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Editorial board, assembling the twenty-fourth issue, tried to adapt the format and content of the collection to requirements adopted by the international scientific community. It includes current content on criminalistics, forensic science theory and practical issues of different classes, kinds, species and subspecies of forensic science.

Our authors are representatives of forensic science institutions, higher education institutions, law enforcement agencies of Ukraine and other countries.

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The editorial board uses double anonymized peer review.  
Authors are responsible for the accuracy of the provided terms, facts, quotations, figures and surnames.  
The authors declare that their opinions and views expressed in these articles are free of any impact of organizations where they work.

It is sent to scientific libraries of Ukraine and abroad and government agencies.  
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# Contents

## EDITOR-IN-CHIEF'S NOTE

<i>Oleksander Kliuiev</i> . Improving quality of research publications: temporal imperative. . . . .	5
---	---

## RESEARCH PAPERS

<i>Viktor Shevchuk</i> . Innovative optimization directions of investigative (detective) activity in modern conditions. . . . .	8
<i>Anton Polianskyi, Gabrielė Juodkaitė-Granskienė</i> . Foreign experience of interaction of forensic science institutions with law enforcement agencies and possibility of its use in Ukraine . . . . .	26
<i>Ivan Yatsenko, Ella Simakova-Yefremian, Larysa Derecha</i> . Forensic science methods and their application in veterinary forensics. . . . .	52
<i>Ruben Aghuzumtsyan, Gayane Shahverdyan</i> . Features of forensic psychology analysis of psychological abuse . . . . .	77
<i>José Manuel Colodrás, Kateryna Sylenok</i> . Specific expertise use while investigation of crimes related to drug trafficking . . . . .	92

## CASE NOTES

<i>Vlada Husieva</i> . Problems of human personal identification by appearance in investigation of criminal offenses . . . . .	109
<i>Serhii Naumenko, Svitlana Briukhan, Olga Cataraga</i> . Some aspects of forensic research on small texts. . . . .	123
<i>Alexiy Horlachuk</i> . On Forensic economist specific expertise . . . . .	136
<i>Oleh Mieshkov</i> . Problematic aspects of using forensic expert conclusion on results of the forensic examination of electric shock accidents . . . . .	152
<i>Edgar Grygorian, Anzhela Stashchak, Nima Rezaei</i> . Features of postmortem interval evaluation for crime investigation . . . . .	165
<i>Inessa Ovsiannykova</i> . Effective administrative and legal regulation of forensic activities in the context of European integration . . . . .	171

## SCIENTIFIC NEWS

Participation of employees of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» in CEPOL exchange program . . . . .	186
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# Theory and Practice of Forensic Science and Criminalistics

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## Improving quality of research publications: temporal imperative

Oleksander Kliuiev \*

\* Doctor of Law, Professor, National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <http://orcid.org/0000-0002-8722-4781>

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Scientific activity around the world is driving force for development of various fields of human life. High standards for publication of research results become a guarantee of their quality and scientific content. Given the trend towards globalization of science and in order to develop common European approaches, the editorial board decided to rebrand the publication and further publish articles in accordance with international standards. Publication of № 24 of the *Theory and Practice of Forensic Science and Criminalistics* Collection of Scientific Papers differs significantly from previous editions not only in appearance but in content, format and scope.

*Theory and Practice of Forensic Science and Criminalistics* Collection of Scientific Papers is indexed in online databases and libraries: *Vernadsky National Library of Ukraine*, *Index Copernicus International*, *Google Scholar*, *Scientific Periodicals of Ukraine*, *Worldcat*, *CrossRef*.

Collection changed its traditional distribution of articles with analysis of current issues of criminalistics, general provisions of forensic science and topical issues of scientific and methodological support of different classes, kinds, species and subspecies of forensic science. Editorial Board considers each article in terms of its research, presentation, evaluation or communicative content.

Based on the requirements adopted by international scientific community, considering European experience and

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striving to meet standards of Scopus and Web of Science, the following are accepted for publication: Research Articles (where author highlights the main results); Scientific and Methodological Articles (where author analyzes the methods, procedures, toolkit by which it is possible to achieve certain scientific result); Scientific and Theoretical Articles (where author presents results of theoretical issue solutions); Scientific and Practical Articles (where author highlights his own practical experience and performed scientific experiments); Review Articles (devoted to evaluation, results, generalization, analysis of previously published information).

Editorial Board is interested in discussion articles presenting scientific ideas or reports on the experiment results, their own experience, etc. Scientific style of material presentation is generally accepted: accuracy, logic, conciseness, clarity, coherence, integrity, completeness and its high scientific level.

The articles having passed double anonymized review are divided into two sections: Research Articles and Case Notes. The section with research articles begins from the *Innovative Optimization Directions of Investigative (Detective) Activity in Modern Conditions* research paper on the theory of criminalistics by Victor Shevchuk (Ukraine). This article identifies and considers the most important innovative areas of forensic science at the present stage aimed at optimizing investigative (detective) activities in crime transformation, information and epidemiological threats to society. It is considered that further research on these issues will help resolve the controversial positions of scientists on this topic.

The *Forensic science methods and their application in veterinary forensics* article by Ivan Yatsenko, Ella Simakova-Yefremian and Larysa Derecha (all — Ukraine)

provides a classification of methods used in forensic veterinary forensics, emphasizes the need to meet certain requirements to their application system.

Editorial Board of the *Theory and Practice of Forensic Science and Criminalistics* Collection of Scientific Papers is constantly expanding geography of articles and interacts with fellow scientists in Ukraine and abroad.

The next article is *Foreign Experience of Interaction of Forensic Science Institutions with Law Enforcement Agencies and Possibility of its Use in Ukraine* by Anton Polianskyi (Ukraine) and Gabrielė Juodkaitė-Granskienė (Lithuania). The authors draw attention to the fact that law enforcement sector of the State is a separate mechanism, each element of which performs a clearly defined functional role that ensures social justice, protection and security of population, territorial integrity of the country. These factors are an incomplete list of specifics explaining importance of State activity in law enforcement or human rights.

The *Specifics of Forensic Psychology Analysis of Psychological Abuse* article by Ruben Aghuzumtsyan and Gayane Shahverdyan (both — Armenia) draws attention to the fact that different types of violent actions affect the human psyche differently and secondary while forensic examination does not always reveal essence and results of psychological abuse that unjustifiably narrows the real violence field in society.

Increase in the number of drug crimes has led to increase in the requirements for specific expertise use that causes an urgent need for a legislative solution to a number of problematic issues. The article by José Manuel Colodrás (Spain) and Kateryna Sylenok (Ukraine) discusses some issues of specific expertise while investigation of crimes related to drug trafficking.

The Case Note section begins with an article by Vlada Husieva (Ukraine); she identifies typical issues arising while person identification by appearance and development of recommendations for their prevention and elimination.

Serhii Naumenko, Svitlana Briukhan (both — Ukraine) and Olga Cataraga (Moldova) dedicate an article to expert practice analysis in order to theoretically substantiate the key aspects of research on small texts, consider their classification and analysis of the reasons for this research complexity. The authors determine the list of factors which different degree of informativeness of objects depends on.

Alexiy Horlachuk (Ukraine) in the article *On Forensic Economist Specific Expertise* considers the main system elements reflecting essence of special economic knowledge, its form, structure, characteristics.

Oleh Mieshkov (Ukraine) devoted his article to a topical and at the same time debatable topic of using forensic expert conclusion based on the results of forensic examination of electric shock accidents.

Edgar Grygorian, Anzhela Stashchak (both — Ukraine) and Nima Rezaei (Iran) in the *Features of postmortem interval evaluation for crime investigation* article provide recommendations on the use of methods for assessing postmortem changes according

to forensic examination according to body condition, environmental characteristics, the scene and other factors that need to be recorded at the location of the corpse. Methodical recommendations contained in this content are made according to requirements of the current legislation defining rules and the order of carrying out forensic medical examinations.

The article by Inessa Ovsiannykova (Ukraine) is devoted to the administrative and legal regulation of forensic activities in the context of European integration. The author draws attention to Ukrainian commitment to build a developed and sustainable democracy and market economy requiring national legal system to focus on such European values as democracy, respect for man and his fundamental rights and freedoms and the rule of law.

In conclusion, the collection contains information about the participation of employees of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» in CEPOL exchange program.

The Editorial Board expresses its sincere gratitude to all the authors who provided content for publication, as well as to the professionals who took part in its edition and invites scholars and practitioners to prepare articles in future issues.

## Innovative optimization directions of investigative (detective) activity in modern conditions

Viktor Shevchuk \*

\* Doctor of Law, Professor, Yaroslav Mudryi National Law University, Kharkiv, Ukraine,  
ORCID: <https://orcid.org/0000-0001-8058-3071>, e-mail: [kafkrim@nlu.edu.ua](mailto:kafkrim@nlu.edu.ua)

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*This article is devoted to optimization issues of investigative (detective) activity by introducing innovative approaches in solving issues of criminal proceedings and introducing their provisions and recommendations into law enforcement practice. The most important innovative development directions of criminalistics at the present stage directed on optimization of investigative (detective) activity in the conditions of crime transformation, information and epidemiological threats to a society are defined and considered. It is substantiated that issue of optimization of investigative (detective) activities is closely related to the use of innovative approaches, it contributes to investigation effectiveness and is one of the conditions for effectiveness of criminal proceedings and judiciary in general. It is noted that without taking into account innovative technologies and means of solving organizational, legal, scientific and technical issues, actual development and implementation of forensic methods, tools and recommendations to ensure activities of law enforcement agencies will not meet requirements of efficiency and optimality.*

*It is noted that in modern realities one of the most promising areas in the fight against crime is the development, implementation and application of forensic innovations in law enforcement in order to increase its efficiency, effectiveness and optimization. Therefore, creation and introduction of innovative forensic products, their active practical use, currently is considered a priority of criminalistics at the present stage and the urgent need for law enforcement practice. It is substantiated that current trends and prospects for development*

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*of criminalistics now significantly affect optimization of pre-trial investigation and trial and require expansion of its boundaries and research boundaries, require innovative approaches to solving this issue that necessitate further development of its theoretical and methodological bases and intensification of the practical orientation of research optimization and increase of efficiency activity subjects of criminal proceedings.*

*Three directions of development detection and introduction of forensic innovations are singled out and considered: technical-forensic, tactical-forensic and the direction of providing forensic methods of investigation of separate types of criminal offenses. The main tasks of issues under research and prospects of introduction of its provisions in law enforcement practice are defined, perspective directions of their researches are outlined. Theoretical and methodological principles of development and formation of the concept of innovative principles of forensic support for optimization of investigative (detective) activities in current realities are studied. New scientific approaches to the solution of researched debatable issues are substantiated and perspective directions of researches on specified issues are defined.*

**Keywords:** *efficiency and quality of pre-trial investigation; optimization of investigative (detective) activity; innovations in criminalistics; forensic innovation; innovations in forensic techniques; tactics and methods.*

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## Research Problem Formulation

Innovative development way of criminalistics is caused first of all by the newest scientific developments, introduction of information technologies, high-tech equipment, scientific and technical means of new generation, computerization and automation of procedure of detection and investigation of criminal offenses. Moreover, the

need for forensic science to choose an innovative path of development was caused by a number of objective reasons related to the urgent needs of practice and aimed at finding adequate innovative tools, techniques and methods to counter modern criminal challenges<sup>1</sup>. Therefore, creation and implementation of forensic innovative products has always been and remains nowadays one of priorities of criminalistics<sup>2</sup>.

- 1 Шепітько В. Ю. Проблеми оптимізації науково-технічного забезпечення слідчої діяльності в умовах змагального кримінального провадження. *Результати роботи науковців НДІ вивчення проблем злочинності ім. акад. В. В. Сташица НАПрН України за фундаментальними темами у 2018 р.* : мат-ли наук. конф. (Харків, 26.03.2019). Харків, 2019. С. 144—147 ; Ackermann V. R., Kurapka V. E., Malewski H., Shepitko V. Schaffung eines einheitlichen europaischen Krimiinalistischen Raumes: Die Tatigkeit offentlicher Organisationen zur Starkung der internationalen Beziehungen. *Kriminalistik*. 2020. Iss. 6. P. 355—363.
- 2 Журавель В. А. Загальна теорія криміналістики: генеза та сучасний стан : монографія. Харків, 2021. С. 6—7 ; Шепітько В. Ю. Завдання криміналістики в умовах глобальних загроз та еволюційних перетворень злочинності. *Криміналістика и судебная экспертиза: наука, обучение, практика* : мат-ли наук.-практ. конф. Міжнар. конгр. криміналіст. (13—15.09.2018) ; у 2 т. Т. 1. Одеса, 2018. С. 14—26.

Integrating latest advances in science and technology, criminalistics develops (creates) for law enforcement agencies innovative tools, techniques and methods to combat modern crime which use is aimed at optimizing activities of criminal proceedings and increase efficiency of their work. In such modern realities, forensic research should be aimed at intensifying development of prognostic and applied functions of criminalistics that should provide criminal proceedings with forensic recommendations for effective use of these innovative technologies in pre-trial investigation and trial of criminal proceedings<sup>3</sup> As can be seen, integrated approach can fully ensure planning and innovation implementation involving creation, implementation, dissemination and application of innovations<sup>4</sup> aimed at optimizing investigative (detective) activities.

Forensic innovation, as a new scientific field in criminalistics has applied nature and serves as a scientific foundation for the creation (formation), implementation and active use of innovative forensic tools of criminal proceedings, trials, various types of proceedings and legal practice (investigative, judicial, expert,

prosecutorial, lawyer, notary, etc.), in order for their optimization, increasing efficiency and effectiveness. In this regard, among the promising research areas in criminalistics, issues of developing innovative approaches in optimization of investigative (detective) activities, as one of the most promising areas of modern research in criminalistics become especially relevant and important.

### Analysis of Essential Researches and Publications

Scientific basis of the research was the work of forensic scientists devoted to exploration of issues of innovative optimization of investigative (detective) activities and innovative areas of forensic science in this area of knowledge and solving some of its debatable issues related to the issues of improving efficiency and optimizing the activities of pre-trial investigation bodies: H. K. Avdieieva, P. V. Bernaz, M. I. Dolzhenko, M. V. Zhyzhyna, V. A. Zhuravel, V. O. Konovalova, I. I. Kohutych, M. V. Saltevskyi, D. K. Taranik, N. B. Nechaiev, Yu. V. Chornous, V. Yu. Shepitko and others<sup>5</sup>.

