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PROFESSOR ELENA BURLAKOVA. MORE THAN HALF A CENTURY IN SCIENCE

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Elena Borisovna Burlakova, Doctor of Biology, Professor, is an outstanding researcher and a well-known expert in the area of chemical and bio-chemical physics, chemical and biological kinetics, and radiobiology. Being a chemist by education, she is also actively engaged in biology and medicine.

Elena B. Burlakova was born in Moscow on the 12th of October in 1934. She left school with merits and entered the Chemical Department of M.V. Lomonosov Moscow State University in 1951. Having graduated from the Chemical Department (speciality – chemist) with honours in 1956, she started postgraduate studies at M.V. Lomonosov Moscow State University. In 1962, she defended a thesis on the subject "Kinetics and chemism of oxidation processes in lipids under the influence of radiation and the mechanism of action of some protective substances" and was granted a PhD Degree. It was the first thesis in the world which exhibited the data on biological effects of synthetic antioxidants, while the first papers on this theme had been published by her as early as in 1957.

From 1960 till 1996, Elena B. Burlakova was working at the Institute of Chemical Physics of the Russian Academy of Sciences (ICP RAS), starting from a position of a junior research worker, then a senior research worker and after that the head of a laboratory. From 1984 till 1996, she was the Head of the Department of Chemical and Biological Processes at ICP RAS. In 1970, she successfully defended the thesis for a Doctor of Science Degree of Biology entitled "Investigation of lipids physical and chemical properties at certain pathological states". She was conferred the rank of the Professor of Biophysics in 1977.

After N.M. Emanuel Institute of Biochemical Physics withdrew from the Institute of Chemical Physics in 1996 and up to now, Elena B. Burlakova has had a position of the First Deputy Director of N.M. Emanuel Institute of Biochemical Physics, Russian Academy of Sciences (IBCP RAS).

Elena B. Burlakova was elected the Academician of the Russian Academy of Natural Sciences in 2000. She is the author of more than 500 research works and many monographs published in the former USSR, Russia, the USA and Western Europe in Russian and in English.

Elena B. Burlakova started studying the role of free radical peroxidation of lipids during the development of radiation sickness earlier in her graduation work. She devoted subsequent years of her scientific activity to investigations of free radical reactions at the onset and during the development of various diseases (radiation sickness, carcinogenesis, cancerous growth, epilepsy, *etc.*), as well as to the research of impeding further development possibilities of these diseases through inhibitors of radical reactions – antioxidants. The studies of applying antioxidants in biology were the pioneer ones and began under the leadership of Academician N.M. Emanuel – the teacher of Elena B. Burlakova. These researches led to creation of a new direction in science – the biophysics and biochemistry of antioxidants and antioxidant therapy – and laid the foundations of producing

original domestic medical preparations and biologically active substances for agriculture.

Elena B. Burlakova has devoted many years of her scientific activity to investigation into the role of membranes in regulating the cell metabolism. The works of Elena B. Burlakova are widely known in the area of radiobiology which indicate a fundamental role of free radical mechanisms in radiation damage and in the processes of cell regeneration. These studies have served a basis for proposing effective radio-protectors – inhibitors of free radical reactions. After the accident at the Chernobyl nuclear power station in 1986, on Elena B. Burlakova's initiative and under her leadership, a number of scientific and research institutes launched and are actively continuing fundamental studies of the influence of low intensity ionizing radiation on humans and natural objects.

Elena B. Burlakova was the first to detect and study uncommon effects of the influence of low dose radiation on biological objects. These woks are of both theoretical and practical value, since Elena B. Burlakova and her colleagues elucidate the risks of low intensity radiation for human health, and their viewpoint has by now been acknowledged by many foreign researchers.

Along with research work, Elena B. Burlakova has been occupied in educational activity in training young scientific personnel for years. She used to deliver lectures on the subject of biophysical mechanisms of regulatory reactions of the cell at the Biological Department of M.V. Lomonosov Moscow State University. She is now giving the course entitled "Foundations of chemical and radiation safety" at the Research Physicotechnical Institute. As many as 50 theses for a candidate degree have been defended under her supervision; she has been a scientific adviser of 12 doctoral theses.

Elena B. Burlakova was awarded the USSR State Prize of Science and Technology for her contribution in investigation of free radical reactions (1983); she was given the title of the Russian Federation Government Prize Winner of Science and Technology (2002); and she is also the author of the discovery (1985).

Elena B. Burlakova was awarded the Insignia of Honour; the Medal for Heroic Labour; the Medal for Merits Before the Motherland, the 2nd grade; the Medal "Biosphere and Man" in memory of N.V. Timofeev-Resovsky; the Medal "In Memory of Academician N.M. Emanuel" for outstanding achievements in chemical and biochemical physics (2007); the Medal of Countess E.R. Dashkova "For Service to Freedom and Enlightenment" (2008).

From 1973 to 1976 she was elected a deputy of the District Council of two convocations.

Since 1987, she has been the Head of the Scientific Council on radiobiology of the Russian Academy of Sciences which coordinates researches in radiobiology and radioecology. She is the Editor-in-Chief of the Journal "Radiation Biology. Radioecology"; she is a member of the Russian Federation Scientific Commission on the Radiation Protection; she used to be a member of the Commission on Ecology of the Supreme Council of the USSR; she is a member of the Supreme Ecological Council of the State Duma of the Russian Federation and a member of 5 international scientific societies.

Elena B. Burlakova is celebrating her anniversary full of strength and creative explorations. Her pupils are devoted to the service of science at the best research centres in Russia and abroad. All of us who work with Elena Borisovna and who are acquainted with her works are giving her our sincere wishes of good health and every success in her creative search.