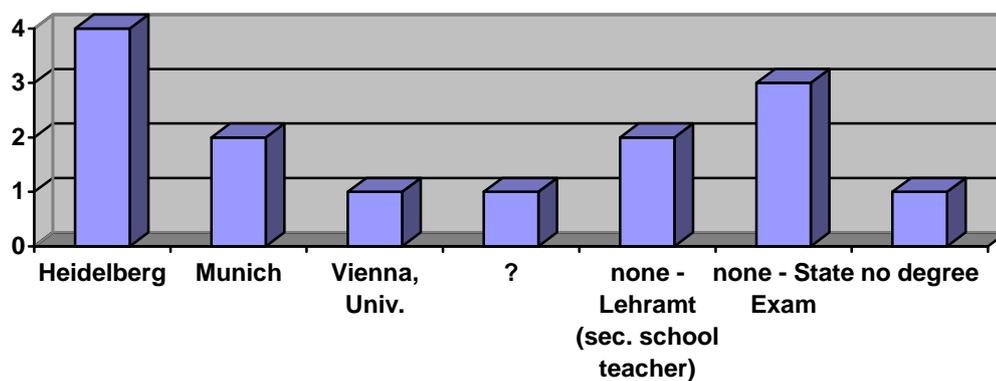
## Chemists at the University of Agriculture in Vienna with *venia docendi*

Academic studies at:



## Chemists at the University of Agriculture in Vienna with *venia docendi*

### Doctoral Thesis



## Chemists at the University of Agriculture in Vienna with *venia docendi*

### First Habilitation

