

Modern Achievements of Forensic Expert Industry in Ukraine

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Forensic industry in Ukraine is constantly developing, despite stormy challenges of our time. Ukrainian statehood has been courageously resisting ruscist invaders for more than a year, civilians strongly support the Armed Forces of Ukraine and hold economic, scientific, educational, cultural and other fronts. Not just keep, but develop all field of life for post-war reconstruction of Ukraine. Despite the martial law, recently forensic industry of Ukraine has been marked by a number of new achievements that improve quality and increase efficiency of forensic expert researches.

In the scientific world, any innovation or exploration, any research or development, any experiment or test should first be tested at theoretical stage, offering colleagues relevant presentations and publications, speeches at conferences, symposia, Round Tables and other similar events. Research Paper Collection: *Theory and Practice of Forensic Science and Criminalistics* is a traditional platform for raising modern theoretical and applied issues of criminalistics, various types of forensic science, application of specific expertise in legal proceedings, issues of legal education and training of forensic experts, a platform known in legal environment for checking the latest developments, modern concepts, innovative scientific ideas and the most daring projects.

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It is worth noting that the 30th issue of the collection also marks the 100th anniversary of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», founded in 1923 as the Cabinet of forensic science under leadership of Mykola Serhiyovych Bokarius. On the initiative of M. S. Bokarius in 1925, the Cabinet was reorganized into the Institute of forensic science, that he invariably headed during 1925–1931. The purpose of creating such cabinets is formulated very briefly: “For conducting various kinds of scientific and technical experiments in legal cases”¹.

After his death, the Kharkiv Institute of Scientific Forensic Expertise was named after M. S. Bokarius (nowadays: *National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»*, later: *NSC «Hon. Prof. M. S. Bokarius FSI»*) which all the employees of the Center are proud of to this day.

NSC «Hon. Prof. M. S. Bokarius FSI» has become a center of scientific research development in the field of forensic expertology in Ukraine, its employees actively apply modern techniques and technologies, use the latest methods and techniques and exchange experience with foreign scientists and forensic science institutions.

One of the examples of fruitful cooperation with foreign colleagues was recent cooperation with representatives of *Panacea Cooperative Research* (Spain) regarding possibilities of use software for identification of a person using *Skeleton•ID* (craniofacial overlay, face comparison, biological profiling and comparative radiography) by employees of NSC «Hon. Prof. M. S. Bokarius FSI». The *Skeleton•ID* forensic identification software is actively used by law enforcement and

government agencies around the world when identification investigations cannot be conducted in any other way.

Using *Skeleton•ID*, a person can be identified within seconds (previously it took hours or even days): the patented technology automatically compares several skulls, bones and faces at the same time. The software can be used to search missing persons databases or to compare unidentified remains in mass graves.

Panacea Cooperative Research representatives offered to train Center specialists to use this software. Application of the tandem available at NSC «Hon. Prof. M. S. Bokarius FSI» of the Artec Leo 3D scanner and the *Skeleton•ID* software will contribute to solving extremely complex tasks of forensic researches. The support of international partners and institutions in the forensic field of Ukraine is very valuable, especially in conditions of full-scale Russian aggression against our State.

In the context of the above, it is also worth paying attention to genetic-molecular researches. Highly qualified scientists and forensic experts of NSC «Hon. Prof. M. S. Bokarius FSI» are able to solve any issues related to the identification of a person and DNA analysis. Experts do not just conduct research; they help to find answers to important questions that can be crucial for individual citizens and justice in particular and society as a whole. Thanks to advanced equipment and the latest technologies, the experts of the Center quickly and accurately identify and compare genetic profiles, that ensures the reliability of results and contributes to adoption of fair decisions in complex cases.

The list of molecular-genetic researches currently under the control of NSC «Hon. Prof. M. S. Bokarius FSI» professionals are

1 Положення про кабінети науково-судової експертизи : затв. Постановою РНК від 10.07.1923 р. (зі змін. та допов.). URL: https://ips.ligazakon.net/document/view/kp230010?an=2&ed=1925_04_25 (date accessed: 06.03.2023).

quite long: genotyping for identification of a person; determination of paternity; establishment of genetic characteristics (DNA profile) of a sample of buccal epithelium; identification of persons based on traces of biological origin, removed during the inspection of the scene of the incident, etc. For carrying out researches NSC «Hon. Prof. M. S. Bokarius FSI» uses all possible advanced methods and works according to international standards.

