MIHÁLY VUK, ONE OF THE FOUNDERS OF HUNGARIAN FOOD SCIENCE, WAS BORN 100 YEARS AGO

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The Hungarian scientific life, workers active in the theoretical and practical field of food science, his co-workers and pupils commemorate this year as the 100th aniversary of MIHÁLY VUK's birth. This great personality of Hungarian food science was born in 1876 in Budapest. He studied at the Technical University of Zürich, where he graduated as chemical engineer in 1898, and was awarded in 1899 a doctor's degree. In 1901, he entered the staff of the Technical University of Budapest, where he worked from 1901 to 1902 as assistant to VINCE WARTHA at the Department for Chemical Technology. In 1902—1903, he worked at the Experimental Station for Plant-Cultivation of the Ministry of Agriculture in Magyaróvár, under the leadership of TAMÁS KOSUTÁNY. In 1903—1904, he was leader of a casein factory in Budapest. In 1905, he entered the staff of the National Chemical Institute, where he worked for 16 years at different departments, with excellent results, particularly in the field of wine chemistry. His activity was recognized world-wide. As a tribute of his scientific activity, he was awarded the Kossuth prize by the Hungarian Society of Engineers and Architects in 1911. In the same year, he was qualified as honorary lecturer at the Technical University of Budapest in the domain "Control of adulterated foodstuffs and consumers' goods".

In 1921 he was appointed first full professor to the newly founded Department of Food Chemistry. During his activity as university professor, MIHÁLY VUK developed technical higher education in the field of food chemistry and food industry, and his scientific activity of pioneer character forms the basis of food chemistry and food technology, and particularly of that of wine chemistry and cereal chemistry in Hungary. In the academic year 1928—1929, Mihály Vuk was dean of the Faculty of Chemical Engineering and Universal Department. For 25 years, he was member of the Permanent Supervisory Board of the Ministry of Agriculture, dealing with the third-instance judgement of the adultery of foodstuffs and other agricultural products. From 1947 to 1950, he was editor-in-chief of "Élelmezési Ipar" ("Food Industry"), and helped to bridge with his experiences and advices the initial

difficulties of the journal. As a reward of his progressive way of thinking and knowledge, the Chemical Section of the Hungarian Academy of Sciences elected him member of the Historical Committee, and entrusted him with the collection of data for the work "History of the teaching of technical chemistry in Hungary". As a reward of his research activity, the National Postgraduate Degree Granting Board granted him the scientific degree of a D. Sc. in 1952. By his death in 1952, we lost the pioneer scientist of food chemistry, a warm-hearted, noble man.

As concerns Mihály Vuk's immense life-work, three fields of activity are to be particularly emphasized: the foundation and development of the teaching of food chemistry and technology at university level, research in wine chemistry and technology and in cereal chemistry and technology.

At the beginning of the century, the teaching of dietetic knowledge was rather neglected in the curriculum of the Technical University. "The investigation of foodstuffs", "Wine chemistry", "Spirit, beer and acetic acid manufacture" were included as non-time-table, facultative subjects in the program of the Department for Chemical Technology. In the autumn of 1911, MIHÁLY VUK's lecture "Control of adulterated foodstuffs and consumers good" was introduced as new subject into the curriculum of chemical engineers, and from 1912 ELEK 'SIGMOND introduced as non-obligatory subject the practice of the methods of investigation of foodstuffs.

