

RYAZAN PHYSIOLOGIST OF THE RUSSIAN SCALE
(to the 90th anniversary of A.F. Belov)



Anatoly Fedorovich Belov was born on September 4, 1929, in Zarskoye of Moscow region. In 1947 after finishing secondary school in Moscow he entered Moscow Medical Institute of Healthcare Ministry of RSFSR which was transferred to Ryazan in 1950 in connection with the centenary of acad. I.P. Pavlov (1949) and was renamed into acad. I.P. Pavlov Ryazan Medical Institute (now acad. I.P. Pavlov Ryazan State Medical University).

Together with the medical institution a 3rd year student A.F. Belov moved to Ryazan. In 1953 he graduated from the institute with distinction. Upon graduation he continued his education on full-time doctoral programme at the Department of Normal Physiology of the same institute.

After 1956 A.F. Belov worked at the Department as an assistant, associate professor (after 1965), professor (after 1971), Head of the Department of Normal Physiology (1975-1999), and from 1999 to 2013 – professor. In 1985-1991 A.F. Belov was the dean of the Faculty of Pharmacy. In 1958 he defended dissertation for the Candidate's degree on the topic «About Characteristics of Excitation and Inhibition Processes in the Cerebral Cortex in Different Functional Conditions of Cortex in Dogs» and in 1970 – doctoral dissertation on the topic «Switching Function of the Brain and Extinctive Inhibition in Different Amount of Reinforcement».



Fig. 1. First graduates of acad. I.P. Pavlov Ryazan Medical Institute of 1953, (the third on the left is A.F. Belov, the rightmost is Yu.A. Andrianov, later a famous pulmonologist and Head of the Department of Hospital Therapy of the same institute)



Since 1953, in his research work A. F. Belov developed the issues of integrative activity of the brain and the systemic organization of complex forms of behavior in normal and stressful conditions, based on the research of the schools of I.M. Sechenov, I.P. Pavlov, A. A. Ukhtomsky, P.K. Anokhin, using the ideas of ethologists, cyberneticists, theories of open thermodynamic systems.

As the main experimental model A. F. Belov used the classic food secretory conditioned reflex of Pavlov. The main attention was given to the study of the role of reinforcement in the switching function of the brain with a wide involvement of mathematical methods (factor and full correlation analysis).

These studies permitted to formulate one of the principles of the systemic organization of behavior, to deepen our understanding of the mechanism of conditional inhibition. In particular, he described systemogenesis of extinctive inhibition with a stepwise, within weeks, reduction of the amount of the reinforcing food stimulus in dogs, and expanded the understanding within the biological theory of internal inhibition of P. K. Anokhin, with which the author of the theory of functional systems agreed in discussion of the materials of the doctoral thesis of Anatoly Fedorovich.

Professor A. F. Belov took an active part in the organization of the memorial Pavlov's readings (1979, 1984, 1989, 1994), he was one of the speakers on the development of the theories of the great scientist in the First Pavlov's readings.

Anatoly Fedorovich was one of the organizers of the Symposium dedicated to the memory of I.P. Razenkov (1988), and of the Russian-American Symposium dedicated to the memory of I.P. Pavlov (1994).

In 1989, at an extended meeting of the Scientific Council of the Ryazan Medical Institute in connection with the 140th anniversary of the birth of I.P. Pavlov, Anatoly Fedorovich made a speech in which he summarized the main scientific achievements of the Department in study of the systemic mechanisms of purposeful behavior of animals.

Professor A.F. Belov published more than 500 scientific papers. He is the author of 3 inventions, 1 proposal of useful model, 7 innovative proposals. He was the editor of 5 collections of scientific works of the Department, which are collective monographs. Under the guidance of professor A. F. Belov, 11 candidate's and 3 doctoral dissertations were prepared and defended.



Fig. 2. On the photo (1963) the first on the left in the second row is A.F. Belov, PhD, assistant of the Department of Normal Physiology of acad. I.P.Pavlov Medical Institute; the second on the left in the first row is Professor V.F. Shiroky (the leader and scientific consultant of A.F. Belov's dissertations); the third on the left is Professor A.I. Smirnov (a pupil to I.P. Pavlov and teacher of V.F. Shiroky)

In all levels of the organization of the academic process A.F. Belov promoted the ideology of integrative physiology: in preparation of the academic programs, textbooks, guidebooks on practical classes, of training aids.