International standards at the Center should be followed as while forensic researches as in publishing activities. Traditionally, we draw the attention of our authors and readers to the list of online databases where Research Paper Collection: *Theory and Practice of Forensic Science and Criminalistics* is indexed. Currently, the list covers the following bases: *Academic Scientific Journals Indexing*, *Bielefeld Academic Search Engine (BASE)*, *Directory of Open Access Journals (DOAJ)*, *Directory of Open Access Scholarly Resources (ROAD)*, *Directory of Research Journals Indexing (DRJI)*, *ERIH PLUS*, *Eurasian Scientific Journal Index (ESJI)*, *Europub*, *Index Copernicus International*, *MIAR*, *Polska Bibliografia Naukowa*, *RefSeek*, *ResearchBib*, *Ulrich's*, *Google Scholar* and Register of Scientific Publications of Ukraine. Full-text online versions of the collection are available on the Internet on the platforms of V. I. Vernadskyi National Library of Ukraine libraries of forensic institutions of the Ministry of Justice of Ukraine, higher education institutions of the Ministry of Internal Affairs of Ukraine, etc. The collection is indexed on the website of the DOI Foundation. All this contributes to exchange of best practices between the collection authors and scientists of the world.

Turning directly to the content of the issue № 30 of *Theory and Practice of Forensic Science and Criminalistics*, we will review

the main article provisions placed in. Traditionally, collection content is divided into two main groups: Research Papers and Case notes.

The Research Paper section begins with the *Forensic Science and Forensic Expert Activity: a View Through the Prism of Forensic Experts' Opinions* article by **Valery Shepitko** (Ukraine) Doctor of Legal Sciences, Professor. The article purpose is determined by the need to outline directions for forensic science development in Ukraine in modern conditions and to optimize forensic expert activity, as well as to determine ways to improve expert practice by summarizing opinions of forensic experts. The author raised the issues of forensic science regulatory framework; substantiated the need to unify provisions regulating the conduct of forensic examination; analyzed the means of carrying out forensic science activity (methods, techniques, technologies); noted the importance of cooperation between forensic expert institutions of Ukraine within the European Network of Forensic Expert Institutions, etc.

The next article (in English) is *Revealing Red Flags of Insurance Fraud: A Case Study Research of PT Jiwasraya Indonesia* by **Wahyu Alimirruchi** and **Anis Chariri** (Indonesia) (Example of *PT Jiwasraya Indonesia*). The authors argue that since insurance companies are prone to fraud due to high profitability, certain signs of fraud need to be identified to help its detection. Studying the cases of *PT Asuransi Jiwasraya (Persero)* from 2006 to 2020, researchers found that during this period there were cases of mega-fraud (corruption, misappropriation of assets, fraudulent financial statements). Indicators of risk ("red flags") about improper disclosure of information are the opinion with a refusal to express the opinion of the Audit Council of the Republic of Indonesia, the

negative opinion of PwC and bankruptcy of 2002 and 2004. Such indicators were the facts regarding the time difference: the *Jiwasraya* company bought the shares of the second and third echelons until the end of the quarter of 2019 to resell them on 02.01.2020. These facts of corruption in the *Jiwasraya* company indicate the abuse of interest by the directors of the firm, inadequate bank insurance, acquisition of shares and investment funds at a price that exceeds the market price. An indicator of *Jiwasraya* risk of misappropriation of assets is the purchase of low-quality stocks and mutual funds with proceeds from the sale of the plan savings products. From this, we can conclude that to fight insurance fraud in Indonesia, it is necessary to implement strategies of detective, preventive and repressive work.

The fight against fraud remains a priority for every country on the path to justice, so the experience described by Indonesian colleagues is valuable for lawyers, criminologists and experts of Ukraine and other countries.

The article authored by Doctor of Laws, Professor **Mykhailo Shcherbakovskiy** and **Anna Protsenko** (both from Ukraine) is devoted to evaluation of forensic research results based on probabilistic approach (based on content of foreign publications). The authors conducted an analysis of evidence evaluation standards (forensic expert conclusions) in the world at different times (general acceptance of the *Frye standard*, justification and verification of *Daubert standard*, plausibility beyond a reasonable doubt). Attention is focused on the fact that provision of probable expert conclusions is conditioned by a continuum of uncertainties, which source of are formation peculiarities of offense traces and methods of collecting traces at crime scene, development level of expert knowledge and methods of

forensic research, interpretation and evaluation of forensic examination results. In order to form the expert's conviction in research results, a statistical Bayesian's method of establishing likelihood ratio is proposed that makes possible to assess significance of versions put forward by forensic expert and is the basis for the court to make a reasoned decision. The researchers propose to apply probabilistic approach both to the assessment of a random coincidence of features in case of object identification of examination, to possible errors of laboratory tests, and to the interpretation of results obtained by forensic expert.

