

REVIEW ARTICLE
PRACA POGLĄDOWA

THE PROCESS OF SCIENTIFIC KNOWLEDGE INTEGRATION IN CRIME PREVENTION AND TRENDS OF MEDICAL CRIMINALISTICS DEVELOPMENT IN UKRAINE IN XIX – EARLY XX CENTURY

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ABSTRACT

The aim: To carry out a historical review of the formation and development of medical forensics in the XIX – early XX century in Ukraine, as well as to identify its trends at the present stage.

Materials and methods: The article is based on the study of archival and published materials, the results of integrating expert judgments, judicial practice and regulatory acts of the Ministry of Health of Ukraine, interviewing investigators and court experts. In the course of the research a system of scientific methods has been used: historical, comparative, terminological analysis, formal-logical, sociological.

Conclusions: In the XIX and early XX centuries, the foundations for the formation of medical criminalistics were laid, which facilitated the development of forensic medicine, criminalistics and forensic examination. Special medical knowledge is widely used in investigative, judicial and expert practice. The synthesis of medical and forensic knowledge enhanced the development of a method of personal identification, based on his/her genetic properties, the formation of molecular genetic examination, the study of individual objects at the modern level.

KEY WORDS: Medical Criminalistics, criminalistic knowledge, medical knowledge, Forensic Sciences, Forensic Medicine, molecular genetic expertise

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INTRODUCTION

An important trend of Criminalistics, as a system of scientific knowledge, is its integration, which helps to find optimal solution to the problems of crime prevention. Integration processes in criminalistics are connected with the convergence of sciences, along with opposing trends of differentiation [1] Criminalistics is a special science, which emerged due to the implementation of the achievements of natural, engineering and other sciences (physics, chemistry, biology, toxicology, medicine, pharmacology, psychology, mathematics, etc.) in the practice of combating crime [2].

The development of criminalistics in different countries of the world can be traced in its directions or in the formation of independent academic disciplines – Forensic Toxicology, Forensic Chemistry, Forensic Medicine, Forensic (Criminal) Psychology, Forensic Pharmacology and Forensic Sciences.

The history of borrowing medical knowledge (knowledge of doctors) for forensic purposes is quite interesting. E. Knobloch aptly notes that close cooperation of doctors and criminalists, mainly in the course of collecting material evidence and its evaluation, led to the fact that doctors had to apply their professional knowledge in accordance with the objectives of criminal tactics, and therefore had to improve knowledge in this direction and develop it in detail.

Thus, according to the scholar, a new, special branch of forensic science that can be called Medical Criminalistics, emerged. The work of a forensic doctor in this direction became extremely important, since the times, when forensic medicine limited its activity only to the answers that doctors provided in courts, as experts, were over [3].

THE AIM

To carry out a historical review of the formation and development of medical criminalistics in the XIX – early XX century in Ukraine, as well as to identify its trends at the present stage.

MATERIALS AND METHODS

The article is based on the study of archival and published materials, the results of expert judgment analysis (75 conclusions of forensic medical examinations were studied), judicial practice (electronic registry analysis) and normative legal acts of Ukraine (the normative regulations, which regulate forensic medical research, involvement of specialists-doctors and forensic experts), interviewing investigators (120 investigators of pre-trial investigation institutions) and court experts (82 persons).

In the course of the research a system of scientific methods was used: historical, comparative, terminological analysis, formal-logical, sociological.

REVIEW AND DISCUSSION

Medical Criminalistics reflects a specific link between the knowledge of forensic medicine and the theory of judicial evidence. S. Potapov noted that the subject of forensic research includes any objective and real facts of living reality, which, according to the theory of evidence, may be used as judicial evidence [4].

In contemporary literary sources there were discussions about the attempt to single out "evidence-based forensic medicine". According to scientists, "Evidence-based forensic medicine can be considered as a subdiscipline of forensic medicine. It develops and applies specific methods of expert observation (forensic technologies), which enable experts to draw real conclusions, minimizing the number of systematic and accidental mistakes" [5].

Medical Criminalistics is a complex field of knowledge used in the course of legal activity – the disclosure and investigation of crimes or criminal proceedings. The use of the Medical Criminalistics data is related to the study of specific material evidence in criminal proceedings, the effects of mechanical, electrical, ballistic, or other influence on the person and his/her body; solution of complex medical criminalistic problems in the course of investigating serious and particularly serious violent and other crimes (murder, rape, serious bodily injury, terrorist acts, etc.), the need for professional assistance to investigators, prosecutors or court specialists, doctors, forensic experts and in the course of conducting specific investigatory (search) or judicial actions. Medical Criminalistics is a system of scientific knowledge based on the identification (or diagnostic or situational) research of objects – living persons, corpses (parts of them), material evidence.