At the same time, in modern conditions in research on this issue there are

- 
- 3 Шевчук В. М. Інноваційні засади криміналістичного забезпечення правозастосовної діяльності: проблеми формування концепції. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2021. Вип. 23. С. 7–23. DOI: 10.32353/khrife.1.2021.01 (date accessed: 03.10.2021).
  - 4 Волынский А. Ф. Еще раз о криминалистическом обеспечении и инновациях (письмо ответственному редактору по поводу «Заметок на полях»). *Вестник криминалистики*. 2012. Вып. 1 (41). С. 25–27.
  - 5 Берназ П. В. Інновації – основа криміналістичного забезпечення діяльності з розслідування злочинів. *Південноукраїнський правничий часопис*. 2015. № 4. С. 50 ; Долженко Н. И., Таряник Д. К. Инновации в криминалистическом обеспечении раскрытия и расследования преступлений: некоторые проблемы внедрения и пути их решения. *Научный альманах*. 2017. № 5-1 (31). С. 274 ; Жижина М. В. Инновации в криминалистике и судебной экспертизе. *Судебная экспертиза: российский и международный опыт* : сб. междунар. науч.-практ. конф. (Волгоград, 23–24.05.2012). Волгоград, 2012. С. 22–27 ; Нечаева Н. Б. Инновации в криминалистике. *Ленинградский юридический журнал*. 2013. № 2 (32). С. 158 ; Чорноус Ю. М. Криміналістичне забезпечення розслідування злочинів : монографія. Вінниця, 2017. С. 11–15 та ін.

a number of debatable issues regarding the conceptual framework for optimizing investigative activities by introducing innovative approaches to solving issues of criminal proceedings and implementing their provisions and recommendations in law enforcement practice. Analysis of the forensic literature indicates that only in some research papers we find certain approaches to research on this issue and addressing certain issues of ways to optimize activities of pre-trial investigation and the use of new methods to improve effectiveness of investigative (detective) activities (D. V. Biriukov, O. Yu. Bululukov, N. V. Hlynska, I. V. Hloviuk, I. O. Krytska, V. V. Navrotska, O. H. Shylo and others) <sup>6</sup>. Therefore, in our opinion, special and in-depth study, analysis and further exploration need issues of development and formation of innovative support for optimization of investigative (detective) activities and innovative areas of forensic science in this field of knowledge that in modern realities require further basic research.

### Article Purpose

This article purpose is research on innovative principles of forensic optimization of investigative (detective) activities in modern conditions and issues

of implementing their provisions and recommendations in the practice of pre-trial investigation. The aim is to formulate the conceptual foundations of forensic optimization of investigator (detective) through the widespread introduction of modern innovative approaches, outline and consider the most promising areas of forensic research on this issue.

### Main Content Presentation

In modern forensic doctrine, the issue of optimization of investigative (detective) activities is closely related to the use of innovative approaches, it contributes to investigation effectiveness and is one of the conditions for effectiveness of criminal proceedings and legal proceedings in general. It is important to note that without innovative technologies and tools to solve legal, organizational and scientific and technical issues of development and implementation of forensic methods, tools and recommendations to ensure the activities of law enforcement agencies will not meet requirements of efficiency and optimality<sup>7</sup>. It is not for nothing that one of the main essential features of forensic innovations in the special literature is the focus of innovative tools on effective solution of forensic problems, ensuring optimization, improving the quality and

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- 6 Бірюков Д. В. Оптимізація розслідування злочинів з використанням потенціалу комп'ютерних технологій. *Південноукраїнський правничий часопис*. 2016. № 2. С. 140–143 ; Булукув О. Ю. Оптимізація тактичних рішень – умова ефективності слідчої діяльності. *Питання боротьби зі злочинністю* : зб. наук. пр. 2016. Вип. 32. С. 107–124 ; Серкевич І., Устрицька Н., Навроцька В. та ін. Сучасні тенденції розвитку кримінальної юстиції в Україні : кол. монограф. ; за ред.: І. Гловюк, Н. Лашук. Львів, 2021. 388 с. ; Крицька І. О. Ефективне досудове розслідування кримінальних правопорушень у сфері господарської діяльності. *Протидія злочинності і корупції: міжнародні стандарти та досвід України* : зб. тез міжнар. наук.-практ. конф. (Харків, 22.09.2021). Харків, 2021. С. 173–177 ; Шило О., Глинська Н. Якість кримінального процесуального законодавства України в аспекті відповідності стандартам попередження вторинної віктимізації потерпілого. *Ibid.* С. 297–303 та ін.
- 7 Волынский А. Ф. Инновационная сущность криминалистического обеспечения расследования преступлений. *Вестник криминалистики*. 2011. Вып. 3 (39). С. 26–29.

effectiveness of law enforcement practice and further development of criminalistics.

Important factor in effectiveness of investigative (detective) activities is its optimality manifested in finding and using productive ways in solving the issues of pre-trial investigation and improving recommendations for making necessary tactical and procedural decisions. At the same time, optimization of tactical decisions in investigation of criminal offenses is an integral part of optimality of investigative (detective) activities. The issue of improving the latter, its optimization has always been the object of attention of scientists and practitioners who carry out theoretical research in this field of knowledge and law enforcement agencies that are responsible for detection and investigation of criminal offenses<sup>8</sup>.

As can be seen, in current conditions of crime transformation and global threats to society, an important direction in combating criminal manifestations is creation (development) and use of innovative forensic products in law enforcement in order to increase its efficiency and effectiveness. Therefore, creation and implementation of forensic innovations and their active practical use is now a priority of criminalistics and an urgent practical need. Thus, formation and development of forensic knowledge is a kind of response to the emergence of new means, forms and mechanisms of criminal activity under influence of modern trends in science, technology and society<sup>9</sup>.

It is seen that currently criminalistics faces very important tasks which solution should be aimed at research and consideration of modern innovative achievements of science and technology, impact of scientific and technological

progress on formation of modern forensic knowledge which should be practical and provide effective forensic recommendations, investigative, detective and judicial practice in modern conditions.

In modern criminalistics, there are a number of debatable issues related to researches on forensic innovations and issues of their implementation in law enforcement practice. Thus, a separate in-depth study, critical analysis and further research developments require issues: research on theoretical foundations of innovation in forensics, determining their place and role in the system of forensic knowledge; development of the concept and features of forensic innovations; identification and research of types of innovations in criminalistics, their characteristics; issues and directions of creation of innovative forensic products and technologies; research and analysis of introduction of innovations in the practical activities of combating crime; efficiency and practical value of the proposed innovations in criminalistics; identification and research of perspective directions of innovative development of criminalistics including application of innovative means and technologies, development of their theoretical and methodological bases and issues of introduction and use of criminological innovations in practice.

In our opinion, essential features of forensic innovation include the following: 1) novelty of developed, proposed and implemented in practice products, technologies, services, solutions is that they are associated with creation and emergence of new properties which significantly improve its parameters and characteristics, so they are newly created, or newly used, or improved; 2) developed,

8 Булулуков О. Ю. *Op. cit.*

9 Шевчук В. М. *Криміналістика: традиції, новачі, перспективи : добірка наук. пр. ; упоряд. Н. А. Чмутова. Харків, 2020. С. 18—65.*

proposed and put into practice the latest technical, tactical, methodological and forensic tools (innovative forensic tools) are in demand and are used constantly in practice, they are implemented in the form of new products, technologies, services, decisions; 3) developed, proposed and put into practice the latest technical, tactical, methodological and forensic tools are the result of research or development, demanded and used in practice, forms of implementation (application) of such innovative forensic tools are new products (products), technologies, services, solutions; 4) application of such innovations is carried out by special entities (investigators, judges, etc.) ensuring qualification and efficiency of use of developed and implemented in practice innovative tools; 5) focus of innovative tools on the effective solution of forensic issues ensuring optimization, improving quality and effectiveness of law enforcement practice and further innovative development of criminalistics.

Thus, *forensic innovation* is the latest technical, tactical, methodological and forensic tools developed, implemented and applied in practice, that are the result of research or development that are embodied in the form of a new product (product), technology, service, solutions used by qualified special entities in practice and aimed at effective solution of forensic problems and ensuring optimization, improving quality and effectiveness of law enforcement practice and further innovative development of forensic science.

In criminalistics, there are traditionally three areas for identifying the development and implementation of innovations technical forensics, tactical forensics and

the direction of providing methods for investigating certain types of criminal offenses<sup>10</sup>. In our opinion, technical and forensic direction has received the most active development in terms of innovation, but there are many debatable issues in the study of this issue that need to be studied and resolved. In particular, the study and analysis of forensic sources, forensic practice make it possible to identify a number of significant problems in the use of tools and methods of forensic techniques by practitioners that negatively affects effectiveness of some proposed innovations that remain unclaimed in practice. As a rule, in most cases the reason for not introducing innovations is insufficient level of forensic support of such activities which is often associated with a low level of training, in many cases they lack the necessary knowledge, skills and practical skills to work with the latest scientific technical means, methods, innovative technologies in the detection and investigation of criminal offenses.

In this regard, rightly noted A. V. Ishchenko, that in this case it is necessary to increase contribution of the practical direction of criminalistics, implementation of its practical and applied function and can be associated with creation of appropriate scientific and methodological support for the use of tools and methods of forensic techniques, their implementation in practice<sup>11</sup>. In addition, at the present stage of Ukrainian development, adaptation of Ukrainian criminal procedure legislation to European standards is becoming especially important. One of such areas is introduction of the latest forensic methods, means of detection, fixation, removal of traces. It is useful for domestic scientists

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10 Берназ П. В. Оп. cit.

11 Шенко А. В. Методологічні проблеми криміналістичних наукових досліджень : монографія ; за ред. І. П. Красюка. Київ, 2003. 359 с.

and law enforcement officers to follow promising, innovative developments in forensic technique in the world leading countries<sup>12</sup>.

In current realities in the field of forensic technique there is a tendency of active search for development and implementation of innovative forensic products aimed at optimizing investigation of criminal offenses and litigation. As noted in the forensic literature, such innovative products include new developed or adapted to the needs of investigative (judicial) technical forensic tools, modern information technology, electronic knowledge bases, methods of recording, analysis and evaluation of evidence, etc.<sup>13</sup>.

Among the innovative methods and tools, according to V. D. Bernaz, importance is given to biometrics, i.e. those that allow you to measure physical and behavioral characteristics of a person in order to identify or solve diagnostic problems. Original attempts to find new ways to solve the issues of personal identification are the use of tools, in particular: identification of a person by his external signs through video systems using thermal imaging equipment; by voice, by articulation during the pronunciation of individual sounds, words. Capabilities of the polygraph are also not fully used in determining the suitability for investigative and detective activities and the presence of professional deformation; in the diagnosis of the veracity of evidence;

in identifying involvement in criminal offenses, etc.<sup>14</sup>.

In this regard, the use of nanotechnology for forensic purposes, in particular, the development of innovative methods and technologies that expand the possibilities of human identification in genotypic examination are of scientific and practical interest. Development of a biochip, that allows to establish identity of the subject on a tiny trace of DNA with a probability of 99.6%, allows to identify individuals by detecting at the scene crumpled napkin or cigarette butt with a small amount of saliva was impossible before<sup>15</sup>.

Moreover, the development of forensic technology involves the development of information and reference systems such as Automated Workplaces (AWP). Examples of such workstations are: «Інсайт» investigator workstation, workstation of forensic experts of various forensic expert specialization: (trace evidence, ballistics, economics, polygraph examining, etc.). In this context, it is relevant in the field of forensic technology to study and remove ideal traces in human memory using forensic techniques. Innovative tools and technologies are: the use of computer polygraph<sup>16</sup>, facial composite, digital photography, audio and video recording, spectrograph, unmanned aerial vehicles, surveillance and video surveillance systems, etc. Therefore, it is quite reasonable, in our opinion, to say that

12 Степанюк Р. Л., Лапта С. П. Новітні зарубіжні розробки та перспективні дослідження у галузі техніко-криміналістичного забезпечення протидії злочинності. *Право і безпека*. 2017. Вип. 2 (65). С. 96–101.

13 Шепітько В. Ю., Журавель В. А., Авдеева Г. К. Інновації в криміналістиці та їх впровадження в діяльність органів досудового слідства. *Питання боротьби зі злочинністю*. 2011. Вип. 21. С. 40.

14 Берназ В. Д. Інтеграція досягнень сучасної науки в слідчу діяльність. *Південноукраїнський правничий часопис*. 2008. Вип. 4. С. 188.

15 Жижина М. В. Инновационное развитие криминалистики на современном этапе. *Lex Russica*. 2012. № 1. С. 121.

16 Когутич І. І. Тенденції пристосування криміналістичних знань у здійсненні судочинства. *Вісник Львівського університету. Серія юридична*. 2013. Вип. 57. С. 338

promising research in this area is the use to diagnose the information state of individual technical means: computer polygraph<sup>17</sup>.

Recently, along with traditional means of detection, fixation, seizure, as well as research on material traces and the situation in general at the scene and innovative and very promising area is the active use of modern *three-dimensional digital technologies and artificial intelligence* criminal patterns or its individual episodes (details) using 3D models. Practice demonstrates that law enforcement officers are increasingly faced with the need to investigate and record material objects located in large areas: consequences of criminal explosions, fires, accidents and catastrophes on various modes of transport, anthropogenic hazards.

It is seen that the use of laser scanning of terrain and objects producing 3D model allows to increase informativeness of the data collected at the scene, provides a clear and convenient visualization in three dimensions that provides exemplifying<sup>18</sup>. It is possible that in the near future forensic experts will face the need to develop forensic methods related to diagnostic and identification research of 3D printers and made with their help real 3D models<sup>19</sup>.

Among the promising areas that have important forensic significance in the investigation of criminal offenses, we can highlight the use of *BIG DATA* technology. In

technical terms, big data is a variety of tools, approaches and methods for processing both structured and unstructured data in order to use them in solving specific tasks and achieving certain goals. Criminalistics can also use various means of obtaining and processing information using such technologies. In practice, this method is used while investigative (detective) actions and covert investigative (detective) actions, in the methodology of investigation of certain types of crimes, including forensic techniques. At the same time, the technologies of network analysis and tactical profiling allow to successfully detect and investigate criminal offenses<sup>20</sup>.

In this regard, I. I. Kohutych correctly notes that crime situation in Ukraine constantly requires and determines qualitatively new, intensive scientific research in all *applied* aspects of forensic science. In the field of forensic technique is creation, development and implementation of new means of identifying the tracks found in crime investigation, from creation of "odor banks" to *DNA fingerprinting*, new and rational methods of forensic research on forensic objects that were not common before; improvised explosive devices; voices of persons recorded on audio and video cassettes, etc. The problem of recognizing artificial papillary patterns has already arisen in criminology. Research in the field of using technical means such as

17 Білоус В. В. Напрями розвитку юридичних наук у царині впровадження безпілотних технологій. *The development of legal sciences: problems and solutions* : Internat. scient.-pract. conf. Conf. Proc., April 27–28. Kaunas, 2018. С. 109–112.

18 Павлюк Н. В. Фіксація доказової інформації за допомогою систем 3D-візуалізації. *Результати роботи науковців НДІ вивчення проблем злочинності ім. акад. В. В. Сташиса НАПрН України за фундаментальними темами у 2018 р.* : мат-ли наук. конф. (Харків, 26.03.2019). Харків, 2019. С. 158–160.

