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Janina Dobrzańska (1919–2012)

With great sadness we say farewell to Janina Dobrzańska, a famous myrmecologist and ethologist, who left us on 11th February 2012, two years after death of her beloved husband, Jan Wojciech Dobrzański, also an eminent myrmecologist and a lifelong partner of her research.

Janina Dobrzańska (born Brun) was born in Warsaw on 27th April 1919 as a daughter of a famous couple of communist activists, Julian Brun and Stefania Brunowa (born Unszlicht). Her parents were active members of several communist parties, including two Polish ones, the Social Democracy of the Kingdom of Poland and Lithuania (SDKPiL), and the Communist Party of Poland (KPP). Julian Brun was also known for his literary achievements. During many years Polish journalists were awarded a prize in his name, and a street in Warsaw is named in his honor.

The childhood and young age of Janina Brun were very dramatic. In 1926, when still a small child, she had to leave Poland together with her parents who were persecuted for their political activities. The whole family emigrated to the Soviet Union, spending some time in the Free City of Gdańsk, Paris and Wien, and finally settling in Moscow, where Janina attended high school, graduating in 1937. Afterwards, she worked in many places, among others as a worker at a printing office, a taxi driver, and a driver of a dump truck during construction works at a quay. After the attack of Nazi Germany on Soviet Union in 1941, she served as a nurse in the Red Army, and then as a speaker and a typist in the Polish Radio in Moscow. In 1943 she graduated from the School of Military Mining, and then in 1943–1944 she fought in the Soviet partisan troop "Star" which operated in the western part of the Białystok region (Poland), acting as a mining instructor and a second in command of the Commissar of Youth Affairs. For her participation in anti-Nazi military resistance she was awarded several prestigious Polish and Soviet military decorations: the Cross of Grunwald, the Medal "Partisan of the Patriotic War" (1st class), and the Order of the Red Star. However, she was always reluctant to recall these difficult times. One of her rare recollections from that period illustrates very well how analytical was her mind even in these dramatic wartime conditions. During one of her actions as a partisan she became both extremely hungry and sleep-deprived. When she arrived at last to a safe place, she immediately fell asleep in spite of hunger. As she told us many years later, that experience taught her that the need of sleep may be more important even than hunger in driving human behavior.

At the end of WWII Janina Brun returned to Moscow to work as a secretary at the office of the Polish Workers' Party (PPR). When the war was over, she returned to Poland and became employed as an assistant and the head of a seminar group at the J. Marchlewski Central School of the Polish Workers' Party in Łódź. In 1946

she married Jan Wojciech Dobrzański, who also moved to Łódź at the end of WWII and was employed as a technician at the Regional Telephone and Telegraph Office.

In 1948 both Janina and Jan Wojciech started to study at the Łódź University of Technology. However, as they were both keenly interested in a wide range of matters, they also started to attend brilliant lectures of Professor Jan B. Dembowski, an eminent Polish biologist, zoopsychologist and protistologist, famous not only for his outstanding scientific achievements, but also for his exceptional skills in lecturing and popularization of biological sciences. Influenced by his captivating lectures, both Janina and Jan Wojciech decided to abandon technical studies in favor of zoology studies at the Faculty of Mathematics and Natural Sciences of the Łódź University. At that time Professor Dembowski worked both as the Head of the Department of Biology at the Łódź University, and the Director of the Nencki Institute of Experimental Biology. That famous institute, named in honor of an eminent Polish biochemist, Marceli Nencki, was initially located in Warsaw, but after the war it was temporarily transferred to Łódź, as Warsaw has been almost completely destroyed during the tragic Warsaw Uprising in 1944. Because of the double affiliation of Prof. Dembowski, after graduation Jan Wojciech Dobrzański was employed as his assistant first at the Department of Experimental Biology of the Łódź University (1951–1952), and then at the Department of Biology of the Nencki Institute.

Janina Dobrzańska graduated from the Łódź University in 1952, became Professor Dembowski's Ph. D. student (1952–1956), and in 1956 she also was employed at the Nencki Institute, which had been gradually transferred to its newly built premises in Warsaw in the years 1953–1955.