The terms "Forensic Medical Criminalistics" and "Medical Criminalistics" are used in the current legal act – Decree of the Ministry of Health Care of Ukraine №6 of January 17, 1995 (registered by the Ministry of Justice of Ukraine on July 26, 1995 under No. 248 / 784) "On the Development and Improvement of the Forensic Medical Service of Ukraine" and Regulations for the Presentation of Forensic Medical Examination (Researches) in the Departments of Forensic Medical Criminalistics of the Bureau of Forensic Medical Examination. In particular, § 1.2. of the Regulation states that examinations in the department are conducted with the purpose of determining the tools of the trauma, their differentiation and identification on the basis of studying body injuries, clothing, and footwear of the victim. In addition, the examinations are carried out in order to identify the person, determine the nature and elemental composition of micro-objects, traces, overlays, reconstruction of the situation, in which the injury was inflicted. § 1.3. of the Regulation emphasizes that knowledge in the field of medical forensics is used to achieve the goal and special laboratory research methods (anthropological, biophysical, technical, photographic, X-ray, spectral, mathematical, computer, etc.) are applied. In this regard Trace Evidence Examination (researches of traumas, weapons, guns and implements of injuries) (clause 2.2.1.); Examination of Firearms Injuries (Ballistic) (clause 2.2.2.);

Person Identification Examination (Osteological and Anthropological) (clause 2.2.3); Micrological Examination (Micro-deposit Research and Elemental Composition of Objects of Forensic Medical Examination)) (paragraph 2.2.4.) [6] are distinguished.

The use of special medical knowledge in criminal proceedings has a long history. H. Gross emphasized that knowledgeable professionals, whose conclusions often have a decisive influence on the case, provide the most important aid, available to a forensic investigator [7].

The definition of experts was provided in the Statute of Criminal Proceeding (1864). Art. 325 of the statute states that knowledgeable professionals are involved in cases, when special expertise or experience in science, art, crafts, industry or an occupation are needed for understanding the case circumstances. Article 326 of the Statute states that doctors, pharmacists, professors, teachers, technicians, artists, artisans, treasurers and persons who have received special experience as part of their occupation or service can be involved for these purposes [8]. The trust to knowledgeable individuals as reliable sources of special information in the public consciousness is formed as they gain the reputation of people who honestly and professionally fulfill their duty. Distinterestedness of the knowledgeable professionals in the case and their competence became, of course, the most important qualities that the professionals should have... [9]

The formation of medical criminalistics is related to the practice of involving specialists in the field of medicine, medical officers in the investigation of crimes, conducting expert examinations (crime scene examinations, surveys, necroscopy), as well as conducting special blood, saliva, sperm tests, hair analysis, etc. Scientific synthesis and thesis defense are important in this sense. In particular, this concerns the presentation of the Master thesis by a well-known lawyer, specialist in the field of criminal proceedings L. Vladimirov "On the Value of Medical Doctors as Experts in Criminal Proceeding" (1869) [10]. In that period, doctoral dissertations were defended by representatives of the Imperial Kharkov University, specialists in the field of medicine: F. Han as an anatomist of the Anatomy Department "On Forensic Medical Examination of Bloodstain Patterns" (1866); M. Obolonskiy as an anatomist of the Forensic Medicine Department "On Hairs in Forensic Medical Value" (1886); S. Dvornichenko as privatdozent of Forensic Medicine Department "On the Question of Differences in the Blood of Human and Animal in Forensic Medical Value" (1893); N. S. Bokarius as an anatomist of the Forensic Medicine Department "Crystals of Florence's Chemical Nature and Forensic Medical Value" (1902).

Well-known scientific works of N. S. Bokarius: "On Importance of Ligature Strangulation during Hanging" (1904); Forensic Medical Microscopic and Microchemical Examination of Material Evidence (1910); Forensic Medicine in Noted to Lawyers (1915); Priority Simple Examination of the Dead Body during the Militiaman and Intelligence Inquiry (1925); Simple Examination of the Dead in the Crime Scene or its Recognition (1929) etc. are

examples of the development of both Forensic Medicine and Medical Criminalistics.