19 Семенов В. В. Перспективні технічні засоби та методи в розслідуванні злочинів. *Сучасні тенденції розвитку криміналістики та кримінального процесу* : тези доп. міжнар. наук.-практ. конф. до 100-річ. від дня народж. проф. М. В. Салтєвського (Харків, 08.11.2017 р.). Харків, 2017. С. 192–194.

20 Саморока В. А., Прохорова Е. А. Перспективы использования «BIG DATA» при раскрытии и расследовании преступлений. *Академическая мысль*. 2019. № 1 (6). С. 74.

a polygraph to diagnose the information state of the individual is promising. Theoretical and practical developments of various information retrieval systems (IRS) based on computer technology are relevant. Ideally, they should form a single state network, and some of them - to have access to similar IRSs of other states and interstate forensic institutions (including Interpol and Europol) <sup>21</sup>.

At the present stage, to optimize the investigation, it is proposed to use the latest scientific and technical means and technologies: audio, video control, surveillance systems, digital photography and video recording, electronic controllers, unmanned aerial vehicles (UAVs): quadcopters and forensic aerial photography <sup>22</sup>. Otherwise, it is noted that to increase efficiency of this activity area it is necessary to make greater use of geodetic satellite systems and aerial photography, carried out using unmanned aerial vehicles <sup>23</sup>. It is necessary to intensify work on the use of artificial intelligence to solve practical issues in the fight against crime.

In our opinion, a promising area in criminalistics is the use of innovative tools and technologies of forensic technology in various areas of law enforcement, expanding the application of forensic knowledge in various types of legal practice that in current reality is quite relevant and requires further research. We are talking about possibility of using forensic techniques in legal proceedings, in criminal

and civil proceedings, administrative proceedings, in prosecutor, lawyer and notary ones and others <sup>24</sup> It is seen this indicates manifestation of another important trend in the development of modern criminalistics: *application expansion of forensic knowledge* in the field of combating crime to law enforcement and other activities.

In view of the above, we can conclude that improving efficiency and quality of investigation is inextricably linked with the active introduction into investigative practice of modern advances in science and technology. Criminalistics integrating the latest advances in science and technology, creates for law enforcement agencies appropriate to modern threats innovative tools, techniques and methods of combating crime <sup>25</sup>. Scientific and technological progress directly affects the acceleration of the pace of development of forensic science and its individual components. This fully applies to forensic technique, as a system of forensic knowledge and a variety of practical activities. Therefore, the successful and skillful use of innovative tools of forensic technique ensures completeness, accuracy, efficiency and effectiveness of investigation and trial, helps to optimize this activity and solve the issues of criminal proceedings.

In our opinion, development and application of tactical and forensic recommendations taking into account modern conditions should also become

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21 Когутіч І. І. Ор. cit.

22 Шепітько В. Ю. Проблеми оптимізації науково-технічного забезпечення ... .

23 Білоус В. В. Класифікація безпілотних літальних апаратів та її значення для криміналістичної практики. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2016. Вип. 16. С. 47–57.

24 Шепітько В. Ю. Криміналістика XXI века: предмет познання, задачі и тенденції в нових умовах. *Современное состояние и развитие криминалистики* : сб. науч. тр. ; под ред. Н. П. Яблокова и В. Ю. Шепітько. Харьков, 2012. С. 43.

25 Жижина М. В. Інноваційний шлях розвитку криміналістики на сучасному етапі. *Вестник криміналістики*. 2012. Вип. 1 (41). С. 20.

promising areas for optimizing investigative activities and improving use of forensic tactics. It is seen that such research can be related to development of specific tactics of individual investigative (detective) and covert investigative (detective) actions in possible conditions of social isolation and quarantine restrictions of citizens. This situation necessitates the development of new tactics, review of the possibilities of tactical combinations and tactical operations, algorithms of investigative (detective) actions, taking into account certain specifics of their implementation. Important areas of such research in forensic tactics are the problems of developing tactics of actions and activities in which participants (suspects, witnesses, victims, etc.) were persons in medical masks, special protective suits etc.

Innovative directions of development of forensic tactics and optimization of investigative activity should include issues of interaction of investigator (detective) and prosecutor with other participants in criminal proceedings, which requires intensification of forensic research on certain issues of professional defense tactics, prosecutor and judge (court). In this regard, V. Yu. Shepitko rightly notes that the Constitution of Ukraine as the principles of justice declares equality of all trial participants under the law and for trial, adversarial nature of the parties and the freedom to present their evidence to the court. Taking into account this constitutional provision, the tactics of conducting such judicial actions as interrogation, simultaneous interrogation of two or more already interrogated participants in criminal proceedings

(ace-to-face interrogation), presentation for identification, on-site inspection, etc. are qualitatively changing. Therefore it is possible to speak about expediency of introduction of provisions of “competitive” criminalistics and necessity of development of trial (judge) tactics, tactics of public prosecution and tactics of professional protection<sup>26</sup>.

In addition, in connection with the reform of the judiciary and law enforcement agencies, there are also new entities that use tactical and forensic knowledge: the parties to criminal proceedings, procedural manager, the head of the pre-trial investigation body, examining magistrate, etc. Moreover, such processes are accompanied by the creation of new institutions with the emergence of new specific officials, in particular, detectives (persons who combine investigative and operational activities). Legal bases for creation of search services: private detective agencies (private detectives) are also developed<sup>27</sup>.

In view of the above, in our opinion, in the system of forensic tactics, along with investigative tactics, it is expedient to single out judicial tactics (or judicial tactics) as its important separate branch which studies regularities of adversarial tactics and investigates prosecution tactics and professional defense tactics court (judges), as well as the tactics of conducting certain judicial actions, in particular, the tactics of judicial review, tactics of cross-examination, tactics of simultaneous interrogation, tactics of presentation for identification, etc. An innovative area of research on issues of judicial tactics is the development and implementation of

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26 Шепітько В. Ю., Коновалова В. О., Журавель В. А., Шевчук В. М. та ін. Криміналістика : підручник : у 2 т. Т. 1 ; за ред. В. Ю. Шепітька. Харків, 2019. С. 217.

27 Шепітько В. Ю. Цільове призначення криміналістичних знань і прагнення європейських стандартів у протидії злочинності. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2017. Вип. 17. С. 8, 9.

tactical operations in legal proceedings. Therefore, in the structure of judicial tactics it is also necessary to consider the tactical organization foundations and conducting tactical and forensic complexes (tactical combinations and tactical operations) as effective and efficient means of solving tactical tasks in court. It seems that today the problems of judicial tactics are a very promising area of research in forensic science but in the theoretical and methodological aspect still remain insufficiently studied and necessitate further scientific development of this issue.

In our opinion, in addition to investigative and judicial tactics, other separate sub-branches, such as tactics of public prosecution, tactics of professional defense, tactics of search activity, tactics of criminal activity, are also innovative directions of research on forensic tactics in current realities. It is seen that the need for further research requires issues of individual scientific theories (doctrine of forensic version, theory of tactical operations, theory of investigative situation, theory of tactical decision-making, the theory of systematization of tactics, etc.), covert investigative and judicial actions<sup>28</sup>. At the same time, research on the tactics of organizing and conducting tactical and forensic complexes (tactical combinations and tactical operations) in investigative, detective, prosecutorial and judicial activities is of particular importance<sup>29</sup>.

Thus, current trends and prospects for development of forensic tactics currently

significantly affect optimization of pre-trial investigation and trial and require expanding its boundaries and boundaries of research, require innovative approaches to addressing these issues which necessitate further development of its theoretical and methodological foundations and intensification of the practical orientation of optimization research and increase of efficiency of activity of subjects of criminal proceedings.

Innovative directions of research in forensic methodology, which are aimed at optimizing investigative (detective) activities, are closely related to changes in criminal and criminal procedure legislation, as such changes require improvement of existing methods of criminal investigation and development of new forensic methods of investigation. Innovative directions of scientific research in forensic methodology are closely related to changes in criminal and criminal procedure legislation, as such changes require improvement of existing methods of crime investigation and development of new ones (V. A. Zhuravel, 2013; V. O. Konovalova, 2016; V. V. Tishchenko, 2007; B. V. Shchur, 2010 and others). Innovations in this field of criminalistics are aimed at conducting research on methods of investigating new types of criminal offenses, tactical operations, algorithms of investigative (detective), checking typical investigative versions, developing forensic characteristics of criminal offenses, etc.<sup>30</sup> The widespread use of computer information technology contributes to the further development

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28 Шепітько В. Ю. Предмет криміналістичної тактики: історія формування, зміст та тенденції. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2019. Вип. 19. С. 8–20. DOI: 10.32353/khrife.1.2019.01 (date accessed: 03.10.2021).

29 Коновалова В. Е. Новые тенденции развития криминалистики. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2006. Вип. 6. С. 11–16.

30 Журавель В. А. Криміналістичні методики: сучасні наукові концепції : монографія. Харків, 2012. С. 138–155.

of procedure algorithmization of pre-trial investigation and hearing.

Thus, the modern realities of Ukraine require forensics to improve, develop and implement in practice methods of investigation: criminal offenses committed in emergency situations; criminal offenses against the foundations of national security of Ukraine in the field of health care; organized criminal activity; human trafficking; drug crime; cybercrime; illicit trafficking in weapons; transnational criminal activity; criminal offenses related to the movement of anti-epidemic goods across the customs border of Ukraine; smuggling of medical masks and other anti-epidemic goods, etc. In addition, the current needs of law enforcement practice necessitate the development and implementation of methods of professional protection against criminal prosecution and methods of maintaining public prosecution for various types of criminal offenses. The widespread use of computer information technology contributes to the further development of algorithms for the investigation of criminal offenses.

Modern promising areas of formation and implementation of effective forensic methods of investigation are reflected in the creation of so-called “micromethods” forming schemes of the main investigation methods of certain types of criminal offenses. Conducting separate monographic studies related to “micromethods” has demonstrated their scientific novelty and significance, as well as practical usefulness. Development of

problems of methods of investigation of murders committed by organized criminal groups; methods of investigating murders concealed by staging; a number of publications devoted to the investigation of murders without a corpse, the investigation of murders with the dismemberment of a corpse, etc. demonstrated scientific novelty and practical usefulness of such research<sup>31</sup>.

Innovations in forensic methods cover its various aspects and are determined by changes in the political, economic and other spheres of the state. The main innovations are to change the traditional views on the structure of the methodology of investigation and focus on the selection and formulation of new areas of detection and investigation of criminal offenses of a certain type. Another area of innovation is the adaptation of new “micromethods” to existing methods of investigation of certain types of criminal offenses which allows the use of tried and tested recommendations by interpreting them in the created separate methods of investigation. Important in the development of forensic methodology is introduction of modern forensic knowledge in investigative and forensic expert practice<sup>32</sup>.

Considering the relevance of modern forensic research on forensic methods, B. V. Shchur rightly notes that current scientific research on these issues should be carried out in several areas: 1) further formation of the methodological foundations of forensic methodology, its general provisions (conceptual approaches,

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31 Коновалова В.О., Мишков Я.Є. Інновації в методиці розслідування злочинів. *Право та інновації*. 2016. № 2. С. 34-40.

32 Konovalova V. O., Shevchuk V. M. Prospective directions of research of innovations of separate criminalistic methodics. *Scientific practice: modern and classical research methods* :\_Collection of scientific papers «ΛΟΓΟΣ» with Proceedings of the I International Scientific and Practical Conference (Vol. 1), Boston, February 26, 2021. Boston-Vinnytsia: Primedia eLaunch & European Scientific Platform, 2021. Pp. 81–85. DOI: 10.36074/logos-26.02.2021.v1.23 (date accessed: 03.10.2021).

principles, functions, structure, etc.); 2) creation of separate forensic methods (concerning categories, types, subtypes of crimes, etc.); 3) development of forensic methods for various activities (investigative, judicial, prosecutorial, legal ones); 4) offering certain means of forensic methodology; methodological recommendations, methods, techniques, technologies, etc.<sup>33</sup>. Therefore, as we see, methodological and forensic support of the investigation process, prevention of criminal offenses, trial has always been and is one of the priority areas of criminology. Methodological and forensic recommendations developed by criminalistics are an important tool for investigators, detectives, judges, and become a kind of algorithm of actions in typical investigative and judicial situations.

In order to optimize the investigative (detective) activity, it is seen that the formation of certain forensic techniques should be designed for a specific addressee: investigator, detective. In modern criminalistics, there are proposals on the need to develop separate forensic methods for prosecutor or trial. Therefore, it is necessary to move from a descriptive approach to certain forensic methods to a certain standardization and unification. In this sense, the proposals for development of the Register of individual forensic methods, proposing the order of its formation and operation are quite important<sup>34</sup>.

In order to improve investigative activity, investigation automation such criminal

offenses becomes especially important, first of all, it is connected with development and use of information retrieval systems. Currently, there is an urgent need to create automated workstations of investigators and centralized information retrieval systems with registers of the Tax Administration, Pension Fund, GAI, Registration Chamber, seized movable and immovable property, telephone database of certain regions, identification of EDPNOU and other numbers and codes<sup>35</sup>. Among them, an important place is occupied by the "Automated Investigator Workplace".

The need to optimize the investigation has stimulated scholars and practitioners to address the problem of formalizing this type of criminal procedure. At present, there is an objective possibility to implement the ideas of algorithmization and computer programming which necessitates intensification of joint research by forensic scientists and programmers to formalize the investigation that could result in the development of an electronic reference and consultation guide for investigators. In particular, it is possible to develop and implement special computer programs that would allow mathematical calculations of probable places of residence of criminals and possible places where they commit new crimes. Recourse to these sources would be a necessary means of prompt receipt of management information that will really help increasing efficiency of criminal proceedings<sup>36</sup>.

One of the innovative areas of optimization of investigative activities

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33 Шур Б. В. Теоретичні основи формування та застосування криміналістичних методик : монографія. Харків, 2010. С. 25.

34 Шепітько В. Ю. Інновації в криміналістиці як віддзеркалення розвитку науки. *Інноваційні методи та цифрові технології в криміналістиці, судовій експертизі та юридичній практиці* : мат-ли міжнар. «круглого столу». Харків, 2019. С. 150.

35 Шепітько В. Ю., Журавель В. А., Авдеева Г. К. Інновації в криміналістиці та їх впровадження ... . С. 42.

36 Журавель В. А. Формалізація як інноваційний засіб оптимізації досудового розслідування.

and some forensic methods proposed by scientists that can significantly increase efficiency of the subjects of criminal proceedings are scientific developments in the formation and implementation of tactical operations using modern information technology. In order to further improve the developed information systems and create appropriate conditions for their successful implementation, it is proposed to supplement the software and information system of the of the investigator workstation with a “Tactical Operations” separate module providing it in the Forensic Methods block. Creation of such a module will contribute to improvement of the information technology program of the “Інсайт” Investigator workstation expand the implementation scope in activities of the investigator of modern innovative projects will serve as a basis for decision-making in accordance with his work<sup>37</sup>.