Janina Dobrzańska and Jan Wojciech Dobrzański remained employed and collaborated closely at the Nencki Institute throughout their entire scientific careers. Initially they worked under direct supervision of Professor Dembowski at the Department of Biology. In 1957 Janina Dobrzańska defended a Ph.D. thesis entitled „New data on ant ethology with a particular stress on the division of functions" and has been granted the Ph.D. degree. After retirement of Prof. Dembowski, both she and her husband became the members of the so-called "ethological team" at the Department of Biology of the Nencki Institute (1962–1964), later transformed into the Laboratory of Animal Ethology (1964–1970). In 1970 the Laboratory was closed and its members were transferred to the Department of Neurophysiology, where they continued ethological research. In 1976, Janina Dobrzańska received habilitation degree in natural sciences, with specialization in ethology, for a thesis entitled "Research on social parasitism in ants from the point of view of inter-specific adaptive behavior". In 1978 she received a long-term Nencki Institute's grant for research on „Innate and acquired social behavior of ants". Together with her husband, she continued to carry out the research sponsored by that grant throughout all remaining years of their work at the Nencki Institute. In 1982, when the Laboratory of Ethology has been restituted, this time within the Department of Neurophysiology, the Dobrzańskis joined its staff and remained in that Laboratory until their joint retirement (in 1989). In 1990 Janina Dobrzańska made another important contribution to the development of Polish ethology, becoming a member of the Founding Committee of the Polish Ethological Society (PTEtol.).

Janina Dobrzańska devoted her entire scientific career to the study of ant behavior. She worked either alone or in close collaboration with her husband. They left no direct scientific successors, but they were always willing to share their vast knowledge on ant behavior and methods and techniques used in ant research with their younger colleagues, in particular Julita Korczyńska, Anna Szczuka and myself. We are greatly indebted to them for their enthusiastic tutorship, and we are very proud and happy to have been able to learn ant lore from such experts and ant lovers.

The Dobrzańskis developed their own original approach to the study of ant behavior. They laid great stress on the importance of field research and on observations carried out in natural environment of the investigated ant species. During many years they carried out field research while living in a large camper trailer parked directly in the forest which facilitated their long-term observations. Their field research on ant behavior has been documented in two excellent documentary films, „Ant trails" (1956) and „Biologists" (1974).

The Dobrzańskis attached great importance to behavioral polymorphism encountered in ant colonies and to modifications of behavior arising in the course of worker ontogeny. Therefore, they were ardent advocates of monitoring behavior of individual ants. To that purpose, they developed a new technique of marking ants with rings made of fine metal wire placed on their legs and/or petiole (a narrow part of the body placed between the thorax and the gaster). This method provides permanent individual marking, allowing very efficient, long-term

tracking of behavioral modifications related to age and/or individual experience of the observed workers. This technique is still used by many myrmecologists, many of them unaware by whom it had been invented.

Ant research carried out by Janina Dobrzańska was limited to species encountered in Poland. Nevertheless, she studied numerous ant species, characterized by great morphological, ecological and behavioral variability. Her observations and experiments contributed to broadening of our knowledge of ethology of the formicine ants of the genera *Formica* (*F. cinerea, F. exsecta*, *F. fusca*, *F. polyctena*, *F. pratensis*, *F. rufa, F. rufibarbis, F. sanguinea* and *F. truncorum*), *Lasius* (*L. brunneus, L. niger* and *L. fuliginosus),* and *Camponotus (C. ligniperda).* She also studied behavior of the myrmicine ants of the genera *Myrmica* (*M. laevinodis, M. scabrinodis), Leptothorax* (*L. acervorum)* and *Tetramorium (T. caespitum).* However, she was fascinated above all by the behavior of the obligatory slave-making formicine ants of the species *Polyergus rufescens,* also known as the amazon ants. Together with her husband, she analyzed factors controlling the behavior displayed by these ants during their slave raids. On her own she observed their behavior in many other situations in order to evaluate the degree of functional degeneration resulting from their obligatory social parasitism. She also reported striking plasticity of some of their behavioral patterns, allowing them to adapt to the behavior of various species of their slaves.

Myrmecological research of Janina Dobrzańska also dealt with such important questions as individual differences in ant behavior, the role of innate and acquired factors in its ontogeny (in particular, in the ontogeny of aggressive, building, and transport behavior), species-specific limits of ant learning abilities, factors controlling persistence in maintaining particular activities, genesis of social parasitism, factors mediating foraging behavior and control of territory in various ant species, and the ability of ants to engage in true collaboration. She was often among the foremost researchers drawing attention of their fellow myrmecologists to important new questions and to whole new fields of research. In 1959 she published a paper devoted to the division of labor work in ants of the genus *Formica* in which she documented, as one of the first myrmecologists, the phenomenon of the so called behavioral reversion, i.e. the return of a forager to the developmental stage of a nurse in response to a modified social context. In the same paper she also reported classical, frequently cited data on the ontogeny of defensive behavior of workers of the species *Formica sanguinea*, mediated both by age-dependent internal factors, and by external factors and events. In her 1972 paper on polycalic (multi-nest) colonies of *Formica exsecta* she was among the first myrmecologists discussing the implications of that phenomenon for the evolution of ant social behavior. Her theoretical thinking about sources of individual differences in ant behavior had a largely precursory character in respect to the theoretical notions of elitism and tempo that were introduced later by other researchers. Along with her husband, she also frequently interpreted the observed behavioral phenomena in terms of response thresholds, a notion which now constitutes an indispensable element of modern theories of proximate causal factors underlying social behavior in insects.

