

THE WORK OF PROFESSOR OF FORENSIC MEDICINE N. S. BOKARIUS IN THE FIELD OF THE RESEARCH OF PHYSICAL EVIDENCE

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Abstract. *The article is devoted to the activity of the outstanding scientist and medicologist Nikolay Sergeevich Bokarius. The article considers the work of N. S. Bokarius on the study of physical evidence. The fundamental scientific works of N. S. Bokarius were analyzed. They contained many new at that time concepts on research of physical evidence.*

Keywords: *forensic medicine, criminalistics, physical evidence.*

Medicolegists - outstanding scholars and practitioners made significant contribution to the history of the formation and development of forensics and criminology. However, the medicologist and criminologist, Emeritus Professor N. S. Bokarius occupies a special place in the development of forensics and criminology. His works were in fact the first textbooks and practical guidance on criminology for employees of inquiry, investigation, forensic experts. One of the main directions of scientific activity of N. S. Bokarius was his work in the field of the research of physical evidence.

The aim of this article is to analyze scientific works of N. S. Bokarius devoted to the study of physical evidence to present the total value of the contribution of the scientist in the development of one of the most important issues for forensics.

N. S. Bokarius was born in 1869 in Odessa. After graduating from a high school in 1890 he entered Medical Faculty of Imperial Kharkov University, which he brilliantly graduated in 1895. As a student, N. S. Bokarius became interested in forensic medicine, in particular, he was interested in the study of physical evidence [1, 81].

In 1897 N. S. Bokarius started working at the Department of Forensic Medicine of Kharkov University. In the first years of work, he held a number of studies on the reaction of Florence, publishing his observations in Russian and

German magazines in 1900 - 1902. The result of this work was the doctoral thesis of N. S. Bokarius about "Florence's Crystals, their chemical nature and the value for the forensic medicine", which he defended at Moscow University in 1902 [2, 9].

His thesis N. S. Bokarius devoted to the determination of the chemical nature of Florence's microcrystals which are formed in aqueous extracts of "similar to seminal stains" mixed with iodine solution in potassium iodide. This reaction caused considerable disagreement among scholars as to its use as a sample of evidence for the presence of human sperm [3, 17].

In connection with the instability of Florence's Crystals, N. S. Bokarius developed methods of receiving them in quantities, sufficient for analytical purposes. In the matter itself he determined choline, which is formed during the decay of lecithin, widespread in the nature, especially in animal cells and plant bodies. As a result of his research N. S. Bokarius came to the conclusion that Florence's reaction is not specific for semen, so an expert in this case should not rely solely on this evidence of the guilt of a defendant, so Nikolay Sergeevich was able to give an affirmative answer to the existing at that time disagreements between scholars about the demonstrative value of Florence's Crystals during analyzing the seminal stains [4, 10].

In 1907 continuing the observations in the study of seminal stains, N. S. Bokarius published a work "On the microchemical reactions to the semen," in which he criticized the reaction of Barberio and offered his own reagent to produce crystals. These crystals are known in the literature as crystals of Bokarius [5, 19].

At the same time Nikolai Sergeyevich is working on a relatively new at the time question of determining the type of blood by hemoglobin crystals and in the work, published in 1902, he indicates that the best and more resistant hemoglobin crystals are obtained by adding to them acacia. In the same work N. S. Bokarius first describes hemoglobin crystals of birds' blood [6, 13].

One of the most significant works of N. S. Bokarius in the study of physical evidence was his work "On the Importance of strangulation furrow at hanging", which was published in 1904. Nikolay Sergeevich devoted this work to the

microscopic diagnosis of a strangulation furrow at hanging. The author paid attention to the differential diagnosis of in vivo and posthumous character of the strangulation furrow, where one of the main signs, he believed, was peculiarity of the blood supply of the area of soft tissues at the place of strangling. Judging by the analysis of scientific research conducted by the scientist, the question of differential diagnosis of in vivo and posthumous character of the strangulation furrow was poorly investigated and particularly relevant, and works on this subject had been published mainly abroad. N. S. Bokarius described peculiarities of blood distribution in a strangulation furrow, which allowed to differentiate clearly its in vivo character. In addition, he developed a methodology for the study of furrows, which later became known as "Bokarius's test" and is widely used by forensic experts nowadays [3, 22].