## Conclusions

Given the above, we can conclude that exploration of optimization issues of investigative (detective) activities through introduction of innovative approaches are quite relevant and significant, both in theoretical and practical sense. As practice shows, criminalistics is an innovative and applied science that is constantly evolving and is associated with creation and implementation of innovative tools, methods and technologies<sup>38</sup>. Timely response to political and economic changes taking place in the world and society, contribute to the rapid response of criminology to all the “novels” used by offenders in committing criminal offenses.

Therefore, development of effective practical recommendations for pre-trial investigation is usually caused by the emergence of new criminal manifestations that have arisen as a result of economic and social changes and changes in legislation and aimed at optimizing investigative (detective) activities. It is seen that further study of these problems will help resolve controversial positions of scientists on innovative areas of improvement and efficiency of criminal proceedings, development of theoretical and methodological foundations of forensic innovation, enrich the general theory of forensics and increase the efficiency of criminal investigation.

### Інноваційні напрями оптимізації слідчої (детективної) діяльності у сучасних умовах

Віктор Шевчук

*Статтю присвячено проблемам оптимізації слідчої (детективної) діяльності шляхом застосування інноваційних підходів до вирішення завдань кримінального судочинства й запровадження їх положень і рекомендацій у правозастосовну практику. Визначено та розглянуто найважливіші інноваційні напрями розвитку сучасної криміналістичної науки, спрямовані на оптимізацію слідчої (детективної) діяльності в умовах трансформації злочинності, інформаційних та епідеміологічних загроз суспільству. Обґрунтовано, що в реаліях сьогодення застосування інноваційних підходів сприяє результативності розслідування, оптимізує слідчу (детективну) діяльність і забезпечує ефективність кримінального провадження й судочинства. Зазначено, що сьгодні одним із найперспективніших напрямів удосконалення боротьби зі злочинністю є розроблення, впровадження та застосування криміналістичних інновацій.*

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*Інноваційні методи та цифрові технології в криміналістиці, судовій експертизі та юридичній практиці* : мат-ли «круглого столу» (Харків, 12.12.2019). Харків, 2019. С. 59–62.

37 Шевчук В. М. Тактичні операції у криміналістиці: теоретичні засади формування та практика реалізації : монографія. Харків, 2013. С. 350–370.

38 Шепітько В. Ю. Інновації в криміналістиці як віддзеркалення ...

Виокремлено й розглянуто три напрями виявлення, розроблення та запровадження криміналістичних інновацій — техніко-криміналістичний, тактико-криміналістичний і забезпечення криміналістичної методики розслідування окремих видів кримінальних правопорушень. Визначено основні завдання й очікувані результати впровадження інновацій у право-застосовну практику. Сформульовано теоретико-методологічні засади розроблення та формування концепції інноваційних засад криміналістичного забезпечення оптимізації слідчої (детективної) діяльності. Обґрунтовано нові наукові підходи до вирішення спірних питань і визначено перспективні напрями досліджень у цій царині.

**Ключові слова:** ефективність і якість досудового розслідування; оптимізація слідчої (детективної) діяльності; інновації у криміналістиці; криміналістична інноватика; інновації у криміналістичній техніці, тактиці та методиці.

### **Инновационные направления оптимизации следственной (детективной) деятельности в современных условиях**

**Виктор Шевчук**

Статья посвящена проблемам оптимизации следственной (детективной) деятельности путём применения инновационных подходов к решению задач уголовного судопроизводства и внедрения их положений и рекомендаций в правоприменительную практику. Определены и рассмотрены важнейшие инновационные направления развития современной криминалистической науки, направленные на оптимизацию следственной (детективной) деятельности в условиях трансформации преступности, информационных и эпидемиологических угроз обществу. Обосновано, что в современных реалиях применение инновационных подходов способствует результативности расследования, оптимизирует следственную (детективную) деятельность и обеспечивает эффективность уголовного производства и судопроизводства.

Отмечено, что в настоящее время одно из наиболее перспективных направлений усовершенствования борьбы с преступностью — это

разработка, внедрение и применение криминалистических инноваций.

Выделены и рассмотрены три направления выявления, разработки и внедрения криминалистических инноваций — технико-криминалистический, тактико-криминалистический и обеспечение криминалистической методики расследования отдельных видов уголовных правонарушений. Определены основные задачи и ожидаемые результаты внедрения инноваций в правоприменительную практику. Сформулированы теоретико-методологические основы разработки и формирования концепции инновационных принципов криминалистического обеспечения оптимизации следственной (детективной) деятельности. Обоснованы новые научные подходы к решению спорных вопросов и определены перспективные направления исследований в этой области.

**Ключевые слова:** эффективность и качество досудебного расследования; оптимизация следственной (детективной) деятельности; инновации в криминалистике; криминалистическая инноватика; инновации в криминалистической технике, тактике и методике.

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## Foreign experience of interaction of forensic science institutions with law enforcement agencies and possibility of its use in Ukraine

Anton Polianskyi \*<sup>a</sup>, Gabrielė Juodkaitė-Granskiė \*\*<sup>b</sup>

\* Doctor of Law, Docent, National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0003-1684-7567>, e-mail: [theoreticlabb@hniise.gov.ua](mailto:theoreticlabb@hniise.gov.ua)

\*\* Doctor of Law, Docent, Member of Supreme Court of Lithuania, Vilnius, Lithuania, ORCID: <https://orcid.org/0000-0002-5335-1811>, e-mail: [gabriele.juodkaite-granskiene@tf.vu.lt](mailto:gabriele.juodkaite-granskiene@tf.vu.lt)

<sup>a</sup> Methodology, Conceptualization, Writing – original draft.

<sup>b</sup> Data curation, Formal analysis.

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*The law enforcement sector of our state is a separate mechanism which each element performs a clearly defined functional role that ensures social justice, protection and security of population, territorial integrity of Ukraine. These factors are an incomplete list of features that explain the importance of state activity in law enforcement or human rights. The latter brings together a large array of different actors each of which is entrusted with part of power or socially significant tasks. However, when carrying out law enforcement activities, authorized entities cannot always be able to address certain complex issues that require specific professional knowledge, skills and abilities. Therefore, for their resolving, law enforcement agencies cooperate with specially authorized entities that powers include conducting forensic examinations, in particular, forensic science institutions. In this context, it should be emphasized that ensuring effective cooperation between forensic institutions and law enforcement agencies is virtually impossible without creating appropriate administrative and legal framework for implementation of legal relations in this direction.*

*It should be noted that in recent years, the legislator scientific circles pays more and more attention to activities of forensic science*

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*institutions and law enforcement agencies. However, this does not preclude existence of a number of organizational and legal issues in implementation of these entities of their joint activities.*

*Thereby in the framework of the presented research we aimed to find out essence, content and features of administrative and legal bases of interaction of forensic science institutions with law enforcement agencies, make maximum use of foreign experience, and develop proposals and recommendations to improve legislation in this area.*

**Keywords:** *interaction, association, coordination, integration, forensic institutions, law enforcement agencies, ENFSI.*

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## Research Problem Formulation

In general, interaction phenomenon is quite complex and diverse. This aspect in many moments determines peculiarities of interaction between law enforcement agencies and forensic science institutions. In a general sense, the “interaction” word is a mutual connection of phenomena, mutual support; be in interaction; the process of mutual influence of objects on each other, the most general, universal form of change of their state, etc.<sup>1</sup>. The meaning and content of interaction have been repeatedly considered in philosophical science. Peculiarities of this category were once considered by outstanding philosopher of the past Hegel. In his reflections on essence of this category, the scientist came to the conclusion: “interaction is a mutual causality of predictions that determine each other’s substances, each is relative to the other both active and passive. In general, representatives of classical German idealist philosophy advocated the

need to develop a systematic understanding of the determinants of development. In their concepts, the German idealists, first of all Hegel, reflected the idea of internal activity, conditionality of external causes by internal organization, defended the relationship of parts and the primacy of the whole over parts, hierarchy in the structure of causation”<sup>2</sup>. The next stage of understanding the *interaction* concept of is associated with dialectical materialism, where the phenomenon under research acted as a universal dialectical law, property of matter, inherent in all its forms. According to F. Engels: “Interaction is the first thing that comes before us when we consider moving matter, interaction is the truth of the “causa finalis” (ultimate cause) of things. We cannot go further to know this interaction precisely because there is nothing more to know behind. Instead, in the encyclopedic literature of 1975–2001, category of interaction begins to act as an integrative element. Thus, in 1975, the philosophical dictionary

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- 1 Трофімова Л. В. Організаційно-правове забезпечення діяльності юридичних підрозділів органів державної податкової служби України : дис. ... канд. юрид. наук. Ірпінь, 2005. С. 97 ; Юхно О. О. Діяльність транспортної міліції щодо попередження крадіжок приватного майна громадян на пасажирському залізничному транспорті : дис. ... канд. юрид. наук. Харків, 2005. С. 123 ; Ковальська В. В. Міліція в системі правоохоронних органів держави (адміністративно-правові аспекти) : дис. ... д-ра юрид. наук. Київ, 2009. С. 15.
  - 2 Кваша О. О. Зміст і значення поняття «взаємодія» та «система» у філософських і правових дослідженнях. *Держава і право*. 2012. Вип. 56. С. 34.

interpreted interaction as a process of mutual influence of objects on each other, any connection and relationship between material objects and phenomena it was emphasized that in any holistic system, “interaction acts as such a relationship, in which cause and effect are constantly changing places”. The 1998 dictionary defined this phenomenon as the process of direct and indirect influence of objects (subjects) on each other, which creates mutual conditionality and interconnection. According to the text of this source: “Interaction is an integrating factor that contributes to the formation of structures. Its feature is causal conditionality. Each of the interacting parties acts as a cause for the other and as a consequence of the simultaneous reverse influence of the opposite party, due to the development of objects and their structures”. In the 2002 philosophical dictionary, interaction appears as a universal form of development of the objective world, which determines the existence and structural organization of any material system. Interaction as a material process is accompanied by the transfer of information but is likely to be realized at a certain speed in a certain space and time. As a result the interaction is carried out by constitutional social relations<sup>3</sup>.

The issue of the content of interaction occupies an important place in

psychological science. In the most general and simple sense, *interaction* is primarily a process of direct and/or indirect influence of subjects on each other which creates their mutual conditionality and connection. In their study, A. A. Bodalev and N. S. Dezhnikov define the category of interaction “as a process of human perception and understanding of man and distinguishing between the concepts of activity and interpersonal interaction, A. A. Bodalev substantiates the specifics of each of them in contact and the concept of *communication* and *interaction* is considered synonymous”<sup>4</sup>.

It is also worth paying attention to sociological research. J. Homans argued convincingly that “social interaction is a complex system of exchanges conditioned by ways of balancing rewards and costs”<sup>5</sup>. Domestic scientists, in particular E. V. Korotayev and L. V. Kalchenko, believe that social interaction is an “interaction” a process when individuals and groups in the course of communication by their behavior affect other individuals and other groups, causing feedback. Reactivity (i.e. direct and feedback) certainly contributes to the effectiveness of social interaction and allows you to consistently adjust the process of obtaining the end result<sup>6</sup>.

V. P. Andrushchenko believes that from the point of view of sociology, interaction should be interpreted as “systematic

- 3 Кожушко С. Взаємодія як філософське й психологічне поняття. *Освіта регіону*. 2013. № 4. URL: <https://social-science.uu.edu.ua/article/1221> (date accessed: 10.08.2021).
- 4 Шаршов И. А., Старцев М. В. Педагогическое взаимодействие и общение: категориальный анализ и соотношение. *Научно-методическое обеспечение профессионального воспитания будущего специалиста* : мат.-лы Всерос. науч.-практ. Internet-конф. (Тамбов, 25—31.05.2004). Тамбов, 2004. С. 64—67 ; Ярмак О. М. Поняття, сутність взаємодії та її роль у розвитку соціальної системи. *Право і безпека*. 2006. № 5. С. 47.
- 5 Хоманс Дж. Социальное поведение как обмен // Современная зарубежная социальная психология. Москва, 1984. С. 134 ; Заброда Д. Г. Взаємодія суб'єктів боротьби з корупцією (адміністративно-правовий аспект) : дис. ... канд. юрид. наук. Київ, 2005. С. 47.
- 6 Коротаева Е. В. Психологические основы педагогического взаимодействия. Москва, 2007. С. 11; Кальченко Л. В. Педагогічні умови соціального захисту бездоглядних дітей у придуках для неповнолітніх : дис. ... канд. пед. наук. Луганськ, 2009. С. 125—126.

sufficiently regular social actions of the subject aimed at each other that aim to cause a certain appropriate reaction and corresponding reaction generates a new reaction of the influencer. All social actions, all social processes are coordinated by interaction. Sociologists also distinguish the structure of social interaction: first, it is the subjects of interaction (individuals, social communities, etc.) and secondly, the subject of interaction (what is the interaction) and the mechanism of conscious regulation of relations between subjects (rules of the game)”<sup>7</sup>.

Management theory defines interaction as a coordinated time and place of joint activities aimed at achieving a common goal. Interaction as a management concept can be considered as a form of communication of system elements, through which they, complementing each other, create conditions for successful functioning of the system as a whole. Moreover, it should be borne in mind that interaction as a management category is manifested not only in the internal organizational activities of the system, but also in its external functions. Thus, as rightly noted by E. Barash: “interaction is manifested in the process of interaction and the use of each other’s opportunities to achieve their own goals. Thus, interaction occurs even when the relationship between the subjects is united by a common goal. Secondly, interaction is not only a continuous influence on each other, but also when the interacting parties use each other’s opportunities to achieve their own goals”<sup>8</sup>.

Analysis of general etymological definitions, as well as provisions of philosophical, sociological and

psychological science demonstrated that interaction is a multidimensional category that has different manifestations but it is characterized by a number of common features, including the interaction of law enforcement agencies with forensic institutions, namely:

- firstly, interaction is always a certain community of subjects, in other words, it in any case arises between two or more elements of a reality;
- secondly, interaction determines the joint activities of respective subjects, i.e. characterizes the common vector of movement for them aimed at achieving a certain predetermined goal;
- thirdly, interaction has an organizational basis, because commonality and coherence of the actions of the subjects requires work to ensure these actions and personal control of each subject in while their implementation;
- fourthly, interaction is always voluntary and is characterized by complete independence of the actors involved in the interaction; it is not coercion to cooperate that comes to the fore, but accumulation of capabilities of each subject for the effective and rapid solution of a goal.

At the same time, such aspects determine the overall format of interaction. In the context of the work of public authorities and, in particular, law enforcement agencies including law enforcement agencies and forensic science institution, its content and features are complicated and in some ways multiplied.

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7 Социология. Наука об обществе : учеб. пособ. ; под общ. ред. проф. В. П. Андрущенко, проф. Н. И. Горлача. Харьков, 1996. С. 244, 246 ; Заброда Д. Г. Ор. cit. С. 47—48.

