

NEWS ITEMS

STEPAN ZENONOVYCH GZHYTSKYI – ON 125th ANNIVERSARY OF BIRTH

On January 14, 2025, we celebrate the 125th anniversary of the birth of Stepan Zenonovych Gzhytskyi, an outstanding Ukrainian scientist, educator, and founder of the Lviv School of Agricultural Animal Biochemistry. His scientific research and teaching significantly influenced the development of not only the university where he worked but also left a lasting mark on world biochemistry, laying the foundation for further scientific achievements in agricultural animal biological chemistry. The legacy of Stepan Zenonovych Gzhytskyi endures through his scientific school and numerous works, which remain relevant for veterinary medicine today.

The 125th anniversary of Stepan Gzhytskyi's birth is a wonderful opportunity to honor his immense contributions to world and Ukrainian science and education. His work continues to inspire new generation of scientists, scholars, and educator to pursue pioneering research. This is evidenced by the memories of colleagues who worked alongside Professor Gzhytskyi.

In 1985, a small book "Stepan Zenonovych Gzhytskyi" was published by Naukova Dumka, Kyiv, and the author of the introductory article and the compiler of the references was Vasyl Golovach – a representative of Gzhytskyi's scientific school. Professor Stepan Gzhytskyi was the first in Western Ukraine Corresponding Member of the Academy of Sciences of the Ukrainian SSR in the field of biochemistry, Academician of the Ukrainian Academy of Veterinary Medicine, Full Member of Taras Shevchenko Scientific Society, Honorary Member of the Association of Ukrainian Veterinarians of the USA and Canada, Honored Scientist of the



*Stepan Zenonovych Gzhytskyi,
(1900–1976)*

Ukrainian SSR, Doctor of Biological Sciences and Professor. His life path is an example of faithful, selfless service to science and his people.

Stepan Zenonovych Gzhytskyi was born on January 14, 1900, in the village of Ostrivets in the Ternopil region in the family of a village teacher. This region, its people and customs, and the people's desire for happiness were truthfully and deeply depicted in the works of his brother – the famous Ukrainian writer Volodymyr Gzhytskyi, who spent many years in Siberian gulags for his political activity. Among the heroes of his works, one can easily recognize their parents and little Stepan – the future scientist. His parents

had a huge influence on the formation of the worldview of the future researcher and his attitude toward work and people.

After graduating from elementary school in 1911, S. Z. Gzhytskyi entered the Ternopil gymnasium, but due to wartime hardships, he could only graduate in 1920. In 1923, he became a student at the Lviv Academy of Veterinary Medicine. As a student, Stepan Gzhytskyi attracted the attention of an outstanding scientist, Head of the Department of Medicinal Chemistry and General Pathology, Professor Wacław Morachevsky, and a friend of the famous Ukrainian writer Vasyl Stefanyk. In 1927, as a third-year student, Stepan Gzhytskyi began working as a deputy assistant at the department of the Medicinal Chemistry and General Pathology.

In 1929, after graduating from the Academy of Veterinary Medicine and receiving a diploma as a veterinarian, Stepan Gzhytskyi remained to work there as a senior assistant. Under the guidance of Professor Morachevsky, Stepan Gzhytskyi wrote

and defended his dissertation on the topic "On the influence of a one-sided and mixed diet and salt supplementation on some components of blood and urine". Having received a degree of Doctor of Veterinary Medicine, he continued his research work. Thanks to the recommendation of Professor Morachevsky, Stepan Gzhytskyi received a fellowship to work at the Veterinary Academy in Berlin, where during 1932–1933, he worked at the Biochemical Institute under the guidance of a well-known scientist Professor K. Neuberg.

In 1934–1935, Stepan Gzhytskyi studied the pathogenesis of paralytic myoglobinemia in horses, and on the basis of his investigations, he wrote the work "Study of the composition of blood and muscles in paralytic myoglobinemia" and received the title of the private associate professor. In 1935, he was assigned to lecture on biochemistry and elected as Head of the Department of Biochemistry at the Veterinary Academy in Lviv.

In 1937, Stepan Gzhytskyi went abroad for the second time, then to Vienna, where he conducted research in the small animal clinics at the Veterinary Institute. There, he deeply studied biochemical changes in the blood of animals, as well as in patients with leptospirosis. Returning from that business trip back to Lviv, Stepan Gzhytskyi worked as the Head of the Department of Biochemistry at Lviv Veterinary Institute, where he launched a large scientific, pedagogical and organizational work. In 1940, the Higher Attestation Commission of the All-Union Committee for Higher Education Affairs approved Stepan Gzhytskyi a scientific degree of Doctor of Biological Sciences and the academic title of Professor.

