



OBITUARY

ALEXANDR SERGEEVICH DANILEVSKI

On the 27th of March, 1969, there died unexpectedly of heart failure at his home in Leningrad, the eminent Russian entomologist and lepidopterist, Dr. Alexandr Sergeevich Danilevski. Dr. Danilevski was the leading experimental insect ecologist and physiologist of the USSR, a prominent systematist of the Lepidoptera, and an authority on the Tortricidae or leaf-rollers. He was Dean of the Faculty of Biology and Agronomy and professor of Entomology at the University of Leningrad.

Dr. Danilevski was born on the 4th of March, 1911, near the town of Mirgorod, in the district of Poltava in the Ukraine. His father was an agronomist; his mother, a school teacher, was the granddaughter of the great Russian poet, A. S. Pushkin. Even as a schoolboy he was attracted to natural history and became a familiar figure at the Poltava Museum and Experimental Station. After finishing high school in 1930 he remained in Leningrad to enter the Institute of Applied Zoology and Phytopathology, where he completed his studies in 1933 with excellent marks. At that time he was already an experienced faunist and systematist of Lepidoptera. He took a post at the

Federal Institute for Plant Protection, where he studied the problem of food specialization in insects. His first scientific paper, which dealt with the results of his study, was published in 1935.

In 1936, Dr. Danilevski became reader at the University of Leningrad; his connection with this University lasted throughout the rest of his life and his entire scientific career.

During World War II he volunteered for military service and took part in the heroic defense of Leningrad. After the war he returned to Leningrad University, first as reader in the Department of Entomology, and since 1955 as its head. In 1967 he was appointed Dean of the Faculty of Biology and Agronomy. Concurrently during these years, Dr. Danilevski worked at the Zoological Institute of the Academy of Sciences of the USSR, where he headed the Division of Lepidoptera. He maintained a very close contact with this Institute until the last day of his life.

Dr. Danilevski's work on Applied Entomology and Phytopathology directed his interest to acute problems of plant protection and so paved the way for his later great ecological work. He studied the ecological regulation of population density and of biological cycles of pests, starting with the interrelation between pests and their food plants. When he undertook a study of distribution and acclimatization of certain lasiocampid species in the USSR, he viewed the problem from ecological and physiological aspects. His analysis showed that limits of an area of distribution cannot be explained solely by the ecological requirements of active insect stages, but that the resting stages of the life cycle must also be taken into account. This conclusion awakened his interest in diapause and the factors regulating it. The results of his studies on reactivation and adaptation of stages in diapause have become fundamental for the understanding of many problems of ecology and zoogeography.

A new step in the development of insect ecology was provided by his studies on photoperiodical adaptations. The influence of day-length on insect development had been discovered at the beginning of the present century, but Dr. Danilevski was the first to realize the great importance of this aspect of the regulation of diapause, and of other cyclic seasonal phenomena. He showed the wide occurrence of the photoperiodic reaction in insects, demonstrated the diversity of its occurrence, and determined the geographical variability of the reaction and its dependence on temperature, food, and other factors of the environment. He was the first to study the hereditary, as well as many other aspects of the photoperiodic reaction. As the final result of his research, he defined the ecological mechanism of the regulation of the life cycle in insects. A theoretical conclusion of his research was his monograph and doctoral thesis: "Photoperiodism and seasonal development of insects" (1961), for which he was awarded a first prize by Leningrad University. This book has been published in translation in England and Japan, and is generally recognized as one of the classic works on invertebrate ecology.

To the end of his life Dr. Danilevski continued the study of photoperiodism and so erected a school of ecologists. In 1968 his pupils published a symposium entitled "Photoperiodical Adaptation in Insects and Acari," in connection with the XIIIth International Congress of Entomology.

He was also a talented and devoted teacher and had a large number of ardent pupils ranging from University lecturers and students to school teachers and school children, for all of whom he organized entomology classes.

At the same time, Dr. Danilevski was very active in the field of the systematics of Palaearctic Lepidoptera. When still quite young and under the influence of the Russian lepidopterist, N. N. Filipjev, he made special study of the Tortricidae or leaf-rollers and soon became a great authority on this group of Microlepidoptera. In all, he described over seven new genera and 60 new species, chiefly of the Tortricidae; he was also an authority on lepidopterous larvae. He edited the late A. M. Gerasimov's monograph on the caterpillars of the USSR and made many additions from his own

knowledge. He compiled keys to insect orders based on last larval stages, and published a fauna of dendrophilous larvae of Lepidoptera of the USSR.

In systematics, Dr. Danilevski applied not only the classical methods but used his fundamental knowledge of ecological data. All his purely taxonomical papers have an ecological approach, so valuable, but so often completely lacking in the work of others. This approach is evident in the recent (1968) monumental monograph on the tribe Laspeyresini of the USSR (tortricid fruit-borers), which was published by him and his pupil V. I. Kuznetsov. This is unquestionably the best treatise on the group to have appeared within the last hundred years.

The scientific merits of Dr. Danilevski have been acknowledged both in his own country and abroad. He was member of the Board of the Federal Entomological Society of the Scientific Advising Committee of Leningrad University, of the Zoological Institute of the Academy of Sciences, and of the Federal Institute for Plant Protection. He was also a member of the Editorial Board of *Entomologicheskoye Obozreniye* and of the international journal *Insect Physiology*.

Besides his scientific qualifications, Dr. Danilevski was a most amiable and kindly man, a lively and interesting companion, and a warmly sociable person. His so unexpected and much too early death cannot but be a severe loss for all his friends, students, and colleagues as well as for lepidopterology in the USSR and abroad.—A.

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MATING FLIGHT OF BUTTERFLIES WITH MIMETIC FEMALES AND NON-MIMETIC MALES

Although no records were kept and it is therefore impossible to cite precise dates and localities, the mating of the following five species has been observed with some frequency over a good many years. In all cases the female was the active partner and the nuptial flight took place in the afternoon, but earlier for *Hypolimnas misippus* L. than for the species of Papilionidae.

Papilionidae:

Papilio polytes L. Mysore, (S. India) and Ceylon, 1939

Papilio dardanus Brown. Rhodesia and East Africa, 1940–1968

Papilio echerioides Trimen. Kenya and Ethiopia, 1940–1968

Papilio jacksoni Sharpe. Kenya Highlands, 1955–1968

Nymphalidae:

Hypolimnas misippus L. East Africa, 1955–68, Aldabra Island, (Indian Ocean, March 1968)

The species listed above show very conspicuous sexual dimorphism, and there is no possibility of error. It is also logical that these species should be protected by exposure of the (mimetic) female pattern during the very slow and vulnerable mating flight. It is likely that most species with mimetic females and non-mimetic males behave in a similar fashion, but the matter requires further study.—R. H. CARCASSON, *Centennial Museum, Vancouver, British Columbia, Canada.*