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IN  
MEMORIAM

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## Emilia Adrianovna Shtina (1910–2007)

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Emilia Adrianovna Shtina passed away on December 9, 2007. Her departure ended an epoch in Russian biology related to daring investigations by outstanding women researchers born at the beginning of the 20th century, such as T.V. Aristovskaya, N.I. Bazilevich, and M.M. Kononova.

Shtina was born on July 1, 1910, into the family of a local agronomist in Vyatka gubernia. Her childhood was spent in the small town of Nolinsk. The charming beauty of the local nature captured her attention forever. She decided to dedicate her life to botany and to study in detail higher and inferior plants. Her life in those years was far from unclouded happiness. Her father died too early, and her mother had to raise three daughters alone. Emilia was the eldest daughter, and her persistent character and tirelessness were shaped in those hard years. Later, they brought the girl from a small provincial town to the summits of world science. Miseries of life could not distract her from reading. Books became her best friends.

After finishing secondary school in 1928, Shtina entered the Department of Chemistry and Biology of the Pedagogical Institute in Vyatka and graduated from it in 1931. In her student years, she was elected a deputy of Vyatka Soviet of Workers', Peasants', and Red Army Soldiers' Deputies. In the same years, she met Ivan Dmitrievich Shtina, who became her husband and the father of her daughter and son. Upon graduation from the institute, she worked for several years as a school-teacher of biology. Her insurmountable wish to learn more led her to postgraduate courses at Moscow State

University. She studied there from 1934 to 1937 under the supervision of an outstanding Russian botanist Konstantin Ignat'evich Meier. She regarded her teacher highly during all her life. She specialized in algology, and her first works were devoted to the algoflora of the Vyatka, Kama, and other rivers and water bodies in Kirov oblast. Meier insisted that his students should know European languages and read scientific books and papers in the original. Shtina followed his advice and mastered a wealth of world literature devoted to algae. She read in German, English, and French. Her candidate dissertation was devoted to algoflora in the middle reaches of the Vyatka River.

From 1941 to 1989, Shtina worked in the Agricultural Institute in Kirov (at present, Vyatka Agricultural Academy). The work in this agricultural institute predetermined the main sphere of scientific interests of Shtina; she began comprehensive studies of soil algae. Her doctoral dissertation was devoted to algae in the soddy-podzolic soils of Kirov oblast and to their role in soil processes. This dissertation was successfully defended by Shtina in 1956. In fact, it was the work that laid the foundation for a new science at the interface between biology and soil science: soil algology. Together with her coauthor from Leningrad Maksimilian Maksimilianovich Gollerbakh, Shtina can be considered the founder of this science. Under her supervision, a strong team of researchers in this field was created at the institute. For many years, the Agricultural Institute in Kirov was the leading center of soil algology in the Soviet Union and in Russia. Shtina was a scientific supervisor of 27 candidate dissertations. She participated in many international forums, including the Seventh International Soil Science Congress in the United States (1960), the Eighth International Soil Science Congress in Romania (1964), the Tenth International Congress of Botany in the United Kingdom (1965), the Ninth International Soil Science Congress in Australia (1968), the Fourth International Colloquium on Soil Zoology in France (1970), and many others. Many of her works were published in foreign journals. She was an initiator and organizer of several unique conferences on soil algology in Kirov. These conferences were attended by leading scientists from different parts of the former Soviet Union. Thus, in 1967, a conference devoted to the current state and prospects of soil algology was organized; in 1972, a conference devoted to the methods of soil algology; and, in 1977, a conference devoted to algae in soils of

the nonchernozemic zone of Russia. In 1980, algologists from different parts of the former Soviet Union came to Kirov to take part in a conference devoted to the 70th anniversary of the birth of Shtina.

Shtina was one of those great scientists whose discoveries cannot become obsolete; they contribute to the development of world science. Shtina had the talent of a prophet. In her doctoral dissertation, she foresaw the future development of soil algology.

Her monographs written together with M.M. Gol-lerbakh—*Pochevnyye vodorosli* (Soil Algae) (1969) and *Ekologiya pochvennykh vodoroslei* (Ecology of Soil Algae) (1976)—are reference books of every researcher dealing with the world of soil algae. A unique book was devoted by Shtina to the algoflora of the Vyatka River basin (1997). In the foreword, Shtina considered it to be her duty to publish the entire list of algal species studied by her in the Vyatka River basin during 62 years (since 1935). In that period, she obtained data on algoflora in the major types of water bodies and in all the soil types in the Vyatka basin. The role of algae in the water bodies and soils was thoroughly studied.

After the publication of this book, Shtina continued her studies. She was granted five more years of active work. Probably, it is the only example of the study of a given object by a given researcher for a period of almost 70 years!

Several directions in soil algology were developed by Shtina and her students and followers. She initiated special studies devoted to the distribution of algal species in soils of different natural zones. She analyzed the ecology of soil algae (their dependence on the environmental factors). Interactions between algae and other soil inhabitants were studied by her. In particular, Shtina determined the role of soil algae in soil fertility factors; she showed the contribution of algae to the accumulation of soil organic matter and to the erosion resistance of soils. Interesting works were devoted by Shtina to problems of the biological rehabilitation of disturbed soils.

The impact of algae on higher plants and the practical application of algae were also discussed in the works of Shtina. She demonstrated the bioindicative significance of soil algae.

Shtina paid great attention to pedagogical work. She was a brilliant teacher and lecturer. She taught botany. She also taught students to be faithful people with high moral principles. Many generations of future agronomists were lucky to meet a real teacher. For several years, she lectured on soil algology at Moscow State University and at Leningrad State University.

The scientific and public activities of Shtina were versatile. For many years, she headed the Kirov divisions of the All-Union Soil Science Society, Microbiology Society, Botany Society, and the All-Russia Society for Nature Protection. The problems of environmental protection were in the focus of the professional interests of Shtina. For ten years, she headed the Environmental Protection Committee in Kirov oblast. From 1967 to 1971, she was a deputy to the Supreme Soviet of the Russian Federation and worked for the Commission on Environmental Protection.

The contribution of Shtina to science, culture, and education was awarded the order of Lenin and five medals; she became an Honored Science Worker of the Russian Federation. In 1969, she received the title of Honorary Citizen of Kirov. The whole life of Shtina was an example of selfless dedication to science and people.

The following was said in verse during the celebration of the 90th birthday of Shtina:

“Your talent is a gift of the Earth; it is a mixture of exciting curiosity and an inquisitive mind. You are a symbol and a legend of soil algology. We are proud and happy to be acquainted with you and to learn from you, our dear Teacher!”

It grieves us to lose such people as Emilia Shtina. Her legacy and her behest to us is to be committed to science and benevolent to people. She was a faithful, selfless, and talented researcher; an excellent teacher; and a devoted friend. We miss you, our dear Emilia Adrianovna.

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