However, the Department for Food Chemistry was founded considerably later. One of the strongest incentives for this was the directive No. 93 047/1919 of the Commissariat of Education, on the basis of which the committee, headed by ELEK 'SIGMOND, Dean of the Faculty of Chemical Engineering, recommended within the frame of the educational reform the organization of new departments. One of these was the Department for Chemical Analysis, to the leadership of which MIHÁLY VUK has been appointed: "We recommend to appoint Dr. MIHÁLY VUK, assistant professor of the Technical University, Chief Chemist and Head of Department of the National Chemical Institute, as adjunct professor for lecturing in chemical analysis and as leader of systematic qualitative and quantitative laboratory practice. It can be seen from the enclosed life history and record of scientific activity that Vuk has been engaged since 1905 exclusively in work of analytical chemistry, and lectures at our Technical University already since years, as assistant professor and later as invited lecturer on a particularly important branch of practical analysis in Hungary, on the chemical and physical methods of analysis of agricultural produces, products and goods. Since we have set forth already at the time of his habilitation as honorary professors his abilities, and since he has enriched also since that time with several further research reports his scientific activity in the literature, and was appointed 4 years ago chief chemist and head of department at the National Chemical Institute, we think it superfluous to

appraise separately his aptitude to teach analytical chemistry. We recommend his appointment to adjunct professor, and recommend further that his lecture "Chemical and physical methods of analysis of agricultural produces, products and goods" shall be also included within the frame of his lectures as a facultative lecture subjects, not obligatory for the students."

This recommendation has not been realized in the same year, but in 1920, the Faculty for Chemical Engineering made an important decision concerning the extension of the curriculum in connection with the Zoological Department becoming unoccupied. The faculty, sizing up the particular-agricultural character of the country and the favourable prospects of the development of industries in connection with agriculture, thought it necessary "to provide more opportunity for the Hungarian chemical engineers, for a thorough education in the subject agricultural chemistry and technology and food chemistry". The short concept of the arguments brought up by Professor ELEK 'SIGMOND for the motivation of the recommendation are as follows:

"A consideration of the rebuilding and development of our country shows that primarily a purposeful utilization of the soil, further an as far as possible perfect industrial processing and disposal of agricultural raw produces and products may constitute one of the cardinal points of the economic rebirth of Hungary. One of the preconditions of the realization of both guiding principles is the establishing of as close as possible connections between agricultural production and techniques. To prepare the way for this, it is necessary that those among our technicians whose work is in closer connection with agricultural production shall receive already at the Technical University a fundamental, systematic education in the relevant branches of science. Thus, this necessity involves in addition to chemical engineers also those engineers, whose profession is, e.g. the planning of soil-amelioration, further those mechanical engineers, who have to provide for the machinery of agricultural production. In the field of work of chemical engineers, the necessary complementations and extensions in education under our conditions will involve particularly the teaching of soil science, fertilization and food science on a wider basis than at present, further a widening of the subject agricultural chemical technology, and the taking up of food chemistry among the regular subjects, in a form which includes also the chemical technological part of food industry.

The vacancy at the Zoological Department gave the opportunity for the Chemical Engineering Faculty to meet this economic requirement of prime order, without overburdening state finances, by converting the Zoological Department into a Food Chemistry Department. The recommendation of the faculty was accepted unanimously by the Board of the Technical University and was submitted for approval. The recommendation was assented to by the Minister of Education, and on September 22, 1921, MIHÁLY VUK was appointed the first full professor to the newly organized Chair of Food Chemistry.

From this time on, over almost 30 years of his professorship, MIHÁLY VUK was a pioneer in the modern education of experts working in the food industries. He lectured on the subjects "Food chemistry", "Chemical technology of foodstuffs", "Testing of foodstuffs", "Wine chemistry", "Nutrition", and over 2 years, "Chemical technological practice". From the academic year 1938/39 on, the number of lecture subjects became fewer by the combination of the thematics of the subjects: "Food chemistry I and II" and "Practice of food chemistry" became obligatory subjects, and "Wine chemistry" remained as facultative subject. In 1932 "Technical microscopy" was introduced as new obligatory subject. Its expert lecturer was over more than 2 decades ZOLTÁN SÁNDOR, assistant lecturer, who became later professor of the Department of Agricultural Chemical Technology. He habilitated August 9, 1927 as honorary professor in the theme "Microscopic investigation of foodstuffs". GÁBOR VASTAGH habilitated in 1914 as honorary professor, similarly within the thematics of the Department, on the subject "Vitamins".