N.S. Bokarius' scientific interest in forensic medicine regarding the study of material evidence was also reflected in the works of his colleagues, which were carried out under his direct supervision in the early XX century. (18 works, which belong to this section). This applies to the study of blood spots (N. Asvadurova, NN Bokarius, A. Borakovskiy, S. Kaplan, V. Krainskaya-Ignatova, V. Rabinovich, R. Rosenberg), sperm spots (A. Borakovskiy, etc.), hair (N.N. Bokarius, A. Domantovich, N. Ivanitskiy, Y. Tokarev) [11].

The development of medical criminalistics promoted the formation of the theory and practice of forensic examination, creation of special scientific institutions for the implementation of expert functions, the development of scientific and technical methods and approaches to investigating crimes, "for conducting various kinds of scientific and technical research in court cases" [11]. In particular, Offices of Scientific and Forensic Examination in Ukraine were established in Kharkiv, Kyiv and Odesa (Decree of the Council of People's Commissars of the Ukrainian Social Soviet Republic dated July 10, 1923). At the same time, the initiative to create such offices was launched by a famous forensic medicine expert, Professor N. S. Bokarius. It is noteworthy that at that time offices provided for four sections: 1) chemical and physical-chemical research; 2) forensic photographic research; 3) forensic macro- and microscopic research; 4) person identification [12].

The development of the institution of special medical and forensic knowledge, their role in investigating crimes has been confirmed by investigative practice. The results of questioning the investigators of the bodies of pre-trial investigation of the Ministry of Internal Affairs of Ukraine show that in the process of investigating such categories of crimes as serial sexual sadistic murders it is expedient to appoint a forensic examination: forensic medical (indicated by 90, 5% of respondents); forensic psychiatric (indicated by 74, 3% of respondents); forensic biological (indicated by 66, 7% of respondents); forensic psychological (indicated by 55, 2% of respondents); fingerprint exam (indicated by 46, 7% of respondents); forensic sexological (indicated by 40% of respondents); trace examination (indicated by 34, 3% of respondents); forensic portrait examination (indicated by 29, 5% of respondents); forensic pedological (indicated by 26.7% of respondents); psychophysiological (indicated by 25, 7% of respondents); DNA fingerprinting (indicated by 23.8% of respondents); forensic ballistic (indicated by 12.4% of respondents); forensic botanical (indicated by 7, 6% of respondents); etc (4, 8%) [13]. At the same time, 82% of respondents consider it necessary to conduct complex medical and criminalistic examinations.

The foundations of medical criminalistics are reflected in modern forensic research studies – identification of a person on the basis of his/her genetic properties, molecular genetic examination. Today there are new technologies for determining the molecular genetic structure of samples using different methods [14]. I. Perepechina emphasizes that one of the most important achievements in the field

of forensic identification over the last three decades is the development and introduction of DNA research methods into practice of the disclosure and investigation of crimes [15]. I. Soltyszewski writes that over the past 25 years, the results of DNA research have taken central stage among important pieces of evidence ... At present, the possibility of using the method of DNA profiling to investigate crimes is widely discussed, that is, to obtain information on the offender's phenotype, his/her race, eye and skin colour etc. The efficiency of this process implies the creation of national DNA databases, international cooperation in the field of DNA data exchange. In practical terms, European standards for these studies are being established and requirements for expert laboratories are being set out. [16]. Genotyposcopic research is relevant in the context of Russia's armed aggression against Ukraine, which necessitates identification of dead soldiers and civilian casualties.

The study of individual biological objects at the micro-or ultraspectral levels (for example, human hair analysis) should also be taken into consideration for identification purposes. This refers to modern scientific achievements in the USA [17]. At the present stage, the formation of the so-called forensic (criminalistic) archeology – a field of knowledge based on methods of forensic science, medicine and archeology – is being developed to help obtain data and extract evidentiary information from excavations after significant time intervals (Great Britain, Poland, USA). Researchers have already started discussing the problems of forensic archeology at international scientific events [18].

CONCLUSIONS

In the XIX and early XX centuries, the foundations for the formation of medical criminalistics were laid, which facilitated the development of forensic medicine, criminalistics (forensic science) and forensic examination. In fact, at that time the scientific school of Prof. N. S. Bokarius was created. Special medical knowledge is widely used in investigative, judicial and expert practice. The formation of medical criminalistics is connected with the necessity of involving experts in the field of medicine to investigate crimes, carrying out special blood, saliva, sperm, hair tests etc. The synthesis of medical and forensic knowledge enhanced the development of a human identification method on the basis of his/her genetic properties, the development of molecular genetic examination, the study of individual objects at the modern level. The use of medical and forensic knowledge has also led to the formation of Forensic (Criminalistic) Archeology.

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