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SURVEY OF THE HISTORY OF EDUCATION IN PHYSICS IN BULGARIA

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The development of education in physics in Bulgaria is an inherent element of the complicated and contradictory process of incorporation of the Bulgarians into the European and world culture. Determination of maintaining the national originality and willingness to adopt the achievements of other countries and peoples are closely intertwined in this process. This paper aims briefly to describe the main patterns changing in the kaleidoscope of foreign influences on the education in physics in Bulgaria.

Having founded their independent state in 681, in 865 Bulgarians adopted Christianity from Constantinople and thus came into a contact with the highest Christian culture of that time, the Byzantine one. Rich literature written in Old-Bulgarian (=Church Slavonic) was created under the substantial influence of the Byzantine writers. Natural sciences (physics included) were given considerable place in these writings. In this respect, the books of Ioan Exarch the Bulgarian "Nebessa" (Heaven, ca. 893) and "Shestodnev" (Hexameron, beg. of 10th century) were of greatest importance. Ioan Exarch had used works of Byzantine theologians, mainly of Ioan of Damaskus, Basile the Great, and Severian of Gavalla, but he had taken the liberty much more freely to interpret the Bible's texts, and directly to use works of quite a number ancient Greek and Hellenic philosophers, first of all Aristotle and Plato.

In the Middle Ages transcripts of the books of the Bulgarian authors spread not only over the Bulgarian territory, but also in other Slav countries, Serbia and Russia, as well as in Valachia and Moldova. At the end of 14th century, however, when the Renaissance came on in Western Europe, the most tragic period of the Bulgarian history began. Bulgaria was conquered by the Turks and its natural development as European state was interrupted for almost 500 years.

In 18th century the ideas of the European Enlightenment began to penetrate the Balkan societies. As far as Bulgarians are concerned, it were the Greek Renaissance and the novel Greek schools that dominated this process. Natural sciences and especially physics had a place of honour in the novel Greek schools. Both eminent figures of the Bulgarian National Revival, which had first introduced physics in our school, had been former pupils of two of the best Greek schools: Peter Beron had studied in the Greek college in Bucharest. In 1824 he included a chapter entitled "Physical Stories" in his "Fish ABC book". In 1825 Ivan Seliminski, having finished the school in

Kidonia, first introduced physics as an independent subject in his Hellenic-Bulgarian school in Sliven. [1]

In the middle of the 19th century the Greek influence in Bulgaria began to fall and the influence of Russia and Western Europe began to grow up. As far as physics is concerned, three figures emerged in the first place: Dimitar Moutev, Nayden Guerov, and Ivan Bogorov. D. Moutev had finished the Odessa secondary school, and had studied in the Richelieu College in Odessa and in the universities of Bonn and Berlin. In 1842 in Berlin he defended the first Bulgarian thesis in physics "De Psychrometria". N. Guerov was the author of the first Bulgarian textbook in physics, designed for use in the novel Bulgarian primary schools, formed after the Russian model. He had graduated from the Richelieu College in Odessa. The first part only of his textbook (Mechanics and Acoustics) was published (Beograd, 1849), although the second part was prepared for publication too. When compiling the book, N. Guerov used the French textbook of C.S.M. Pouillet and the well-known Russian textbook of E. Ch. Lentz. I. Bogorov had also graduated from the Richelieu College. In 1860's he published in Bulgarian a number of interesting papers dealing with physical problems.

In 1869 and 1874 two complete textbooks in physics, intended for the first secondary schools in Bulgaria, were published: "Experimental Physics" of A. Ganot, translated from French by Joakim Grouev, and the original textbook of Ivan Guyouzelev, compiled from Russian and French textbooks. (I. Guyouzelev had graduated from the Novorossiyski University in Odessa.) [2]

Thus, already before the Liberation of Bulgaria in 1878, the education in physics in our primary and secondary school was successfully launched under Russian, French, and (much smaller) German influence. The higher education in physics, however, began to develop under West European influence. The role of Russia in this sphere was very small.

The first Bulgarian High School was founded in 1888 in Sofia. It gradually grew up into an university, similar to the West-European ones. Its Physical-Mathematical Section (soon - department) was founded in 1889. Almost all the professors, having taught physics at the Sofia University until the end of the First World War were German and French graduates. The first lecturer of physics, Emanouil Ivanov, had graduated from the Munich Polytechnics. The founder of the Chair of Experimental Physics, Porphiriy Ivanovich Bakhmetiev, born in Russia, in 1885 graduated from the University of Zurich (PhD, 1907). His successor Alexander Christov was a graduate of the Leipzig University (PhD, 1896). The assistant, later professor in the chair, Peter Penchev, had specialized in Goettingen, being a pupil of J. Stark, and in the Sorbonne. The Bulgarian scholar in celestial mechanics Kiril Popov had specialized in Munich, Goettingen, Nice, and Paris (PhD under A. Poincare, 1912). Ivan Tzenov, head of the Chair of Analytical Mechanics for

long years, had been pupil of P. Appell in Paris. The only Russian graduate among the professors in physics in the Sofia University in this period was the founder of the Chair of Astronomy Marin Bachevarov, a graduate of the Moscow University.

Between the two World Wars, the European influence on the development of physics in Bulgaria became stronger. (Physics became an independent discipline in the 20's.) All the Bulgarian leading physicists during that period had obtained and improved their professional skills in Western Europe: Elissaveta Karamikhaylova, who founded the first Bulgarian Chair of nuclear physics in 1945, had graduated from the Vienna University (PhD, 1922), and had worked for many years in the Vienna Radium Institute with H. Pettersson et al., and in the Cavendish Laboratory in Cambridge with E. Rutherford et al. Ivan N. Stranski, the founder of the Chair of Physical Chemistry (1925), had graduated from the Berlin University (PhD, 1925). The founders of the chairs of theoretical (1921) and technical (1945) physics Gueorgi Manev and Emil Dzhakov had also specialized in France (G.M., Toulouse) and Germany (E.D., Berlin). The heads during long years of the chairs of experimental physics Gueorgi Nadjakov and astronomy Nikola Bonev had specialized in Western Europe too: G. Nadjakov in Paris (with P. Langevin and M. Curie), and N. Bonev in Paris, Potsdam, and Berlin (PhD, 1927). A number of young assistants, later eminent Bulgarian physicists, also specialized in Western Europe during that period of time. [3]

After the Second World War, a number of new higher schools were founded in Bulgaria. Chairs of physics were created in many of them. In 1946 the Physical Institute at the Bulgarian Academy of Sciences and in 1962 the Department of Physics of the Sofia University were established. At the same time, however, the natural process of integration of the Bulgarian physics with the European and world physics was held up for a long period of time for political and ideological reasons. Bulgarian education and science had been one-sidedly bound for many years mainly with these in the USSR. The development of physics in Bulgaria during this recent period is a vast and complicated subject still expecting its objective study.

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