8 Бараш Є. Ю. Організаційно-правові засади діяльності установ виконання покарань : дис. ... канд. юрид. наук. Харків, 2006. С. 131—132.

There are several views of scientists on this issue. M. M. Birgeu found that interaction is an intersectoral relationship, general government principle. As a result of interaction a new quality, new unity, synthesis is formed that is expressed in complexity of the performance of state functions. Coordinated activities of different types of bodies in their common area are based on the principles of parity, equal partnership. Any guiding tone and style is not allowed here, none of the non-subordinate parties in the relationship of interaction is endowed with powers of a permanent organizer of coordinated activities. Cooperation is carried out with the leading role of one or another body which takes the initiative in raising issues that require joint efforts. That is, interaction is a universal method that allows you to maximize functionality and benefits of different actors, combine their efforts and seek to increase the effect in the performance of state functions<sup>9</sup>. I. M. Gutkina and M. A. Pogoretskyi point out that interaction is a cooperation based on the law and departmental acts of independent, non-subordinate (independent) bodies (subjects), in which they act in concert, effectively using and combining inherent their powers, forms and methods of activity<sup>10</sup>.

A number of scientists have devoted their research to the peculiarities of interaction in the context of law

enforcement. At the same time, in each case, scientists have given the *interaction* category different meanings. For example, V. Yu. Kikinichuk points out that interaction is a purely legal relationship of two types:

- legal relations in which the parties occupy an equal position (there are no ties such as “power-subordination”);
- legal relations in which one of the parties occupies a leading position and the other party – a subordinate position<sup>11</sup>.

A similar point of view is shared by I. A. Malyuta, who believes that interaction is a mutual connection and coordination of actions of law enforcement officers aimed at fulfilling their powers. At the same time, the scientist notes that such interaction is a social relationship that arises in connection with the need to use specific expertise and assistance of specialists in various fields of knowledge in the process of performing the functions of the state<sup>12</sup>.

Examining directly the issue of interaction between forensic institutions and law enforcement agencies, V. V. Kovalev concluded that it is based on the rules of law and regulations joint activities of non-subordinate organizational entities with excellent competence and specialization, agreed on time, place, means and methods of implementation, to solve specific tasks due to the nature of the investigative situation for which it is carried out, in order

- 9 Біргеу М. М. Організація діяльності поліції Республіки Молдова з профілактики злочинів : автореф. дис. ... д-ра юрид. наук. Харків, 2004. С. 23.
- 10 Белозеров Ю. Н., Гуткин И. М., Чувилев А. А., Чугунов В. Е. Органы дознания и предварительного следствия системы МВД и их взаимодействие. Москва, 1973. С. 128 ; Охріменко С. С. Гарантії правового захисту процесуальної самостійності та незалежності слідчого : дис. ... канд. юрид. наук. Київ, 2007. С. 101.
- 11 Кікінчук В. Ю. Форми взаємодії Національної поліції з іншими суб'єктами забезпечення публічної безпеки та порядку в державі. *Право.ua*. 2017. № 1. С. 82.
- 12 Введение в теорию государственно-правовой организации социальных систем ; под общ. ред. Е. Б. Кубко. Киев, 1997. С. 80—81 ; Малютін І. А. Зупинення досудового розслідування : навч.-метод. посіб. Київ, 2003. С. 70 ; Ковальов В. В. Взаємодія слідчого з працівниками експертної служби МВС України : дис. ... канд. юрид. наук. Київ, 2008. С. 101.

to detect, investigate and prevent crimes, establish objective truth and ensure the proper application of the law<sup>13</sup>.

Thus, within different scientific interpretations, interaction is given the meaning of “a set of social relations”, “forms of cooperation”, “forms of coordination” and so on. Some scholars see the interaction of law enforcement agencies and forensic institutions solely as a procedural institution that takes place in the work of law enforcement agencies related to combating criminal offenses. In our opinion, the interpretations of scientists, although in some cases have a rational core, often do not fully disclose the content and significance of the interaction of law enforcement agencies and forensic institutions. In order to deal with this problem more fully, let us pay attention to the provisions of the law.

In particular, in the Law of Ukraine № 4038-XII: *On Judicial Examination*, dated on 25.02.1994 the *interaction* term does not appear at all. Instead, the provisions of this legal act regulate the “grounds for forensic examinations”. Thus, according to Art. 7 of the above Law “the basis for the forensic examination is the relevant court decision or the decision of the pre-trial investigation body, or a contract with a forensic expert or forensic science institution if the examination is commissioned by others. The basis for obtaining the opinion of a specialist in clarifying the circumstances of a criminal offense is a request of an

official of the inquiry unit of the National Police, security body, the body that monitors compliance with tax legislation, the State Bureau of Investigation, the National Anti-Corruption Bureau of Ukraine, the authorized person of another unit these bodies, which are authorized to conduct pre-trial investigation of criminal offenses”<sup>14</sup>. Thus, the interaction between forensic agencies and law enforcement agencies has the form of a relationship related to forensic researches.

### Analysis of basic research and publications

Accession to the European Community is defined as the main way of Ukrainian development. Hence, such interest of judicial, law enforcement, expert institutions of the state in mastering foreign experience of interaction of judicial expert institutions with law enforcement agencies and the possibility of its use in Ukraine. At different times, this problem has been taken care of by many researchers.

Among them are Wallace W., Avdeeva G., Birgeu M. M., Biryukov P. N., Bilas A. I., Guzela M., Kantsir V., Guslavskiy V. S., Dmitrieva K. S., Zavidnyak I. O., Klimenko N. I., Kuprievich O. A., Korotaev V. M., Linnik O. V., Omelchuk L. V., Lopata O. A., Naumenko S. M, S. O. Lyubchenko, Yu. Yu. Nizovtsev, O. A. Parfilo, Skrypnyk M., Topolya R., Khaziev Sh. N., Shepitko V., Juodkaitė-Granskienė G. and others.<sup>15</sup>

13 Ковальов В. В. Ор. cit. 227 с.

14 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12/conv#Text> (date accessed: 10.08.2021).

15 Wellace H., Wallace W. Policy-Making in the European Union. 4 ed. Oxford: Oxford University Press, 2005. 272 p. ; Биргеу М. М. Ор. cit. С. 23 ; Бирюков П. Н. Полиция Федеративной Республики Германия. *Евразийский юридический журнал*. 2009. № 11. URL: [http://www.eurasialaw.ru/index.php?option=com\\_content&view=article&id=911:2010-07-27-07-00-37&catid=122:2010-07-27-06-55-50](http://www.eurasialaw.ru/index.php?option=com_content&view=article&id=911:2010-07-27-07-00-37&catid=122:2010-07-27-06-55-50) (date accessed: 10.08.2021) ; Білас А. І. Правоохоронна діяльність країн ЄС: порівняльно-правове дослідження : дис. ... канд. юрид. наук. Львів, 2016. 227 с. ; Божьев В. П. Правоохранительные органы Российской Федерации. Москва, 1996. 286 с. ; Гуславський В. С. Управління співробітництвом ОВС України з правоохоронними органами країн СНД: організаційно-правові засади :

## Article Purpose

The article purpose is to highlight important, in our opinion, to take into account and implement in the Ukrainian legal space aspects of foreign experience in order to improve the interaction of forensic institutions and law enforcement agencies.

## Research Methodology

Research methodology consists of the use of empirical research methods (observation, comparison); methods of theoretical research (ascent from the abstract to the concrete, formalization, axiomatic method or deductive-axiomatic); general methods used at both the empirical and theoretical research levels (abstraction and concretization, analysis, synthesis, induction, deduction, abduction, modeling, analogy, historical and logical methods).

## Main (Research) Content Presentation

A separate and important area of interaction of forensic science institutions

with law enforcement agencies is the study of relevant foreign experience and determining the possibility of its use in Ukraine. The necessity and expediency of taking a number of steps in this direction is evidenced by both the foreign policy course of our state, in particular integration into the EU, and numerous research positions. Thus, it should be noted that current Law of Ukraine: № 4038-XII *On Judicial Examination* of 25.02.1994 where a separate section is devoted to issues of international cooperation in the field of forensic science. It will be recalled that according to this normative legal act, this cooperation is expressed as follows: “in the case of a forensic examination on behalf of the relevant body or person of another state with which Ukraine has an agreement on mutual legal assistance and cooperation, Ukrainian law applies provided by the specified agreement; heads of state specialized institutions conducting forensic examinations, if necessary, have the right, with the consent of the body or person who appointed the forensic

дис. ... д-ра юрид. наук. Харків, 2006. 444 с. ; Раевский П. А., Пархоменко С. А. Доклад Комитета гражданских инициатив и Фонда ИНДЕМ «Организация правоохранительной системы в некоторых федеративных странах мира». URL: <https://komitetgi.ru/upload/iblock/538/538b9dcf40eca849375fa5f15da10d26.pdf> (date accessed: 10.08.2021) ; Дуфенюк О. М. Досвід Польщі стосовно участі судового експерта у кримінальному провадженні. *Науковий вісник Львівського державного університету внутрішніх справ. Серія юридична*. 2018. Вип. 1. С. 247–248 ; Клименко Н. І. Правовий статус експертів в США, Великобританії та деяких країнах Північної Європи. *Криміналістика і судова експертиза*. 2016. Вип. 61. С. 584. URL: [http://nbuv.gov.ua/UJRN/krise\\_2016\\_61\\_64](http://nbuv.gov.ua/UJRN/krise_2016_61_64) (date accessed: 10.08.2021) ; Линник О. В., Омельчук Л. В. Актуальність вступу України до міжнародних судово-експертних мереж. *Міжнародний юридичний вісник: актуальні проблеми сучасності (теорія та практика)*. 2017. Вип. 2–3 (6–7). С. 238 ; Ліховіцький Я. О. Сутність та значення координації дій правоохоронних органів. *Форум права*. 2011. № 1. С. 595–598. URL: [http://nbuv.gov.ua/UJRN/FP\\_index.htm\\_2011\\_1\\_96](http://nbuv.gov.ua/UJRN/FP_index.htm_2011_1_96) (date accessed: 10.08.2021) ; Науменко С. М. Організаційні засади взаємодії експертних установ з правоохоронними органами. *Прикарпатський юридичний вісник*. 2018. Вип. 1 (22). Т. 2. С. 275–279 ; Любченко С. О., Нізовцев Ю. Ю., Парфіло О. А. Система забезпечення судово-експертної діяльності в державах-членах НАТО : наук.-практ. огляд ; за заг. ред. О. А. Парфіло. Київ, 2015. С. 9 ; Шепітько В. Ю. Правове регулювання експертної діяльності та тенденції формування єдиного європейського простору в галузі судової експертизи. URL: [https://www.hniise.gov.ua/uploads/files/public-folder/2020\\_tezu\\_konferencija%20in%20print5.pdf](https://www.hniise.gov.ua/uploads/files/public-folder/2020_tezu_konferencija%20in%20print5.pdf) (date accessed: 10.08.2021) ; Юодкайте-Гранскіене Г. Коротка презентація судово-експертної наукової системи Литви. *Ароцкерівські читання : зб. мат-лів міжнар. наук.-практ. конф., присвяч. 90-річ. від дня народж. видат. вчен.-криміналіста, д-ра юрид. наук, проф. Л. Ю. Ароцкера* (Полтава, 25.05.2017). Харків, 2017. С. 31 та ін.

examination, to include in the expert commissions of leading specialists of other states. Such joint expert commissions carry out forensic examinations according to the norms of the procedural legislation of Ukraine; State specialized institutions performing forensic examinations have the right to establish international scientific relations with institutions of forensic science, criminology, etc. of other states, to hold joint scientific conferences, symposia, seminars, to exchange trainees, scientific information and printed publications and to conduct joint publications in the field. forensic examination and criminalistics”<sup>16</sup>. It is also appropriate to note *Regulations on the Expert Service of the Ministry of Internal Affairs of Ukraine, approved by order of the Ministry of Internal Affairs № 1343* dated on 03.11.2015 that states that “Expert Service of the Ministry of Internal Affairs to organize its activities: provided for the implementation of projects, implementation of programs, including international; to establish relations with law enforcement bodies, institutions of forensic science and criminology, etc. of other states and their international associations and organizations, including in the form of membership in these associations and organizations; for participation in international organizations to pay membership fees provided by their constituent documents, in the presence of relevant contracts, bilateral or multilateral agreements, etc., provided by law; interacts

with domestic and foreign enterprises, institutions and organizations in order to exchange experience on issues within its competence”<sup>17</sup>. According to the Resolution of the Cabinet of Ministers of Ukraine № 778, *On approval of the Regulations on the Coordinating Council for Forensic Science at the Ministry of Justice of Ukraine* dated on 16.11.1994 Coordinating Council for Forensic Science at the Ministry of Justice of Ukraine: analyzes international and domestic experience in forensic science ; participates in the organization and preparation of *round tables*, workshops, scientific and practical conferences on topical issues of forensic science, organizes experience exchange<sup>18</sup>. The still current Strategy for the development of the system of the Ministry of Internal Affairs for the period up to 2020, approved by the order № 1023-r of the Cabinet of Ministers dated on 15.11.2017 states that the implementation of the Strategy should be carried out consistently on the basis of optimal decisions. positive experience and best practices of leading states. Thus it is necessary to provide steady functioning, controllability and efficiency of work of bodies of system of the Ministry of Internal Affairs. Provides for the use of modern methods of public administration, namely: the implementation of innovative solutions and tools of public policy; use of successful international experience and assistance in the implementation of pilot projects<sup>19</sup>. “In the *Strategy for the Development of the Expert*

16 Про судову експертизу ... URL: <https://zakon.rada.gov.ua/laws/show/4038-12/conv#Text> (date accessed: 10.08.2021).

17 Про затвердження Положення про Експертну службу Міністерства внутрішніх справ України : наказ МВС України від 03.11.2015 р. № 1343 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z1390-15#Text> (date accessed: 10.08.2021).

18 Про затвердження Положення про Координаційну раду з проблем судової експертизи при Міністерстві юстиції України : Постанова КМУ від 16.11.1994 р. № 778 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/778-94-%D0%BF#Text> (date accessed: 10.08.2021).

19 Про схвалення Стратегії розвитку органів системи Міністерства внутрішніх справ на період до 2020 року : розпорядження КМУ від 15.11.2017 р. № 1023-р. URL: <https://zakon.rada.gov.ua/laws/show/1023-2017-%D1%80#Text> (date accessed: 10.08.2021).