MIHÁLY VUK's books "Chemical Technology of Foods" (1927) and "Food Chemistry" written with ZOLTÁN SÁNDOR as co-author (1934 and 1943), were not only a contribution to Hungarian technical literature, but served also as textbooks for the student of the Technical University at times when, except a few official lecture notes, no other printed Hungarian textbook existed.

Certain problems of wine chemistry and technology commanded already relatively early the attention of young MIHÁLY VUK. Knowledge on the composition of Hungarian wines is due to his pioneer work. The results of his systematic investigations, carried out over long years, were published both in Hungarian and German technical literatures. The investigation of the chemical composition requested the development of the methods of wine analysis and the elaboration of new methods. It is not by chance that MIHÁLY VUK has intensively studied these problems, and his name is often mentioned in the literature of wine analysis. He studied among others the determination of the volatile acid content of wines and the detectability of sugars, saccharose, in wine. He developed a method for the detection of the methyl-alcohol content and its determination, and investigated methods suitable for the detection of the possible safflor content of wines. His scientific activity in conjunction with the qualification of wines and with the detection of adulteration was closely connected with his analytical investigations. VUK was for years convener of the Wine Testing Expert Committee of Budapest.

He also intensively investigated certain problems of wine treatment which importantly affect the quality of wines. Thus, for example, he studied various aspects of sulfuration, including the physiological effect of sulfurous acid and the sulfurous acid content of the finished product. His investigations in connection with wine diseases and wine defects helped to solve practical

problems, such as acid reduction and elimination of mouldy odour. He studied the fusel oil content of brandy and certain hard liquors, and the possible modes of its elimination.

Results of his research work, besides being published in journals, were brought out and made public property in his lectures.

MIHÁLY VUK and co-workers (SPANYÁR, SÁNDOR, KARÁCSONYI, GÖMÖRI and others) started, under the sponsorship of the Széchenyi Society, an extensive research work, involving several problems of wheat qualification and improvement, wheat and flour chemistry, milling and baking technology. On the basis of the systematic investigation of Hungarian wheats over many years, his book "Composition of Hungarian wheat flours" has been written, which is still the most comprehensive work written in Hungarian on this topic. MIHÁLY VUK and co-workers collected also many valuable data on rye flours. In the course of this large work, several methods of flour analysis have been elaborated and further developed. This sphere of theme comprises, e.g. the acid content of flours, the natural chlorine content of wheats, detection of flour-improving additives, investigation of flours in ultraviolet light.

Flour quality, flour improvement represented one of the important and very successful fields of research of VUK and his co-workers. A new flour improving process, for which a patent was granted, is based particularly on the intensive study of the effect and mode of action of gaseous flour-improving and flour-bleaching agents. In connection with flour quality, the water uptake capacity of wheat flour, the glutenin content of gluten, flours prepared from wheat infected by plant bug, and the valorigraphic properties of flour mixtures have been studied.

In the field of the milling industry, research involved, on the one hand, the changes of flour during storage, and on the other hand, quality deterioration owing to overmilling. MIHÁLY VUK and co-workers, mainly KARÁCSONYI did comprehensive research work on the staling of bread. Publications in this field belong up to the present to the fundamental literature on the staling of bread.

The work of MIHÁLY VUK and co-workers is a worthy continuation and complementation of the research on wheat and flour qualification, which earned Hungarian researchers (REJTŐ, KOSSUTÁNY, HANKÓCZY) world-wide renown and laid the fundations of the present cereal chemical and technological research results in Hungary.

On the 100th anniversary of MIHÁLY VUK's birth, a wide camp of Hungarian food chemists and food technologists, former friends and pupils, commemorate fondly the great pioneer of Hungarian higher education in food chemistry and food technology, and, stimulated by his noble example, work on the solution of present tasks.

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