BORIS VLADIMIROVICH GNEDENKO (01.01.1912 – 27.12.1995)

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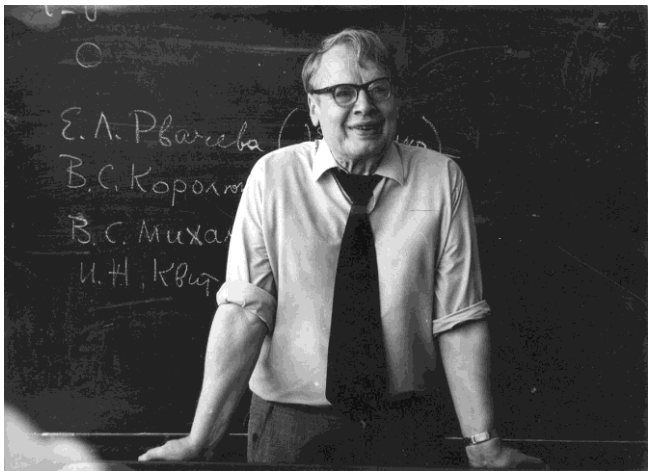
ABSTRACT

This article was published on journal «Markov Processes and Related Fields» (2014, Volume 20, Number 3). This article contain papers based on the talks given at the international conference "Probability Theory and Its Applications" (Moscow, June 26–30, 2012) in commemoration of the centennial of Boris Vladimirovich Gnedenko (01.I.1912 – 27.XII.1995)

One hundred years have passed since the birth of B.V. Gnedenko, the out- standing mathematician. B.V. Gnedenko's contributions to the general theory of asymptotic properties of distributions of sums and the maxima of sequences of independent random variables are known worldwide. His contributions to mathematical methods in the Queuing theory are essential to reliability re- search, especially in the area of the evaluation of reliability characteristics of technical units and complex technical systems. B.V. was the principal organizer of research in these areas of applied mathematics in our country.



Boris Vladimirovich Gnedenko

The interests and activities of B.V. delved far wider than these areas of his scientific research where he is well known due to important results. For example, besides numerous discussions of the principal problems in Reliability and Queuing, there were numerous aspirants (Ph.D. candidates) presenting their dissertation research at the special seminars held in the lecture room at the Laboratory of Probability at the Department of Probability Theory. B.V. Gnedenko together with Yu.K. Belyaev and A.D. Soloviev were the organizers of these seminars. The seminars hosted speakers from different universities and research institutes. Seminar discussions were interesting

and useful, with the large number of participants always filling the notably large lecture room designed for around 50 people.

Through his many papers, seminars and meetings he organized, as well as his presentations at major scientific conferences, B.V. has outlined the necessity of higher education and its role as a critical priority in conducting significant and efficient scientific investigations and engineering applications. He emphasized that in the process of enabling valuable higher education, the most talented students will be discovered and will form the next generation of significant researchers and teachers. Gnedenko's lectures and presentations at research seminars were amazingly transparent in presenting basic ideas for the audience.

B.V. inherited the ability to provide an elegant and accessible presentation of basic ideas from his teacher A.Ya. Hinchin. B.V. considered questions of mathematical education in elementary schools, high schools and universities in broad aspects that included the influence of this education on the formation of pupils and students with a scientific world-view. He also maintained that the elements of mathematical education naturally promote and facilitate students to develop their own critical thinking skills. B.V. believed that the mathematical education should be illustrated by real applications containing real empirical data related to the future profession of students. For example, at seminars for students of bio-medical professions, mathematical exercises should be illustrated by the application of mathematical methods to analysis of empirical bio-medical data.

The last years of his life have coincided with the disintegration of the Soviet Union and with deterioration of its educational system. B.V. expressed his concern over the hazards associated with the loss of the prestige of the teaching profession, and following loss of experience and educational traditions specific to the older generations of professors, teachers and researches at universities and research institutions. He pointed out that these hazards would lead to a long-standing trend of low modernization and slow development of the Russian economy because education and progress in sciences represent a key factor in successful development of a nation.

B.V. was interested in history of mathematics. In his work he often high- lighted history of scientific publications in the world and especially in Russia. In the book "Essay history of the Probability theory" he presented the history of the Probability theory as an evolution of the basic concepts: probabilities of events, random variables and their mathematical expectations. He showed that this approach to the historical analysis of the Probability theory is preferable because it allows to trace the evolution of all these basic concepts and, therefore, leads to their better understanding.

B.V. understood the importance of applying the results of mathematical theory to development of mathematics itself, as well as the growing importance of mathematics in other branches of science. The influence of this understanding is reflected in numerous contributions of the Department of Probability Theory in the Faculty of Mechanics and Mathematics at the Lomonosov Moscow State University while B.V. was the department head. Publications in prestigious academic journals, participation in research grants, as well as various remarkable mandatory and elective courses in probability and its applications offered in the department, show the high scientific potential of the members of the Department of Probability Theory at that time. In a photo taken on the occasion of the 50th anniversary of creation of the Department of Probability Theory (1985), we can see nearly all members of this Department.