In 1951, Stepan Gzhytskyi was elected a Corresponding Member of the Academy of Sciences of the Ukrainian SSR and entrusted with the management of the laboratory of biochemistry of farm animals in the newly organized Institute of Agrobiology of the Lviv branch of the Academy of Sciences of the Ukrainian SSR. Later on, that laboratory was reorganized into the Scientific Research Institute of Agriculture and Animal Husbandry of the Western Regions of the Ukrainian SSR. The laboratory was mostly attended by the graduates of Lviv Zoo-Veterinary Institute, who were the students of professor Stepan Gzhytskyi. Together with their teacher, they began to work on the development of biochemical foundations for increasing the productivity of the livestock. In 1959, for his services in the development

of animal biochemistry, professor Stepan Gzhytskyi was elected a full member of the Ukrainian Academy of Agricultural Sciences.

On November 3, 1960, thanks to successful training of scientific personnel in the field of biochemistry by professor Stepan Gzhytskyi, the Council of Ministers of the Ukrainian SSR adopted a resolution on the establishment in Lviv of the Ukrainian Research Institute of Physiology and Biochemistry of Farm Animals founded on the basis of the Laboratory of Biochemistry of Farm Animals of the Institute of Agriculture and Animal Husbandry of the Western Regions of the Ukrainian SSR. Professor Stepan Gzhytskyi was the organizer and first director of the newly established institute.

The scientific activity of Stepan Gzhytskyi was developing in two main directions: 1) the study of biochemical processes in farm animals in connection with various diseases (i.e., issues of clinical veterinary biochemistry); 2) the study of the features of metabolism in various species of such animals (in particular, ruminants) in connection with their feeding, breeding, and exploitation to develop theoretical foundations for increasing their productivity.

The first scientific work of S. Z. Gzhytskyi on clinical veterinary biochemistry was devoted to the study of biochemical processes in horses suffering from paralytic myoglobinemia. Specific changes in the metabolism of creatine and phosphate were found, and it was suggested that the disturbances in chemical processes in the affected muscles were similar to those observed in monoiodoacetic acid poisoning. These studies coincided with the discovery by E. Lüntsgard (1930) of the possibility of muscle contraction without the participation of glycolysis. During the study of biochemical changes in the body of horses suffering from tetanus, Stepan Gzhytskyi discovered the main differences between muscles affected by tetanus and muscles affected by myoglobinemia. Expanding and deepening his experiments on metabolism in paralytic myoglobinemia in horses, a disease that caused significant economic losses, professor Stepan Gzhytskyi put forward his own theory of the origin of this disease and its pathogenesis. He proposed a new method of treating myoglobinemia using the hormone insulin, which is still widely used in animal husbandry. While studying muscle contraction, Stepan Gzhytskyi discovered the role of phosphorus compounds in muscles during work and under the influence of picrotoxin and adrenaline. He established that

changes in a number of biochemical indicators under the influence of adrenaline, as well as depending on the work and the direction of reactions, can be different and are determined by the degree of muscle glycogen supply. When studying changes in phosphorus compounds, particularly a decrease in their level during muscle contraction, Stepan Gzhytskyi already at the time explained it by the “careful coagulation” of fibers and the temporary attachment of phosphorus groups to muscle protein.

Stepan Gzhytskyi also paid attention to the study of metabolism and pathogenesis in equine encephalomyelitis, having discovered an increased content of ammonia in the blood. This gave reason to consider this condition as a consequence of impaired urea formation in the liver, which causes corresponding changes in the central nervous system.

The study of biochemical processes in sick domestic animals includes works on metabolic processes at colic in horses, leptospirosis in dogs, fasciolosis in sheep, puerperal paresis in cows, atony of the antrum in ruminants, chronic hematuria in cattle, etc.

Based on research into the characteristics of metabolism in ruminants, Stepan Gzhytskyi and his students studied the use of nitrogenous compounds in feeding, which is reflected in the monograph “Urea in the feeding of ruminants”.

Professor Stepan Grzytskyi was a dedicated and dynamic educator, fostering the development of numerous scientific personnel. Among his students were 14 doctors and about 50 candidates of sciences. His research initiated a new field – the biochemistry

of farm animals – which continues to be advanced by the Lviv school of biochemists, providing a theoretical basis for further development of animal husbandry in Ukraine. Until the last days of his life, professor Grzytskyi headed the Department of Biochemistry at the Lviv Zoo-Veterinary Institute and the laboratory of metabolism at the Ukrainian Research Institute of Physiology and Biochemistry of Farm Animals.

Professor Stepan Grzytskyi also carried out a public work. He was elected a deputy of the Lviv City Council of Workers' Deputies, Vice-President and Chairman of the Lviv regional branch of the Ukrainian Biochemical Society.

Stepan Gzhytskyi treated his students like a father, affectionately and always benevolently. He loved his students very much, and they responded to him with respect and a proper attitude towards learning, and the most important factor influencing students' learning was not fear of the professor, but his personality - intelligence and decency.

Naturally, an important question arises: what is the phenomenon of Professor Gzytsky? His phenomenon as a person, a scientist, lies in the inexhaustible supply of spiritual goodness. He was a good person, very good. He gathered around him talented youth and became the organizer of the Lviv biochemical school of farm animals leaving an important mark in biochemistry.

In 2020, the film “Stepan Gzycki: On the Tablets of Memory” was created.

Stepan Gzhytskyi died on August 19, 1976, and was buried at the Lychakiv Cemetery in Lviv.

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