

## CHRONICLE

### In memoriam György Várallyay (1935–2018)

On 2<sup>nd</sup> of December 2018 Hungarian soil science lost one of its most prominent and best-known representatives, György VÁRALLYAY, agricultural engineer, soil scientist, university professor, ordinary member of the Hungarian Academy of Sciences, holder of the Széchenyi Prize. Remembering his contributions to earth and environmental sciences, his passing can be regarded a major loss to those disciplines, too.

Following the example of his father, the agrochemist György VÁRALLYAY Sr. (1900–1954), György VÁRALLYAY Jr. began his studies at the Agricultural University of Gödöllő (now: Szent István University) in 1952. With a degree as agricultural engineer, he found a job at the Department of Soil Science of the National Institute for Quality Analysis in Agriculture (OMMI) in 1957. In 1960 he became research fellow at the Department of Utilization of Alkali Soils of the Research Institute for Soils Science and Agrochemistry (RISSAC), Hungarian Academy of Sciences. This is the Institute to which he remained faithful throughout his career. With his scientific results on the processes of the evolution of salt-affected soils, he contributed to the assessment of the environmental impacts of the Tisza II Irrigation System and to the prevention of alkalisation of soils in the extensive areas where the irrigation scheme modified water availability and groundwater tables.

He defended his university doctor's dissertation at the University of Agriculture in Gödöllő in 1964 and received the Candidate of Agricultural Sciences degree in 1968 for his investigations of salt accumulation continued for the soils of the Danube Valley. Returning from a scholarship in the Netherlands, his interests turned towards soil physics and soil water management. In team work he elaborated up-to-date standards for soil physical and water management analyses, which were published as directives by the Ministry of Food and Agriculture in 1978. He encouraged and supported the AGROTOPO project, coordinated by the RISSAC, which was aimed at the compilation of a detailed soil database and mapping for Hungary at 1:100,000 scale.

In 1976 he was appointed head of the Department of Soil Sciences and in 1981 director of the whole Institute, which position he held for 26 years. His investigations focused on soil hydrology and his academic career continued with the following degrees: The Doctor of Agricultural Sciences in 1988, corresponding (1993) and ordinary member (1998) of the Hungarian Academy

of Sciences, where he was the leader of various professional commissions. At the international level, he was member of the International Union of Soil Science and president of its Commission VI between 1982 and 1986, as well as president of the Hungarian Soil Science Society between 1990 and 1999. As university professor he was active in Gödöllő, Debrecen and Budapest. He also was titular professor at the University of West Hungary and the University of Debrecen. Listening to his enjoyable lectures, many students came to like soil science and soil hydrology – generally considered boring subjects by non-professionals.

He spoke Russian at medium and English at high level and his language skills helped him build international contacts. Utilising his experience in the study of alkali soils in Hungary, he worked in Yemen and in 1977 lectured in Egypt, at the Ain Shams University of Cairo, a huge institution of higher education, which has 170,000 students at 14 faculties now. In 2005 he retired as head of the Department of Soil Science, a unit of higher education which operated within the institutional frame of the RISSAC.

As part of his international recognition, Professor VÁRALLYAY became member of the Slovakian Academy of Agricultural Sciences. He assisted in launching the academic career of numerous young scientists as editor-in-chief of the renowned professional journal *Agrokémia és Talajtan [Agrochemistry and Soil Science]*. In addition, for long years he was on the editorial boards of other journals in Hungary and abroad (*Hidrológiai Közlöny, Acta Agronomica, Geoderma, International Agrophysics, Land Degradation and Rehabilitation, Soil Technology*), too.

Over his almost six decades of academic career, György VÁRALLYAY published more than 550 scientific papers and – partly with co-authors – 23 books, cited more than 2,200 times worldwide. He actively influenced Hungarian environmental policy as member of the National Board for Environmental Protection. In 1997 he was decorated with the Medium Cross, Order of Merit of the Hungarian Republic, and in 2004 with the Széchenyi Prize.

Some of his thoughts on soil fertility, degradation and water management will always resound in the ears of all who read his works and listened to his lectures, which were based on a collection of hundreds of transparencies. Each of them presented some of the intricate interactions among soil characteristics in very clear form. For instance, the properties which

control soil resilience were shown in flow charts. He called the soil a reactor and transformer which integrates the combined influences of other natural resources and fulfills the ecological requirements of living organisms. For this reason, he always showed deep interest in the achievements of disciplines closely related to soil science, including physical geography and environmental sciences.

He regularly visited the biannual conferences of landscape ecology and held interesting lectures there. Focusing on his favourite field of research, soil water budget, he emphasised the significance of soils for humankind – as we say today, in the provision of ecosystem services. He held that water storage is of special significance in the Carpathian Basin, an increasingly water dependent region under the conditions of global climate change. In recent decades he studied the impacts of extreme weather conditions

on soils. He researched to what extent – through their high buffering capacity – soils can moderate environmental stresses.

He was deeply worried about soil degradation processes (desiccation, alkalisation, acidification, erosion, compaction etc.) of both natural and anthropogenic origin. Among the mapping projects he took part in the preparation of the world map of soil degradation stands out. On every forum he called for soil conservation and warned against the over-exploitation of the soil, a fundamental natural resource, a gene pool, part of the world heritage of humanity.

His co-workers and students and, in fact, everybody who knew him personally will keep his infinite wisdom and cheerful, grandfather-like personality in good remembrance.

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