*Service of the Ministry of Internal Affairs of Ukraine until 2020* the main issues in the field of expertise, in particular, include: deepening cooperation with forensic institutions of other countries to introduce world experience in Ukraine; insufficient integration of specialists of the Expert Service of the Ministry of Internal Affairs into the world system of cooperation of forensic experts in conducting joint international research, especially on high-profile crimes; introduction of international experience in organizing the management of the infrastructure of the Expert Service of the Ministry of Internal Affairs”<sup>20</sup>. The Strategy emphasizes that “ignoring these problems will lead to the loss of a systematic approach to the further development of the Expert Service of the Ministry of Internal Affairs and will lead to inconsistency of forensic support with growing socio-economic, political and legal needs of society and the state. The use of advanced international, in particular European, experience is a necessary condition for ensuring the development of the Expert Service of the Ministry of Internal Affairs, taking into account democratic values, socio-economic, political and legal levels”<sup>21</sup>.

Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other hand, ratified by the Declaration of the Law № 1678-VII dated

on 16.09.2014, cannot be avoided. Among other things, this agreement provides that<sup>22</sup> “The parties agreed to cooperate at the bilateral, regional and international levels in order to prevent and combat terrorism in accordance with international law, international human rights law, as well as humanitarian law and the law governing refugee status”<sup>23</sup>. In particular, the Agreement states, “The Parties shall implement these arrangements by: a) exchanging information on terrorist groups and organized groups supporting them, b) exchanging experience and information on terrorist trends and on means and methods of combating terrorism, including assistance in technical field and training, and c) exchange of experience in the prevention of terrorism. All information is exchanged in accordance with international and national law”<sup>24</sup>. In the framework of cooperation in the field of justice, freedom and security, the Parties attach particular importance to the establishment of the rule of law and the strengthening of institutions at all levels in the field of governance in general and law enforcement and the judiciary in particular. Cooperation will focus, in particular, on strengthening the judiciary, increasing its efficiency, guaranteeing its independence and impartiality, and combating corruption. Cooperation in the field of justice, freedom and security will be based on the principle of respect for

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20 Про затвердження Стратегії розвитку Експертної служби Міністерства внутрішніх справ України на період до 2020 року та Плану заходів щодо її реалізації : наказ МВС України від 15.03.2017 р. № 229. URL: <https://ips.ligazakon.net/document/MVS717> (date accessed: 10.08.2021).

21 Ibid.

22 Угода про асоціацію між Україною, з однієї сторони, та Європейським Союзом, Європейським співтовариством з атомної енергії і їхніми державами-членами, з іншої сторони : ратифіковано із заявою Законом від 16.09.2014 р. № 1678-VII. URL: [https://zakon.rada.gov.ua/laws/show/984\\_011#Text](https://zakon.rada.gov.ua/laws/show/984_011#Text) (date accessed: 10.08.2021).

23 Ibid.

24 Ibid.

human rights and fundamental freedoms<sup>25</sup>. The Parties also agreed to further develop judicial cooperation in civil and criminal matters, making full use of relevant international and bilateral instruments and based on the principles of legal certainty and the right to a fair trial. The parties agreed to develop further judicial cooperation between Ukraine and the EU in civil matters on the basis of relevant multilateral legal instruments, including the conventions of the Hague Conference on Private International Law in the fields of international legal cooperation, litigation and child protection. With regard to judicial cooperation in criminal matters, the Parties shall endeavor to strengthen cooperation on mutual legal assistance and extradition. This will include, if necessary, accession to the relevant international instruments of the United Nations and the Council of Europe, in particular the Rome Statute of the International Criminal Court of 1998, and their implementation, as stated in Art. 8 of this Agreement, as well as closer cooperation with Eurojust<sup>26</sup>.

Thus, provisions of a number of regulations of national and international nature, although in a fairly general form, but clearly indicate that Ukraine, as a whole and in the person of its individual government agencies, institutions (including forensic) is an active participant in international cooperation in the field of justice, law enforcement, justice and forensic science. One of the priority areas of such cooperation is the exchange of experience, joint solution of problematic issues in these areas and identification of prospects for their further development.

No less convincing is the fact that international cooperation and active study of leading foreign experience are necessary conditions for the improvement and development of forensic and law enforcement activities in Ukraine, according to research positions. Thus, R. V. Topolia studying foreign experience of administrative and legal regulation of forensic examinations of vehicles, notes that issue of borrowing positive provisions from the legislation of other countries on administrative and legal regulation of forensic examinations of vehicles has always been relevant, and now, when methods of forgery of numbers of vehicles, bodies, documents on the car are constantly improved, it appeared before the modern Ukrainian society especially sharply. The lawyer emphasizes that we should not just copy the legislation of foreign countries, in particular the EU member states but we should take into account our mentality and the peculiarities of the national specifics of the Ukrainian people<sup>27</sup>. According to the results of R. V. Topolia research, a number of conclusions were reached, in particular, he emphasizes that in the following European countries, as a rule, administrative and legal regulation of forensic examinations of vehicles is carried out in such a way that departmental expert institutions operate in cooperation with police organizations under the jurisdiction of the Ministry of Internal Affairs<sup>28</sup>. N. I. Klimenko, O. A. Kuprievich note that the treaties and agreements (conventions) of the Council of Europe, ratified by the legislation of Ukraine, provide for international cooperation of

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25 Ibid.

26 Ibid.

27 Тополя Р. Зарубіжний досвід адміністративно-правового регулювання експертно-криміналістичних досліджень транспортних засобів. *Підприємництво, господарство і право*. 2019. № 6. С. 183.

28 Op. cit. p. 188.

forensic institutions. Researchers note that the scientific potential of expert associations, educational institutes and research institutions in Europe that are engaged in applied research should be used. Their cooperation on a contractual basis has prospects for increasing the competitiveness of the EU and improving the investigation of various crimes through research and methodological development of forensic examinations. Implementation of the integration of forensic activities, forged by N. I. Klimenko, O. A. Kuprievich, will result in harmonization and improvement of expert national legislation and theoretical foundations of examination, development of common guidelines for different types of examinations, obtaining international recognition of expert opinions in general, improvement of expert activity, increase of professional skill of forensic experts<sup>29</sup>.

M. Guzela, V. Kantsir, highlighting foreign experience in the organization of forensic activities in the process of criminal prosecution, note that effectiveness of forensic activities depends on the state of its organization, as well as compliance with the urgent needs of crime and modern scientific and technical achievements that are designed to best meet these needs. The issue of the state of forensic activity organizing is especially acute in Ukraine. Therefore, it is not superfluous in this case to analyze certain issues of forensic activity during criminal proceedings in some foreign countries. Such foreign experience can be useful, in particular, for the organization of forensic activities in Ukraine, and in

general, to improve the entire procedure for obtaining evidence in the course of criminal proceedings<sup>30</sup>. Researchers note that in some European countries, as well as in Ukraine, there are problems of forensic activity, in particular in the interaction of the subjects of its implementation with law enforcement agencies, due to different departmental affiliation of forensic institutions and related complications. In most European countries, lawyers say, the forensic service is a type of civil service and is organizationally subordinated to state law enforcement agencies (Ministry of Internal Affairs, Ministry of Justice, Ministry of Defense). However, there are still some problematic and negative aspects of solving organizational and procedural issues of forensic examination through the creation of specialized forensic institutions, including strengthening the administrative factor in the field of forensic science, issues of departmental affiliation of these institutions and the nature of their centralization and decentralization<sup>31</sup>. In addition, M. Guzela and V. Kantsir note, in most European countries forensic experts are also police officers. However, the activities of forensic police experts are subject to restrictions<sup>32</sup>. In general, they conclude, the “departmental subordination” of forensic experts is not relevant in their appointment for forensic examination or research, as long as the agencies provide forensic experts with a real status of independence and impartiality and have no influence on their examinations and research. At present, it is the forensic police institutions of European countries

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29 Клименко Н. І., Купрієвич О. А. Міжнародне співробітництво судово-експертних установ. *Вісник кримінального судочинства*. 2015. № 4. С. 130–134.

30 Гузела М., Канцір В. Зарубіжний досвід організації судово-експертної діяльності в процесі здійснення кримінального переслідування. *Вісник Національного університету «Львівська політехніка»*. Серія: Юридичні науки. 2018. № 906 (20). С. 129.

31 Wellace H., Wallace W. Ibid. С. 129–135.

32 Гузела М., Канцір В. Op. cit.

that form the real and effective basis for the organization of forensic examination. Therefore, it is important to improve the legal regulation of expert activity, further development of its organizational forms during criminal proceedings<sup>33</sup>. According to K. S. Dmitrieva, “one of the main directions of work of all public authorities in Ukraine on its integration into the European and world community is the preparation of proposals on international legal relations and Ukraine’s accession to international treaties and conventions, signing agreements on legal cooperation with relevant bodies of foreign states and international organizations, interaction with them within their powers, etc. That is why the current trend is to expand the participation of forensic institutions in such international cooperation, increasing their role in the development of theory and practice of forensics and forensics. The effective integration development of forensic institutions in the field of forensic science of countries in different regions of the world is facilitated not only by the accumulated experience of legal regulation of forensic expertise, but also the implementation of promising approaches to new types of forensic examinations”<sup>34</sup>. K. S. Dmitrieva emphasizes that despite the presence of a number of studies on international activities in the field of forensic science, as well as the establishment and operation of international forensic institutions, the

need to cover this issue is still relevant, taking into account the legal realities and features of a number of solutions. tasks on forensic science activities<sup>35</sup>. The researcher also argues that in order to accelerate the practical implementation of these proposals and innovations, it is advisable at the legislative level to make a number of additions and changes to the Law of Ukraine: *On Judicial Examination* concerning international cooperation of forensic institutions, as well as to make appropriate changes to procedural legislation<sup>36</sup>.

G. Avdeeva claims that currently, in accordance with the *Law of Ukraine: On the Principles of Domestic and Foreign Policy*, one of the main principles of Ukrainian foreign policy is integration into the European Union (EU). According to paragraph 1 of Art. 51 of the Partnership and Cooperation Agreement between Ukraine and the European Union (PCA), an “important condition for strengthening economic ties between Ukraine and the Community is the approximation of existing and future legislation of Ukraine with Community law. Ukraine shall take steps to ensure that its legislation is gradually brought into line with Community law.” Therefore, the study and analysis of the rules of law of the EU, which regulate forensic activities, are important for legislative activity in our country<sup>37</sup>. These norms, the researcher emphasizes, reveal the basic approaches to the organization of forensic activities in the

33 Гузела М., Канцір В. *Op. cit.*

34 Дмитрієва К. С. Актуальні напрями розвитку міжнародного судово-експертного співробітництва. *Юридичний науковий електронний журнал*. 2020. № 1. С. 288. DOI: 10.32782/2524-0374/2020-1/71 (date accessed: 10.08.2021).

35 *Ibid.*

36 *Ibid.*

37 Авдеева Г. Проблеми гармонізації законодавства України у галузі судової експертизи із законодавством країн Європейського Союзу. *Правова доктрина — основа формування правової системи держави* : мат-ли Міжнар. наук.-практ. конф. / Нац. акад. прав. наук України. Харків, 2013. С. 634—637. URL: [https://dspace.nlu.edu.ua/bitstream/123456789/7223/1/Avdeeva\\_634.pdf](https://dspace.nlu.edu.ua/bitstream/123456789/7223/1/Avdeeva_634.pdf) (date accessed: 10.08.2021).

EU and can serve as guidelines in building a system of legal support for forensic science in Ukraine. The legislation of the European Union (EU) establishes norms and procedures of procedural legislation aimed at establishing the institution of modern adversarial criminal proceedings. In most EU countries, the professional training of an expert, the availability of the necessary knowledge and experience are crucial in assessing his qualifications. In most European countries, the question of the possibility of obtaining the status of a forensic expert by a certain person belongs to the jurisdiction of the court. "Departmental subordination" of forensic experts in EU member states is not crucial in their selection for forensic examination <sup>38</sup>.

From the standpoint of I. I. Yatsenko in modern conditions of bringing domestic legislation in line with the legislation of the European Union, the issues of establishing international cooperation in certain areas are becoming very relevant, as evidenced by a number of scientific studies. This is due to the fact that the purpose of public authorities is to protect the rights and fundamental freedoms of man and citizen, protect the interests of the state, etc., and therefore the establishment of international cooperation of public authorities of Ukraine and appropriate regulation of domestic administrative law governing their activities, is one of the priority tasks at the present stage of state building and protection of private interests of citizens. In this context, special attention is paid to international cooperation in forensic science, as today the use of specialized knowledge in forensic research plays a crucial role in the mechanism of

respect for human rights and fundamental freedoms <sup>39</sup>. The researcher emphasizes that active international activity in the field of forensic science requires a review of current legislation on international cooperation of forensic institutions and the definition of forensic science as an object of administrative and legal regulation in Ukraine. Given the above, it should be noted that the definition of forensic science as an object of administrative and legal regulation of international cooperation is the key to further effective and stable functioning of the forensic system and the gradual implementation of international law in the field of forensic science in Ukraine <sup>40</sup>. I. I. Yatsenko is convinced that promising areas of further research can determine the forms and levels of international cooperation in the field of forensic science, types of forensic examinations in international cooperation and their administrative and legal regulation <sup>41</sup>.

The above scientific opinions undoubtedly prove the importance and necessity and special role of international cooperation and international experience in the field of forensic science and law enforcement. However, at the same time, most researchers focus in their work mainly on cooperation between Ukrainian and foreign forensic science institutions and law enforcement agencies and do not pay much attention to the interaction of forensic institutions and law enforcement agencies within individual foreign countries.

In view of the above, as well as taking into account Ukrainian policy towards integration into the European Union, we are

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38 Ibid.

39 Яценко І. І. Судова експертиза як об'єкт адміністративно-правового регулювання міжнародного співробітництва. *Право і безпека*. 2020. № 3 (78). С. 96.

40 Ibid.

41 Op. cit. p. 101.

particularly interested in the experience of European countries in regulating and ensuring the studied interaction. First of all, it should be noted that each country has its own characteristics in the organization and functioning of forensic science. Although in general in European countries there are two main organizational forms of forensic science:

- specialized (forensic science) institutions;
  - specific professionals: forensic experts (for example, there is a practice of the institute of sworn experts, i.e. Professionals who took the oath were involved in conducting examinations; experts who received a license for the right to conduct forensic examinations).
- R. Topolia and G. Avdeeva analyzing the legislation of the EU, in this regard note that “in European countries consistently implemented the principles of ensuring the independence of the expert, focusing not on the departmental affiliation of the expert, but on his special knowledge needed to solve justice, ensuring the adversarial principle of experts involved in various aspects of the process, and other principles that are crucial to ensure that the judiciary is truly independent, objective and qualified. At the same time, presence of the institution of private forensic examination in the

EU is not only one of the guarantees of legal rights and freedoms of citizens and public interests, but also allows to significantly reduce budget expenditures for the maintenance of state specialized expert institutions. One of the important elements of Ukrainian successful integration into the EU is to achieve a certain level of harmonization of the legislation of our country with the EU legal norms on the use of special knowledge in the judiciary”<sup>42</sup>.