It should be emphasized that this work, as well as many other works of N. S. Bokarius was characterized by a deep scientific analysis of works on the subject, made earlier by other scientists. Nikolay Sergeevich gathered a huge library of world literature on forensic medicine and criminalistics, which, along with knowledge of 17 foreign languages helped him in a thorough analysis of the literature [2, 10].

The great importance which N. S. Bokarius attached to work with physical evidence, is demonstrated by the fact that his first significant work as the head of the University Department of Forensic Medicine, he devoted precisely to this subject, by publishing in 1910 a guide for physicians, pharmacists and students - "Forensic microscopical and microchemical study of physical evidence." [3, 25]. In the epigraph to this paper N. S. Bokarius wrote: "In order to facilitate the work of those who will have to deal with this kind of research, I decided to release the present book - the first experience of such work in our literature." [7, 2] In this guide with comprehensive at that time completeness were represented the rules for the use of the microscope and spectroscope, use of microscopy in forensic practice at the study of a wide range of objects as physical evidence, many of which have not lost their importance at the present time. Although N. S. Bokarius called his book a guide for doctors, students and pharmacists, it also helped a lot to investigators. It examines the methods of research not only of traditional forensic objects (blood, saliva, seminal

stains, hair), but also objects related to medicine, in particular plant fibers. The author did not leave aside the organizational aspect of microscopical and microchemical research of physical evidence as well. For a long time it was the only guide for the forensic examination of physical evidence and was required to read by everybody who worked in this area [4, 11].

In 1913 and 1914 N. S. Bokarius published works in which he proposed a new method for producing Teyhmann's crystals at the study of blood stains [5, 18].

In 1915 N. S. Bokarius offers his own reagent to form a solution of hemochromogen at the study of blood stains [4, 11].

Paying great attention to the study of physical evidence in order to facilitate the work of the students at the study of this section in 1916, N. S. Bokarius published separate editions of "Guidance for practical work ..." to study blood stains, hair, fibers and feathers [2, 10].

Throughout his long-term activity N. S. Bokarius performed about 5000 examinations on research of physical evidence. In his work the scientist held the opinion that only the experience of the practical activity is not enough to prove conclusions on this or that matter. Every phenomenon, every fact must be studied scientifically and, where possible, confirmed experimentally. Only data derived from accurate observations, experimental studies and practical cases can serve as a basis for a conclusion on various issues of forensic practice [5, 19].

Scientific works of N. S. Bokarius on the research of physical evidence have become an invaluable heritage of his fruitful scientific activity. They have left their mark in the educational and medical literature to the present day, contributed to the development of forensic medicine and criminalistics, provided invaluable assistance to the law enforcement bodies in solving crimes against life and health of the individual.

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Работа профессора судебной медицины Н. С. Бокариуса в области изучения вещественных доказательств

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Резюме. Статья посвящена деятельности выдающегося ученого судебного медика и криминалиста Николая Сергеевича Бокариуса. В статье рассматривается работа Н. С. Бокариуса по изучению вещественных доказательств. Проанализированы фундаментальные научные труды Н. С. Бокариуса, в которых содержатся многие новые на то время концепции по исследованию вещественных доказательств.

Ключевые слова: судебная медицина, криминалистика, вещественные доказательства.

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Робота професора судової медицини М. С. Бокаріуса в галузі вивчення речових доказів

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Резюме. Стаття присвячена діяльності видатного вченого судового медика і криміналіста Миколи Сергійовича Бокаріуса. У статті розглядається робота Н. С. Бокаріуса з вивчення речових доказів. Проаналізовано фундаментальні наукові праці Н. С. Бокаріуса, в яких містяться багато нових на той час концепцій з дослідження речових доказів.

Ключові слова: судова медицина, криміналістика, речові докази.

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