From left to right there are: in the first raw, D.B. Gnedenko (the Department of Numbers Theory), Yu.N. Tyurin, N.G. Himchenko, Boris Vladimirovich Gnedenko, E.V. Bulinskaya, O.P. Vinogradov; in the second raw, M.V. Menshikov, B.A. Sevastyanov, Ya.G. Sinai, A.D. Soloviev, Yu.K. Belyaev, V.N. Tutubalin, E.V. Chepurin, T.N. Dugina, N.I. Cherevichkina, V.A. Lebedev; in the third raw, A.D. Ventsel, V.V. Kozlov, S.A. Molchanov, V.I. Piterbarg, N.P. Korovina, L.G. Afanasieva, F.I. Falin, V.A. Belyaeva, A.G. Diyachkov, E. Balasanova, G.V. Martynov, A.P. Makarov. It should be also added to the above list absent in the photo V.A. Malyshev, V.P. Nosko, N.V. Chistyakova and G.K. Nosko.

Benevolent, hospitable B.V. was ready to discuss scientific research with colleagues, from different parts of Russia and foreign universities, who were visiting the Moscow Lomonosov State University. He had been often invited and warmly accepted by the colleagues across the globe. During his conference trips, B.V. always used the opportunity to learn about different cultural and historical heritage, observing towns and nature in different parts of Russia and abroad. The list of such invited trips is impressive. B.V. liked such travels.

B.V. made a major contribution to organizing lecture series for engineers at the Moscow Polytechnic Museum. The main aim was to increase the qualification and capabilities of engineers to produce products of high quality and reliability. This activity was launched in 1961 when B.V. and engineer Ya.M. Sorin organized a Moscow seminar on the problems of quality and reliability. The authorities of the Moscow Polytechnic Museum offered rooms for consulting and lectures, and the so-called “Reliability Chamber” had been organized there. The series of books and booklets devoted to quality and reliability was issued by the publishing houses “Znanie” and “Soviet Radio”.

These publications were intended for a wide audience of engineers. Successful experience of "Reliability Chamber" attracted the attention of many foreign scientists.
Often scientists from different countries received get-to-know visits to "Reliability Chamber". Season tickets for a series of lectures devoted to methods of the Reliability and the Quality Control theories were distributed with the help of the "Reliability Chamber". Some of these lectures attracted 400 – 500 participants. Visiting lectures on these topics were also organized in different towns of the former USSR.

In February 1987 B.V.'s wife Natalia Konstantinovna Gnedenko died after a grave illness. She was his faithful friend and the love of his life. This doleful event proved to be fateful for his health. In 1988 he became seriously ill and had a complex surgical operation. The anxiety associated with the country- wide economic difficulties in higher education and scientific research during the transition to the market economy contributed to his health problems. In spite of all these problems B.V. continued to make notable contributions developing brand-new courses in his department and trying to accomplish publishing his numerous research ideas. In particular, he organized a new course in the Department of Probability Theory that detailed the study of insurance methods against different risks, which was an innovative step for Russia at that time. In the final years of his life, B.V. managed to prepare (together with I.A. Ushakov and I.V. Pavlov) two books devoted to applications of mathematical methods of evaluation reliability characteristics. These books were published in 1995 and 1999 by John Wiley publishing house. B.V. also prepared several other books for publishing and, with the help of his son Dmitry Borisovich Gnedenko, finished the memoirs. Dmitry managed to edit and compile the resulting 620-page book "My life in mathematics and mathematics in my life" which was published by the publishing house URSS in 2012 – the year of the 100th anniversary of B.V.'s birth. In his apartment, B.V. had collected a rich home library containing thousands of books reflecting different directions of research in Probability, Statistics and their applications. A part of this collection is gifted to the Library of Moscow State University.
In this short essay I have only reflected B.V.'s activity and contributions related to the Moscow period of his life from 1960. There was also an interesting and extremely fruitful period in Moscow and in Ukraine before B.V. and his family relocated in 1960 to Russia at the Lomonosov Moscow State University, where he was invited by A.N. Kolmogorov.

The rich inheritance, which B.V. left to us in his publications and in his students' works, will be useful to new generations of mathematicians. As an acknowledgement of B.V.'s scientific contributions, the International Conference "Probability Theory and Its Applications" was organized at Moscow Lomonosov State University in 2012. This conference was held in Commemoration of the Centennial of Boris Vladimirovich Gnedenko's birth. Hundreds of probability specialists, B.V.'s followers and former students have come to get together to remember the Teacher and to continue his good work.

B.V. GNEDENKO AND SOVIET PROBABILITY

In the period 1950–1980 any probability school in the USSR was somehow related to the name, works and personality of A.N. Kolmogorov. However, besides pure science, there always exists scientific politics initiated by some personalities. Kolmogorov, like any great scientist, did not participate much in this politics, being however an arbiter in some situations. Most political issues developed independently of his will. There were 4 main probability centers in the USSR of that time: Mathematical (Steklov) Institute in Moscow, its Leningrad and Novosibirsk branches, and the Department of Probability Theory in the Faculty of Mechanics and Mathematics at the Moscow State University (mechmath for short). I do not mention the groups in the Soviet republics like Kiev, Vilnius groups etc., most of which were under strong influence of the above mentioned groups. Steklov Institute controlled the central journal in the field — "Probability theory and its applications", and because of this its content concerned mostly several classical topics in probability, for example, sums of independent random variables. In mechmath the situation was quite different. This was a multipolar world with different and bright personalities, whose interests varied from pure and fundamental research to very applied, and who coexisted without big problems, in comfort and safety. This situation was very much due to Boris Vladimirovich who could patiently listen and accept different views on the science. Despite the occurring conflicts the atmosphere of good will prevailed in the Department of Probability Theory. B.V. Gnedenko was a wise leader and it was thanks to him that all appearing intrigues, quarrels and contradictions were quickly extinguished.

V.A. Malyshev