M. Skrypnyk notes that “main organizational and procedural issues of forensic examination in the creation of specialized (forensic science) institutions: issue of departmental affiliation of institutions; strengthening control in the field of forensic activities; the nature of centralization (unification of all expert institutions into a single institute of forensic examinations under a single management in one of the departments) and decentralization (dispersion of institutions in the relevant departments). In many European countries, expert institutions work together with police organizations under the jurisdiction of the Ministry of Internal Affairs of Ukraine”<sup>43</sup>.

For example in France historically, two separate police forces have been involved in forensic science: the National Gendarmerie and the National Police report to the Ministry of Defense<sup>44</sup>. The National Police is responsible for maintaining public order

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42 Авдеєва Г. Зазнач. твір ; Тополя Р. *Op. cit.* С. 184.

43 Скрипник М. Світовий досвід у судово-експертній діяльності / Експертно-дослідна служба України : сайт. URL: <https://ua-expert.com/ua/news/svitoviy-dosvid-u-sudovo-ekspertniy-diyalnosti> (date accessed: 10.08.2021).

44 Гузела М., Канцір В. *Op. cit.* С. 129–135 ; Коротчаєв В. М. Порівняльний аналіз адміністративно-правового регулювання експертно-криміналістичного дослідження в зарубіжних країнах. *Науковий вісник Дніпропетровського державного університету внутрішніх справ*. 2018. № 1. С. 115–119. URL: [http://nbuv.gov.ua/UJRN/Nvdduvs\\_2018\\_1\\_24](http://nbuv.gov.ua/UJRN/Nvdduvs_2018_1_24) (date accessed: 10.08.2021).

in cities with a population of more than 20,000, while the National Gendarmerie is responsible for public order in the remaining country. Both police forces have the right to investigate crimes. The National Gendarmerie includes a unique forensic institute (IRCGN) that works closely with police investigators, prosecutors and judges. Officers involved in criminal investigations belong to specialized units. These units are located throughout the country to ensure the effectiveness of the investigation and detection of crimes. There are two levels of specialization: 20 units investigating dangerous crimes at the regional level and the remaining 90 units at the local level. Specialists with regard to the scene are in each unit (both regional and local) <sup>45</sup>. I. O. Zavydnyak notes that “in France there is a practice of creating expert associations, chambers and unions. Each association, chamber or union of experts must have an appropriate code of rights, responsibilities and rules of the organization. Thus, forensic expert who is a member of a professional association or chamber is obliged to follow the rules specified in the code, to have rights and to bear certain responsibilities” <sup>46</sup>.

Next we will pay attention to Germany that is one of the leaders of the EU. The country key law enforcement agency is the German Federal Ministry of the Interior (Bundesministerium des Innern) that is responsible for ensuring internal security and protecting constitutional order, protecting civilians from disaster and terrorism, administrative matters and sport. It is also responsible for the

work of public services and disaster relief. In addition, the ministry regulates protocol issues during state visits and official celebrations. The Federal Police of Germany (Bundespolizei or BPOL) reports to the Ministry of the Interior and performs complex tasks in accordance with the Federal Police Act and a number of other pieces of legislation. In 1998, police reform was carried out in Germany. The Federal Police works closely with an organized network of various types of federal and land security services and in partnership with fellow police officers of the federal states and the border services of foreign countries. The main functions of the Federal Police, according to the report of P. A. Raevskiy are the following: “ensuring the security of the border, including the protection of the sea coast; protection of federal buildings and diplomatic missions located in Berlin and the former capital of Bonn, as well as the two highest courts of Germany, namely: the Federal Constitutional Court and the Supreme Federal Court in Karlsruhe (Karlsruhe); organization of a mobile response force of the Federal Government in order to protect officials during events within the country; security at international airports and railways; organization of counter-terrorism forces (GSG9 unit); airspace protection” <sup>47</sup>.

Police are given a number of powers to carry out their tasks, including the collection of personal data. According to the Law on the Federal Police, the police carry out: collection of personal information, interrogation, identification and examination of certificates, forensic

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45 Гузела М., Канцір В. Оп. cit.

46 Завидняк І. О. Позитивний досвід розвинених країн європейського союзу у використанні спеціальних знань під час розслідування злочинів у сфері господарської діяльності. *Теорія та практика судово-експертної діяльності* : мат-ли VIII Міжвідом. конф. (Київ, 27.11.2019). Київ, 2019. С. 161.

47 Доклад Комитета гражданских инициатив ... URL: <https://komitetgi.ru/upload/iblock/538/538b9dcf40eca849375fa5f15da10d26.pdf> (date accessed: 10.08.2021).

measures, collection of information on public events and gatherings<sup>48</sup>. A special place in the German police system is occupied by forensic units<sup>49</sup> forensic units of the Federal Office for Criminal Cases, which conduct a full range of forensic examinations for law enforcement agencies<sup>50</sup>. Special mention should be made of the Institute for Forensic Research that is a leading research institution of the German criminal police. It supports the efforts of the federal police and land police in the fight against crime, providing services in the following areas: forensic and criminological research; development of police methods; training and advanced training of employees of the Federal Office for Criminal Cases. The institute provides comprehensive scientific and practical research and implementation of modern policing technologies. Its function is to identify the most vulnerable areas in the fight against crime and the development and implementation, together with experienced practices, of measures and innovative programs aimed at improving the activities of law enforcement agencies. In addition, in Germany, the institute of private expertise<sup>51</sup> successfully operates and competes with state expert institutions<sup>52</sup>.

Experience of Great Britain is interesting, where structure of the Ministry of Internal Affairs has an forensic expert service (Forensic Science Service

hereinafter referred to as FSS). The FSS is an important body in the work of the British police to investigate, detect and prevent crime. FSS officers are involved in investigations, investigative activities, examinations and investigations for 43 regional police units in England and Wales, as well as for the Crown Prosecution Service (CPS), the Customs and Excise Service and a number of other law enforcement agencies. The service provides services to private companies both in the country and abroad; actively cooperates with law enforcement agencies of more than 35 foreign countries<sup>53</sup>. In addition, to perform specific types of examinations (for example, forensic examination of documents) involves the involvement of specialists from private forensic laboratories. It should be noted that in the UK, an expert is usually invited by one of the parties to the proceedings (prosecution or defense) to conduct an examination or research. The United Kingdom is a country that has gone the way of abolishing the “monopoly” on forensic examinations by state forensic organizations<sup>54</sup>. It should be noted that in the United Kingdom of Great Britain and Northern Ireland (Scotland), the status of experts differs from England and Wales by greater access to expert reports, as well as to the documentation of expert opinions and related information. This difference increased after the adoption of the English Rules of Civil Procedure Civil

48 Бирюков П. Н. Полиция Федеративной Республики Германия ... URL: [http://www.eurasialaw.ru/index.php?option=com\\_content&view=article&id=911:2010-07-27-07-00-37&catid=122:2010-07-27-06-55-50](http://www.eurasialaw.ru/index.php?option=com_content&view=article&id=911:2010-07-27-07-00-37&catid=122:2010-07-27-06-55-50) (date accessed: 10.08.2021).

49 Скрипник М. Оп. cit.

50 Коротаяев В. М. Оп. cit.

51 Любченко С. О., Нізовцев Ю. Ю., Парфіло О. А. Оп. cit. С. 9 ; Коротаяев В. М. Оп. cit. С. 115–119.

52 Скрипник М. Оп. cit.

53 Скрипник М. Знач. твір ; Гузела М., Кацїр В. Знач. твір ; Олійник О. О., Галунько В. В., Єщук О. М. Адміністративно-правове регулювання судово-експертної діяльності : монографія. Херсон, 2015. С. 171.

54 Скрипник М. Знач. твір ; Авдеева Г. Знач. твір ; Тополя Р. Оп. cit. С. 184.

Primole Rules (YBR ENY). In Scotland, expert evidence may be provided only verbally (orally) during the examination of an expert. Written examination report is a notice that the expert will later confirm orally. In England, a written notice is addressed to the court. All documents on which the parties base their views must be submitted to the court<sup>55</sup>.

It is advisable to pay attention to Polish experience neighboring Ukraine. In Poland, forensic laboratories are subordinated to the Ministry of Justice in addition to forensic laboratories subordinated to the Ministry of the Interior<sup>56</sup>. O. M. Dufenyuk, analyzing the peculiarities of the status and activities of forensic experts in Poland, emphasizes the similarity of the Polish and Ukrainian approaches to the regulation and provision of forensic activities. In particular, she sees some differences in the process of involving an expert in Ukrainian and Polish criminal proceedings, namely: first, in Ukraine there is a national Register of Judicial Experts, and the basis for inclusion in this Register is the decision of the Expert Qualification Commission (issuance of a certificate); and not a personal decision of the Chairman of the District Court; secondly, both the prosecution and the defense, the victim, may involve experts in Ukrainian criminal proceedings; thirdly, the decision of the procedural body under the Ukrainian procedural legislation is called “decision on the appointment of the examination”, in contrast to the “decision on the admission of evidence from the

expert’s opinion”; fourth, according to our legislation, it is not possible to orally instruct an expert (by phone or fax) to conduct an examination and provide an opinion; Fifth, if Criminal Procedural Code of Ukraine of both countries has similar regulations regarding the grounds for removing an expert, remuneration certainly has significant differences in the hourly rates of forensic experts. The researcher claims that currently the legal regulation of the institute of forensic examinations and involvement of an expert during criminal proceedings in Ukraine is quite effective, but also by other parties, ensure the unification of the requirements for forensic expert, adversarial nature of the process and certify to some extent progressiveness of the Ukrainian criminal procedural legislation<sup>57</sup>.

Well-developed institutional forensic system operates in Lithuania. Most forensic examinations in this country are conducted by four state forensic institutions: the Lithuanian Forensic Science Research Center of the Ministry of Justice, the Lithuanian Police Forensic Science Research Center, the State Forensic Medical Service and the State Forensic Psychiatric Health Service. Republic<sup>58</sup>. In the practice of Lithuania, as in other European countries, the traditional recognition of the equivalence of forensic law enforcement activities is positive in order to avoid duplication of effort due to non-recognition of evidence due to technical and qualitative differences and to significantly reduce time

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55 Клименко Н. І. *Op. cit.*

56 Коротаяев В. М. *Op. cit.*

57 Дуфенюк О. М. Досвід Польщі стосовно участі судового експерта у кримінальному провадженні. *Науковий вісник Львівського державного університету внутрішніх справ. Серія юридична*. 2018. Вип. 1. С. 247–248.

58 Лопата О. А. Запровадження європейського досвіду до судово-експертної діяльності експертної служби МВС України. *Теорія і практика судової експертизи і криміналістики* : мат-ли Всеукр. наук.-практ. конф. з нагоди 85-річ. д-ра юрид. наук, проф. Н. І. Клименко (Київ, 27.02.2018). Київ ; Маріуполь, 2018. С. 193 ; Коротаяев В. М. *Op. cit.*

spent in investigating crimes. cross-border component. In addition, in Lithuania these provisions are implemented at several levels. For example, forensic experts from EU Member States are free to provide such services in Lithuania, only these persons must be recognized as forensic experts in accordance with the rules of that Member State<sup>59</sup>. The legal basis of forensic activity in this state are procedural laws and laws on forensic examination. The formation of policy and strategy of forensic activity is under the jurisdiction of the Ministry of Justice. Procedural laws and the law on forensic examination also provide for the Coordinating Council of Forensic Science<sup>60</sup>.

Along with the experience of some foreign countries, attention should be paid to the role of international forensic organizations in improving the development of forensic science and the organization of proper interaction between forensic experts and law enforcement agencies. O. V. Linnyk, L. V. Omelchuk draw attention to the fact that in recent years international cooperation in the field of forensic science has intensified. One of such areas is the creation of international forensic networks. Today, there are five such networks, which unite the scientific reserves of forensic institutions of different countries: 1. European network of forensic institutions, which has existed since 1995. This is the most developed and strong network. 2. South Africa Regional Network of Forensic Science since 2008, covering the entire African region. 3. Asian network of forensic sciences, which has existed since 2008. 4. An international forensic

environmental expert network has also been in place since 2008 to assist forensic environmental experts and environmental offenders. 5. Trace evidence conservation network, which has existed since 2006 and is a non-governmental organization to assist in the conduct of forensic examinations in cases of crimes against wildlife and to preserve the biological diversity of flora and fauna<sup>61</sup>.

A special place here is occupied by the European Network of Forensic Institutions (ENFSI), established in 1995. It consists of 54 expert institutions, 41 of which are located in the Member States of the European Union (EU). It is the world largest international organization of forensic experts with international recognition<sup>62</sup>. Currently, ENFSI includes a forensic organization of Ukraine: SSRFC of the Ministry of Internal Affairs of Ukraine, which in 2002 received and annually confirms the international certificate of quality of forensic examinations. The expert service of the Ministry of Internal Affairs of Ukraine has been carrying out international activities for 15 years within the framework of cooperation in the European Network of Forensic Institutions (ENFSI). Under the auspices of this authoritative international organization, measures are being taken to accredit expert service laboratories according to the international standard ISO/IEC17025 and to implement a quality management system. In May 2018, ENFSI included Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations (KhRIFE). With accession to ENFSI, KhRIFE professionals became participants in a number of

59 Юодкайте-Гранскиене Г. Оp. cit. С. 31 ; Лопата О. А. Оp. cit.

60 Лопата О. А. Міжнародне співробітництво експертної служби МВС України : дис. ... канд. юрид. наук. Київ, 2017. С. 134 ; Коротчаєв В. М. Оp. cit.

61 Клименко Н. І., Купрієвич О. А. Оp. cit. С. 131 ; Линник О. В., Омельчук Л. В. Оp. cit.

62 Хазиев Ш. Н. О Европейской сети судебно-экспертных учреждений. *Адвокат*. 2005. № 8. С. 14—19 ; Дмитриева К. С. Оp. cit. С. 290.

international conferences and meetings of working groups on various types of forensic research. Membership in the European Network of Forensic Experts opens up new opportunities for international cooperation and communication between forensic experts<sup>63</sup>.

Thus, summarizing the above, we can state that in most European countries forensic institutions are in the system of law enforcement agencies, mainly the Ministry of Internal Affairs, although in some countries they operate in the system of the Ministry of Justice or even the Ministry of Defense (e.g. France). However, multi-agency subordination of forensic institutions is usually avoided by European states. Although in some post-Soviet European countries (for example, in Lithuania) there is a system of organizational subordination of forensic institutions similar to the Ukrainian one. In view of the above, we can identify the following important, in our opinion, to take into account and implement in the Ukrainian legal space aspects of foreign experience in order to improve the interaction of forensic institutions and law enforcement agencies<sup>64</sup>.