The section of research papers continues with the *Epistemological Characteristic and Procedural Significance of Steps and Stages of Appointing and Conducting Forensic Veterinary Examination* manuscript by **Ivan Yatsenko** (Ukraine). Doctor of Veterinary Medicine, Professor. The author singled out epistemological characteristics of the stages of appointment and conducting of forensic veterinary examination, carefully described the stages of preparation of materials and appointment of such examination and revealed their procedural significance for pre-trial investigation and judicial review of animal cases. The researcher characterized the main principles of interaction between the subjects of appointment and conducting forensic veterinary examination at each of these stages. The scientist suggests that in procedural document (resolution or resolution) on the appointment of a forensic veterinary examination, permission to use destructive research methods (for the purpose of saving time) should be immediately prescribed, as well as to supplement current legislation of Ukraine (Criminal Procedural Code, Commercial and Procedural Code and Code of Administrative Proceedings) by

clauses and parts regarding conducting an examination to establish the cause of death and/or clarify the severity of damage and the nature of physical injuries caused to animal's health.

The team of authors **Vladyslav Fedorenko**, Doctor of Law, Professor, **Igor Havlovskyi** (both from Ukraine), **Leszek Wieczorek** (Poland), Dr. habil. (Doctor habilitatus) investigated the genesis of forensic examination in Ukraine on the eve of the First World War and its subsequent institutionalization in the 1920s. The article analyzes in detail prerequisites for establishment of forensic science offices in Kyiv, Odesa, and Kharkiv on the initiative of Mykola Bokarius, legendary medical examiner and forensic scientist. An important source of this scientific exploration was legal acts on the organization and conduct of forensic expert work, materials containing information on the legal status of scientific forensic institutes of the People's Commissariat of Justice of the Ukrainian SSR, their tasks, structure and formation order. Researchers paid due attention to determining role in the genesis of forensic science in Ukraine of domestic forensic scientists: M. Bokarius, M. Makarenko, S. Potapov, V. Favorsky and others, who not only laid the foundations of various forensic science species to meet the needs of courts and authorities of pre-trial investigation, but formed the scientific-methodological and methodological foundations of forensic expert activity in Ukraine.

The section with Case Notes begins with an article devoted to comparative research on the issues of using digital evidence in criminal justice system of Ukraine and the United States. **Galina Avdeeva** (Ukraine), PhD in Law, Senior Researcher and **Elzbieta Żywucka-Kozłowska** (Poland), PhD in Law, Associate Professor distinguish between concepts of *electronic evidence* and

digital evidence. By analyzing 64 decisions of Ukrainian courts of criminal jurisdiction and 31 decisions of the US Court of Appeals and the Supreme Court, the authors prove that recognition of information in digital form as admissible and reliable evidence causes certain difficulties. The experience of the US judiciary can be useful during the reform of Ukrainian legislation and development of methodological recommendations for digital evidence use. Scientists suggest supplementing Criminal Procedural Code of Ukraine with regulations that would include: definition of the concept of *digital evidence* and its procedural media; distinction between the concepts of *electronic evidence* and *digital evidence*; detailed procedure for extracting digital information, its review, recording and storage (with indication of mandatory information list regarding digital evidence, which should be procedurally fixed); algorithm for assessing reliability of digital evidence and expert's conclusion according to certain criteria, etc.

The *Theory and Practice of Forensic Science and Criminalistics* research paper collection welcomes and actively supports young scientists. The next article in the section of scientific notes authored by **Oleg Kurdes** (Ukraine) is devoted to personality transformation of forensic expert in extreme wartime conditions. The author carefully analyzed scientific achievements on this issue and outlined ways to overcome effects of external negative factors on the expert's personality. The research focuses on the need to monitor the emotional and volitional stability of forensic expert and the influence level on his personality of external stressful factors of long-term action in the conditions of his conducting forensic examinations at war crime scenes and consequences of military actions on the territory of Ukraine. In order to successfully perform official duties and

overcome influence consequences of external negative factors in wartime, it is advisable to add psychological training to the system of professional training of a forensic expert (develop a methodology for conducting psychological training as a form of active development of psychological qualities and personality skills: in particular, with addition of group discussions, games methods and psychogymnastic exercises) with its normalization in corresponding by-law departmental acts. In the author's opinion mastering of psychological knowledge, skills and abilities by forensic expert will help him find optimal solutions in order to solve forensic tasks and more carefully perform professional duties. The scientist proposes to create a structural unit of professional training in each state forensic science institution, which (in cooperation with the personnel department) will be tasked with organizing and conducting psychological training of forensic experts.