During her whole scientific career Janina Dobrzańska worked in Poland, and almost all her widely known and highly appreciated papers have been published in Acta Biologiae Experimentalis that later changed its title to Acta Neurobiologiae Experimentalis (ANE). Her research gained worldwide recognition not only thanks to her publications, but also thanks to her correspondence with fellow myrmecologists who highly valued both her experimental research and theoretical ideas. Among others, a famous myrmecologist Edward O. Wilson, the founder of sociobiology, agreed with much of the argumentation provided by the Dobrzańskis in a polemical paper published in ANE (1989) in which they discussed some controversies concerning slave-raids of the amazon ants of the genus *Polyergus*. E.O. Wilson concluded that in light of their arguments these controversies remain still largely unsolved, and published this opinion as a reply paper in the same issue of ANE. International appreciation of the contribution of Janina Dobrzańska to the development of ant ethology may also be illustrated by her invitation to act as a single referee of the habilitation thesis (*doctorat d'état*) of dr Madeleine Meudec from the François Rabelais University in Tours (France), that was devoted to the phenomenon of social regulation in societies of the ant *Tapinoma erraticum* (1979).

Inevitably, some conclusions and hypotheses of Janina Dobrzańska proved later to be wrong. For instance, in one of her first papers (1958) she proposed a hypothesis that two tactics used alternatively by foraging ants, the site/route fidelity of individual foragers ["partition (= division) of the foraging grounds"], and the use of commu-

nication signals emitted by successful nestmate foragers ["conveying information about findings of food (discovered prey)"], are mutually exclusive. Now we know that both these foraging tactics may operate jointly. However, Janina Dobrzańska was never unhappy when her theories or conclusions were overturned as a consequence of advances in myrmecological research. On the contrary, she was genuinely glad that we came now closer to the truth and the correct answer to a difficult question. During last years of her life she was particularly happy to witness the progress in the field of comparative experimental studies of ant nestmate rescue behavior. During long years of field research she and her husband tried many behavioral tests, some of them very ingenious, to find evidence that ants may come to the rescue of trapped nestmates, but always with negative results. Therefore, she was overjoyed when at last it became possible to evoke and to study that elusive behavior not only in the field, but also in laboratory conditions. She was also very happy to witness that ant research carried out in the Laboratory of Ethology of the Nencki Institute attracts numerous young adepts desiring to study these fascinating animals.

Janina Dobrzańska was not only a highly motivated, original and creative scientist. During her whole life she also continued to act as a social activist always ready to intervene in defense of both human and animal rights. During the early post-war years she was a member of the Polish Workers' Party (PPR) (1945–1948) and then of the Polish United Workers' Party (PZPR) (1948–1953), but she withdrew her membership in that party already in 1953, and later on she became engaged in activities of the anti-communist oppositional organizations such as the Workers' Defense Committee (KOR), Independent Self-Governing Trade Union of Workers of Science, Technology and Education (NSZZPNTiO), and Independent Self-Governing Trade Union "Solidarity". Her involvement in these oppositional activities was focused above all on providing aid for victims of political repressions and their families, and she always opposed fervently and with exceptional courage all forms of social injustice and unethical behavior. In 1976, together with her husband, she took pains to write a sarcastic, passionate paper in defense of Konrad Lorenz and his book "On aggression", when it had been attacked by a Polish writer on ideological grounds and branded as "non-scientific". In that paper, entitled "Non-scientific critic", they mercilessly exposed and ridiculed all weak points of the unfortunate critic's reasoning.

Janina Dobrzańska was also a passionate advocate of animal rights, fighting uncompromisingly against any form of cruelty toward animals, including invertebrates. One of her last joint papers written together with her husband discusses ethical questions related to animal-man relationships in light of teachings of some of the great religions: Judaism, Christianity, Hinduism and Buddhism. She was very fond of her pet animals and always taught them to behave friendly towards all other living beings. During many years she was accompanied everywhere by her beloved St Bernard female dog Żaba ("Frog"), and during the last years of her life she enjoyed very much the company of her two cats.

Janina Dobrzańska spent last years of her long life surrounded by her loving family: son, daughter-in-law, four grandchildren, and three great-grandchildren. Their presence and love were the source of her greatest joy.

It is difficult to accept that Janina Dobrzańska is no more with us. We will remember her remarkable life, her scientific achievements, her courage, integrity and wisdom, and her constant readiness to intervene in defense of anyone wronged, be it a human or a humble ant.

Ewa J. Godzińska

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