Anatoly Fedorovich gave lectures on physiology to students of all medical faculties of the university. He arranged for printing of reference books, textbooks, methodological guidebooks. In particular, he is a co-author of «Program on Physiology for Students of Medical Institutes» (1982, 1989, 1996) and of «Program on Physiology for Students of Pharmacy Faculties of Medical Institutes» (1989, 1999).

He was the author of the «Biorhythmology» manual (Ryazan, 1985), a co-author of «Manual on Practical Classes on Physiology» (M.: Medicine, 1988), a co-editor of collection «Optimization of Academic Process on Physiology in Higher Medical Institution» (Ryazan, 1982), a co-author of «Dictionary of Physiological Terms» edited by acad. O.G. Gazenko (M.: Nauka, 1987), a co-author of textbook «Human Physiology» (edited by prof. V.M. Smirnov) for higher medical institutions which was reprinted 6 times.

A.F. Belov was a good organizer of the academic process. Owing to his efforts, the 2nd academic and methodological conference of Heads of the departments of normal physiology of higher medical educational institutions of the RSFSR was held in Ryazan on the base of the Department (1981). He made reports at the meeting of experts on the issues of physiology teaching of socialist countries (Kaunas, 1981), Prague – Czechoslovak Socialist Republic (1983). He took part in the organization of several academic and methodological conferences in the Russian Federation, the USSR and abroad as a member of Central Methodological Commission on physiology of Main Administration of Educational Institutions (MAEI) of the USSR, and later – as a member of the Central Academic Methodological Commission on normal physiology of the Scientific Methodological Center for continuous medical and pharmacy education of Healthcare Ministry of the USSR and the RF (Suzdal, Rostov the Great, etc.).

Anatoly Fedorovich participated in public work: from 1975 to 2013 he was a continuous chairman of Ryazan branch of acad. I.P. Pavlov Physiological Society.



Fig. 3. Members of Task Group of MAEI of the USSR on normal physiology on an excursion to the land of S. Esenin in Konstantinovo in 1982 (the second on the right – prof. A.F. Belov)

A.V. Belov assigned permanent attention to the history of physiology and medicine of Russia and of the Ryazan territory, he actively participated in publication of 5 volumes of «Reference Materials» of Ryazan Encyclopedia (1991-1995) and of 4 volumes of «Ryazan Encyclopedia» (1995-2002); was a scientific consultant on the book «In the Motherland of Academician Pavlov» by A.V. Chechneva (1989, 1999), on the book «Pavlov and Religion» by N.A. Zagrina (2001), a co-editor of 4 volumes of Ryazan Encyclopedia (1975-2002). From 1992 to 2010 he was the Chairman of Dissertation Defense Board on 2 specialties: «Physiology» and «Cytology, histology, cell biology» (from 1993) at acad. I.P. Pavlov Ryazan State Medical University, from 2010 – on specialty «Physiology», «Biochemistry» – Deputy Chairman of the same Dissertation Defense Board, a member of the editorial team of «Ryazan Encyclopedia» where he was responsible for «Healthcare and Medicine» section, a member of Task Group of RyazSMU «Physiology and Pathology of Nervous System and Analyzers»; a member of the editorial team of I.P. Pavlov Russian Med-

ical Biological Herald (from 1993); a member of Council of I.P. Pavlov memorial estate (from 1960).

For his great contribution to the development of higher medical education, significant achievements in scientific research of higher nervous activity of animals and humans, Professor A.F. Belov was awarded state awards: second-class medal of the Order of Merit to the Motherland (1999), medal for Valorous labor in commemoration of 100th anniversary of V.I. Lenin's birthday (1970), Excellent Worker of Public Health badge (1972), Excellence in the Work of Ministry of Higher and Secondary Education badge (1980), Commemorative medal of P.K. Anokhin (1986), Commemorative medal of AMS of the USSR For Development of Scientific Ideas of I.P. Pavlov (1989).

In 1995 Anatoly Fedorovich was awarded the honorary title «Honored worker of science of the Russian Federation», in 2000 he was elected a full member of the Russian Academy of Sciences and the Academy «Russian encyclopedia».

Employees of the Ryazan State Medical University, Ryazan physiologists with great warmth remember Anatoly Fedorovich Belov and his contribution to the formation and development of the University, as well as his scientific heritage, allowing to continue research in the field of systemic organization of purposeful behavior of animals and humans.

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