



Irena Łukaszewska
(1926–2007)

We are acknowledging with sadness the death of our colleague, Prof. Irena Łukaszewska-Bułat on the first of March, this year. She was one of a few scientists who still remember the period of post-war reactivation of the Nencki Institute in Łódź. Born in 1926 in Warsaw, she enrolled to a high school in 1939 but could not start her education there because of the outbreak of the WWII. During German occupation of Poland she took the illegal high school courses and participated in resistance movement. She was able to pass the final high school exams only after the end of WWII, in 1945. In the same year she started studies at the Department of Mathematics and Natural Sciences of the Warsaw University, but in 1948 she transferred to the same department of the Łódź University, graduating as Master of Philosophy in Biological Sciences in 1951.

While being a student Irena started working as a volunteer in the Nencki Institute, and since 1950 she was employed there as a scientific assistant. At first she worked with Prof. Liliana Lubińska, studying regeneration of peripheral nerves in frogs and the axoplasm flow in nerve fibers. However, in a few years she realized that she is more interested in animal behavior and joined the team of Prof. Jerzy Konorski. When the Nencki Institute was transferred to Warsaw in 1954, she returned to her town.

Irena was talented and inventive scientist, highly esteemed specialist in the area of investigation of memory. She was very independent, always pursuing her own ideas, but willing to help others. In the times when everybody in the lab studied behavior of the dog, she decided to study behavior of the rat and was true to that for the rest of her scientific career, investigating many aspects of the rat behavior with the behavioral, pharmacological and ablation techniques.

Her first behavioral investigations were focused on the mechanisms of short-term memory. On the start of these investigations she developed a new behavioral test, the returning test. The task was to return to the starting place after finding food hidden in the labyrinth, before being given the next trial. The measure of the short-term memory was the return time to the starting box and the number of errors. Among others, Prof Łukaszewska analyzed the perseverative tendencies in that behavior, influence of overtraining and the sensory stimuli that the rats used for spatial orientation in the labyrinth.

Using the brain lesion technique she investigated also the role of brain structures that could have been involved in formation and execution of the short-term memory. Several of her papers describe the effects of cortical (fron-

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topolar) lesions, but she studied also the effects of lesions in the subcortical (thalamic, hippocampal, pretectal, septal or ventral mesencephalic) structures on the functioning of short-term memory. From the analysis of stimuli used for orientation in the labyrinth she turned to the analysis of the role of emotions and motivation. Results of those investigations were reported in her PhD thesis that she defended in 1963 and were also partially a basis of her habilitation in 1973 and justified bestowing her the title of Professor in 1988. At that time she was also decorated with the Polish Gold Medal of Merit.

In 1964 Irena was collaborating with the laboratory of Prof. J. Bureš at the Institute of Physiology, Czechoslovak Academy of Sciences, Prague. Using the method of spreading depression they investigated the interhemispheric transfer and bihemispheric synthesis of visual information used in behavioral acts. Later, from 1965 to 1967 she went for a post-doctoral training to the laboratory of Prof. R. Thompson (University of Louisiana, Baton Rouge). She worked there on visual and kinesthetic discrimination in rats that suffered pretectal or ventral mesencephalic damage. Both collaborations produced significant scientific papers. She was also giving lectures for graduate students at Bryn Mawr College on the functions of prefrontal cortex.

In her further investigations Irena combined brain lesion and testing of behavior in the open field or elevated plus maze to pursue her interests in the role of limbic structures (amygdale, hippocampus) in motivation of the animal behavior (fear and investigation drive). Later she introduced the test of reaction to change in the known environment to her research. Other important problems that she investigated were the disturbances of learning and memory in the rat model of human primary arterial hypertension. In 1971 she received awards of the Polish Academy of Sciences and the Polish Physiological Society for that research. Altogether she published 41 scientific papers, many of them in renowned international journals.

From 1973 till 1996 (with some breaks due to ill health) she was the head of the Laboratory of the Physiological Basis of Memory in the Nencki Institute. From 1974 till 1982 she was the Head of the Department of Scientific Publications of the Nencki Institute and in the years 1987–1998 she was a member of the Board of *Acta Neurobiologiae Experimentalis*. She retired in 1997. Her three scientific pupils are active in the neuroscience research in Poland and abroad.

After her retirement Irena returned to the war chapter of her biography that was hardly known in the Nencki Institute. Born and living in the Żoliborz district of Warsaw, during the WWII she participated as a young girl in the resistance movement against German occupation. She belonged to the youth organization *Szare Szeregi* (Gray Ranks) that served as an auxiliary structure of the conspiratorial Home Army (AK). Its activity culminated in the Warsaw Uprising (August–October 1944). At that time Irena was mustered to the ranks of the AK group ‘*Żywiciel*’ that fought in her district. She served as a courier and field hospital orderly under the war pseudonym ‘*Szarotka*’ (Edelweiss).

For her participation in the resistance and uprising she was decorated with the Warsaw Uprising Cross (1988), Partisan Cross (1994), Home Army Cross (1994) and Warsaw Medal 1939–1945. On her retirement Irena returned to the history of that period, becoming an initiator of collecting memoirs of her war comrades and later being a perfect editor of the book containing these memoirs: “*Droga powrotna. Warszawskie Termopile 1944*” (“The way back. Warsaw Thermopile 1944”, issued by Bellona, Warsaw, 2005). The book is unusual in showing not the times of battle, but the hard fates of survivors of the crushed Warsaw Uprising, that were rarely described: the intern camp in Pruszków, deportations to the POW camps in Germany, liberation, returns to the post-war Communists Poland where they faced repressions or life-long emigration. Some of those were also her fates. Irena worked on that book for several years, using all her intellectual potential. Her book is a valuable documentary of that period and of the fate of Resistance fighters. It won her high esteem among the surviving veterans of AK. Representatives of the ‘*Żywiciel*’ Unit were present with their banner at her funeral that at the State order was assisted by an armed military unit, drums and fired salute. Irena is survived by her son, Jakub. She will be well remembered in the Nencki Institute.

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