Anatolii Starushkevych (Ukraine) submitted the *Case Investigation Based on Indirect Evidence: The Method* by M. Ye. Yevheniev for publication. The basis of the method of investigating a case based on circumstantial evidence, developed by M. Ye. Yevheniev, Soviet criminalist is the concept of circumstantial evidence which distribution was caused by the political situation of the 1930s and 1940s, in particular aspirations of investigative bodies and the prosecutor's office in cases of *terrorist attacks* and *political conspiracies* to obtain confessions of guilt from the accused, which at that time was considered the main and decisive evidence. The research paper draws attention to positive method qualities: logical structure, perception ease for practical workers, consideration of traditional factors of suddenness and opposition to investigation, use of activity and complex approaches, algorithmicity

and stages of crime investigation. It is noted that handling direct evidence is not problematic for investigator: it is indirect evidence that causes difficulties. The accused should be thoroughly questioned on every piece of evidence, and all his explanations carefully checked. Taking into account the above, it can be stated that purpose of this research was the scientific analysis of the method of investigating a case based on circumstantial evidence, developed by M. E. Yevgeniev, in order to clarify its role in formation of forensic doctrine about the methods of investigating criminal offenses.

Pavlo Horobrih (Ukraine) devoted his research paper to expert assessment of microcar driver actions in case of traffic collision. The article analyzes the actions of road users who drive micro-mobile means of transportation (unicycle, electric scooter, etc.), with the aim of developing new regulatory approaches to conducting forensic research and providing forensic expert conclusion on a traffic collision involving a person who managed such vehicle. The researcher outlined the issue of the lack of a regulatory framework for operation of such vehicles as unicycles on public roads, and the problem associated with the use of unicycles in public areas (in parks, playgrounds, sidewalks, etc.). The work also shows the design of the unicycle, systematizes its management techniques, and offers a detailed list of equipment necessary to ensure road traffic with the participation of a micro-mobile vehicle. As an example, a part of the author's expert research on criminal proceedings to establish whether an electric scooter belongs to the category of vehicles in accordance with requirements of the Traffic Code in force in Ukraine is presented.

The final article of issue No. 30, authored by **Oleh Mieshkov**. (Ukraine) is devoted

to the issues of regulatory framework in forensic research on life safety. The scientist claims the system of normative legal acts regulating legal relations in the field of life safety and stipulate technical requirements in various production branches has a rather cumbersome system of laws, bylaws, and technical regulations. Research paper outlines general systemic gaps in the regulatory and technical regulation of labor activities of certain categories of employees. A separate is obsolescence of some acts. In the legal field, there is an urgent need to cancel outdated and adopt modern documents that will determine safety rules in dangerous industries. In general, the system of normative regulation of life safety in Ukraine is not sufficiently adapted to international norms of labor regulation, therefore researcher emphasizes the need to harmonize Ukrainian legislation with international (in particular, European) labor standards. In order to improve the regulatory framework of labor protection. It is proposed to change the general approach to regulation principles, emphasizing preventive actions.

Traditionally, Research Paper Collection: *Theory and Practice of Forensic Science and Criminalistics* contains a section

reflecting the current events of scientific life. This time, the Editorial Board of the collection could not ignore International Scientific and Practical Conference: *Implementation of the State Anti-Corruption Policy in the International Dimension*. In our opinion, informing scientific community about this and similar events is an important part of scientific community life. Information popularization about projects, events contributes to consolidation of scientists to adequately respond to the challenges of the present time.

The editorial board of the collection of scientific works "Theory and Practice of Forensic Expertise and Forensics" is sincerely grateful to the authors who provided materials for publication, as well as to the specialists who participated in its preparation for publication. We invite both well-known scientists and novice scientists of Ukraine and foreign countries, post-graduate students of higher education institutions and research institutions, as well as experienced forensic experts and experts with little work experience who have an interest and inclination to both scientific and practical research in the field of expert provision of justice, to publish their findings in the pages of our journal.

Together we will win! Glory to Ukraine!