- concentrate all forensic institutions under the authority of two agencies, namely the Ministry of Internal Affairs of Ukraine, or the Ministry of Justice of Ukraine and the Ministry of Healthcare. This approach will reduce the number of centers that will take care of this interaction, provide and coordinate it, which should increase its consistency and content, efficiency

and effectiveness. In most European countries, interaction of forensic institutions with other law enforcement agencies, both national and foreign, as well as with courts and international organizations takes place under the auspices of the Ministries of Interior. However, in Ukraine, in our opinion, it is more expedient to transfer these institutions to the organizational subordination of the Ministry of Justice of Ukraine, which performs tasks and functions to ensure forensic activity in the country, in particular: organizes in accordance with the law expert support of justice and research in the field of forensic science; ensures the organization of the work of the Central Expert Qualification Commission at the Ministry of Justice and the Scientific Advisory and Scientific Advisory and Methodological Council on Forensic Science Issues at the Ministry of Justice<sup>65</sup>;

- actively promote the development of non-state forensic activities. This step should ensure the necessary level of competition between the public and private sectors of forensic science, which, we believe, will be a positive incentive for forensic agencies and law enforcement agencies to strengthen and improve the quality of their interaction with each other. S. O. Lyubchenko, Yu. Yu. Nizovtsev, O. A. Parfilo,

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63 Дмитрієва К. С. *Op. cit.* С. 290.

64 Полянський А. О. Зарубіжний досвід взаємодії судово-експертних установ з правоохоронними органами. *Європейські перспективи*. 2019. № 3. С. 230–234.

65 Про затвердження Положення про Міністерство юстиції України : Постанова КМУ від 02.07.2014 р. № 228 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/228-2014-%D0%BF#Text> (date accessed: 10.08.2021).

V. M. Korotayev in this regard refer to the experience of Great Britain and note that the waiver of the state monopoly on certain types of expertise may have such positive aspects of the emergence of competitors in FSS (UK Forensic Science Service), in particular: saving on police maintenance costs, including reducing operating costs and reducing costs by improving pricing; significant acceleration of the pace of investigations due to the reduction of time for the processing of appeals (from several weeks to several days) and emergence of the possibility of standardization of the system for assessing the speed of processing appeals; systematization of types of work, promoting the coherence of services and the ability to compare quality of services of different providers<sup>66</sup>;

- identify a single center that will outline the priorities of cooperation between forensic institutions and law enforcement agencies, coordinate this interaction and monitor its quality, provide appropriate support to its parties. An example of such an entity is the Institute for Forensic Science in Germany. In Ukraine, this function can be performed by the Coordination Council for Forensic Science at the Ministry of Justice, subject to a certain increase in its powers in terms of coordinating the process of interaction and monitoring its effectiveness;
- actively use the experience and capabilities of relevant international organizations to improve the studied interaction.

## Conclusions

Provisions of a number of normative-legal acts of national and international character, though in rather general kind, nevertheless unequivocally testify that Ukraine, both as a whole, and in the person of its separate state bodies, establishments (including forensic science institutions) are active participant in international cooperation in the field of justice, law enforcement, justice and forensic science. One of the priority areas of such cooperation is the exchange of experience, joint solution of problematic issues in these areas and identification of prospects for their further development.

Most European countries have forensic agencies in the law enforcement system, mainly the Ministry of the Interior, although in some countries they operate within the system of the Ministry of Justice or even the Ministry of Defense (e. g. France). However, multi-agency subordination of forensic institutions is usually avoided by European states. Although in some post-Soviet European countries (for example, in Lithuania) there is a system of organizational subordination of forensic institutions similar to the Ukrainian one:

- take into account and implement in the Ukrainian legal space aspects of foreign experience, in order to improve the interaction of forensic institutions and law enforcement agencies, it is necessary:
- concentrate all forensic institutions under the authority of two agencies, namely the Ministry of Internal Affairs of Ukraine, or the Ministry of Justice of Ukraine and the Ministry of Healthcare. This approach will reduce the number of centers that will take care of this interaction,

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66 Любченко С. О., Нізовцев Ю. Ю., Парфіло О. А. *Op. cit.* С. 18 ; Коротаев В. М. *Op. cit.*

provide and coordinate it, which should increase its consistency and content, efficiency and effectiveness. In most European countries, interaction of forensic institutions with other law enforcement agencies, both national and foreign, as well as with courts and international organizations takes place under the auspices of the Ministries of Interior. However, in Ukraine, in our opinion, it is more expedient to transfer these institutions to the organizational subordination of the Ministry of Justice of Ukraine;

- actively promote the development of non-state forensic activities. This step should ensure the necessary level of competition between the public and private sector of forensic science, that in our opinion, will be a positive incentive for forensic agencies and law enforcement agencies to strengthen and improve the quality of their interaction;
- identify a single center that will outline the priorities of cooperation between forensic institutions and law enforcement agencies, coordinate this interaction and monitor its quality, provide appropriate support to its parties. An example of such an entity is the Institute for Forensic Science in Germany. In Ukraine, this function can be performed by the Coordination Council for Forensic Science at the Ministry of Justice, subject to a certain increase in its powers in terms of coordinating the process of interaction and monitoring its effectiveness;
- actively use the experience and capabilities of relevant

international organizations to improve the studied interaction.

**Зарубіжний досвід взаємодії  
судово-експертних установ між собою  
та з правоохоронними органами  
й можливості його використання  
в Україні**

*Антон Полянський,  
Габрієле Юодкайте-Гранскієне*

*Правоохоронний сектор будь-якої держави є окремим механізмом, кожний елемент якого виконує чітко визначену функційну роль, забезпечуючи соціальну справедливість, захист і безпеку населення, територіальну цілісність держави. Ці чинники пояснюють значення державної діяльності за правоохоронним або ж правозахисним напрямом. Останній об'єднує значний масив різноманітних суб'єктів, на кожного з яких покладено частину владних повноважень або суспільно-значущих завдань.*

*Водночас, здійснюючи правоохоронну діяльність, уповноважені суб'єкти не завжди мають змогу вирішувати складні питання, які потребують специфічних професійних знань, умінь і навичок: задля їх вирішення правоохоронні органи взаємодіють зі спеціальними суб'єктами, до повноважень яких належить проведення судових експертиз (зокрема, ідеться про судово-експертні установи). У цьому контексті варто підкреслити, що забезпечення ефективної взаємодії судово-експертних установ і правоохоронних органів є фактично неможливим без створення належних адміністративно-правових засад реалізації прововідносин у цьому напрямі.*

*Останнім часом законодавці й науковці приділяють дедалі більше уваги діяльності судово-експертних установ і правоохоронних органів. Однак зазначене не виключає наявності низки проблем*

організаційного та правового характеру під час здійснення цими суб'єктами їх спільної діяльності.

Саме тому ми мали на меті з'ясувати сутність, зміст та особливості адміністративно-правових засад взаємодії судово-експертних установ із правоохоронними органами, максимально використати досвід зарубіжних країн, а також розробити пропозиції та рекомендації, спрямовані на вдосконалення законодавства у цій сфері.

**Ключові слова:** взаємодія; асоціація; координація; інтеграція; судово-експертні установи; правоохоронні органи; ENFSI.

### **Зарубежный опыт взаимодействия судебно-экспертных учреждений между собой и с правоохранительными органами и возможности его использования в Украине**

**Антон Полянский,  
Габриэле Юодкайте-Гранскиене**

Правоохранительный сектор любого государства является отдельным механизмом, каждый элемент которого выполняет чётко определённую функциональную роль, обеспечивая социальную справедливость, защиту и безопасность населения, территориальную целостность государства. Эти факторы объясняют значение государственной деятельности по правоохранительным или правозащитным направлениям. Последнее объединяет значительный массив различных субъектов, на каждого из которых возложена часть властных полномочий или общественно-значимых задач.

Вместе с тем, осуществляя правоохранительную деятельность, уполномоченные субъекты не всегда могут решать сложные вопросы, требующие специфических профессиональных знаний, умений и навыков: для их решения правоохранительные органы взаимодействуют со

специальными субъектами, в полномочия которых входит проведение судебных экспертиз (в частности, речь идёт о судебно-экспертных учреждениях). В этом контексте следует подчеркнуть, что обеспечение эффективного взаимодействия судебно-экспертных учреждений и правоохранительных органов фактически невозможно без создания надлежащих административно-правовых принципов реализации правоотношений в этом направлении.

В последнее время законодатели и учёные уделяют всё больше внимания деятельности судебно-экспертных учреждений и правоохранительных органов. Однако сказанное не исключает наличия ряда проблем организационного и правового характера при осуществлении этими субъектами их совместной деятельности.

Именно поэтому мы преследовали цель выяснить суть, содержание и особенности административно-правовых принципов взаимодействия судебно-экспертных учреждений с правоохранительными органами, максимально использовать опыт зарубежных стран, а также разработать предложения и рекомендации, направленные на совершенствование законодательства в этой сфере.

**Ключевые слова:** взаимодействие; асоціація; координація; інтеграція; судебно-експертні установи; правоохоронні органи; ENFSI.

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The authors state that there is no conflict of interest on this topic, although Gabriele Juodkaite-Granskiene is a member of the journal Editorial Board; she did not take part in decision regarding publication and this article is subject to a full peer review process.

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## Forensic science methods and their application in veterinary forensics

Ivan Yatsenko \*<sup>a</sup>, Ella Simakova-Yefremian \*\*<sup>b</sup>, Larysa Derecha \*\*\*<sup>c</sup>

\* Doctor of Veterinary Medicine, Professor, National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0001-8903-2129>, e-mail: [hniise@hniise.gov.ua](mailto:hniise@hniise.gov.ua)

\*\* Doctor of Law, Professor, National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0002-82-46-7688>, e-mail: [simakova@hniise.gov.ua](mailto:simakova@hniise.gov.ua)

\*\*\* PhD in Biology, National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0002-6044-2068>, e-mail: [derecha@hniise.gov.ua](mailto:derecha@hniise.gov.ua)

<sup>a</sup> Methodology, Conceptualization, Writing — original draft.

<sup>b</sup> Data curation, Formal analysis.

<sup>c</sup> Project administration, Resources, Supervision.

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*The article reveals opportunities of the application of forensic science methods in veterinary forensics. It is emphasized on the need to comply with certain requirements when applying these methods in forensic veterinary examination.*

*It is proved that the methods of veterinary forensics include: dialectical method, logical methods and other general (general-cognitive) methods, separate methods (instrumental and additional technical), as well as special methods, the functions of which are performed with specialized (certain) methods, established to solve certain expert tasks.*

*Systematization, according to such criteria, taking into account belonging to the general cognition methods of the comprehensive dialectical method and logical methods, is accepted for any type of expert research, in particular, the veterinary forensics.*

*Schema and sequence of the application of the research methods may be changed according to questions raised to the veterinary forensics expert, the number and status of objects provided for the research.*

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*Functions of special methods of veterinary forensics are performed with the methods of clinical diagnosis of animal diseases and methods of pathomorphological diagnosis which are responsible for solving specific tasks of the veterinary forensics. Thus, the methods of clinical diagnosis of animal diseases are aimed at determining a diagnosis of a live, being under the examination, animal with signs of injuries, diseases, mutilation, as well as determination of damage severity caused by animal health, etc.*

*Methods of pathomorphological diagnostics are used for determination of postmortem forensic veterinary diagnosis, damage severity caused by animal health, detection of signs of violent death.*

**Keywords:** *veterinary forensics, dialectical method, logical methods, separate and specific methods, animal, diagnosis, clinical diagnostics, pathomorphological diagnostics, determination of damage severity.*

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## Formulation of Research Problem

Over the last few years, a new type of forensic examination is actively developing — veterinary forensics — a field of research initiated in the forensic establishments of the Ministry of Justice of Ukraine in 2019 at the instance of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»<sup>1</sup>. Since the methodology of veterinary forensics is in its infancy, there is a need for a clear systematization of its methods,

their differentiation and grounds for application.

## Analysis of Recent Researches and Publications

In the specialized scientific literature the works, devoted to settlement of the order of veterinary forensics research of damage severity caused to health of an animal, are published<sup>2</sup>, and also forensic veterinary signs of the damage to health<sup>3</sup>, signs of damage middle severity are determined<sup>4</sup> and mild degree<sup>5</sup>, criteria

- 1 Яценко І. В., Дереча Л. М. Можливості судово-ветеринарної експертизи як нового виду судових експертиз. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. Харків, 2019. Вип. 19. С. 550—567. DOI: 10.32353/khrife.1.2019.044 (date accessed: 09.08.2021).
- 2 Яценко І. В., Парилівський О. І., Жиліна В. М. Порядок судово-ветеринарного встановлення ступеня тяжкості шкоди, заподіяної здоров'ю тварини. *Науковий вісник Львівського національного університету ветеринарної медицини та біотехнологій імені С. З. Гжицького. Серія: Ветеринарні науки*. 2020. Т. 22. № 99. С. 182—192. DOI: 10.32718/nvlvet9928 (date accessed: 09.08.2021).
- 3 Яценко І. В., Парилівський О. І., Приходько І. Судово-ветеринарні ознаки шкоди здоров'ю, небезпечної для життя тварини. *Ветеринарія, технології тваринництва та природокористування*. 2019. № 5. С. 239—245. DOI: 10.31890/vtpp.2020.05.42 (date accessed: 09.08.2021).
- 4 Парилівський О. І., Яценко І. В., Богатирьова А. М. Судово-ветеринарна характеристика ознак шкоди, заподіяної здоров'ю тварини середньої тяжкості. *Deutsche Internationale Zeitschrift für zeitgenössische Wissenschaft*. 2021. № 4. С. 70—75. DOI: 10.24412/2701-8377-2021-4-1-70-75 (date accessed: 09.08.2021).
- 5 Парилівський О. І., Яценко І. В. Судово-ветеринарна характеристика ознак шкоди, заподіяної здоров'ю тварини легкого ступеня. *Актуальні питання судової експертизи і криміналістики* : зб. мат-лів міжнар. наук.-практ. конф.-полілогу (Харків, 15—16.04.2021). Харків, 2021. С. 234—235.

injury, which penetrate into the cavity of the animal's body are described <sup>6</sup>, the role of forensic pathologists in the veterinary forensics is analyzed <sup>7</sup>, issues, which related to solving by the expert at the time the appointment of veterinary forensics of an animal corpse are substantiated <sup>8</sup>, tendencies of the development of modern veterinary forensics are found <sup>9</sup>, etc.

During examinations or expert researches, experts use appropriate research methods and methods of conducting forensic examinations to perform a specific expert task. Decision of the method of examination (selection of certain methods of research) belongs to the expert competence <sup>10</sup>.

Expert research consists in the cognitive activity of the forensic expert — a complex creative process in which the latest achievements of science and technology, knowledge of modern effective research methods and expert skills are realized.

Methods of expert research — the result of scientific work that contains a system of research methods that the expert consistently applies in order to perform a specific expert task <sup>11</sup>.

Method of expert research — a system of logical and / or other instrumental operations (methods, techniques) of obtaining data to solve the issues raised to the expert <sup>12</sup>.

A method — an action or system of actions that is used to perform any work.

The specificity of the subject and objects of the veterinary forensics determines the specificity of its methods and techniques. The operations that form the method are the application of knowledge of the laws of objective reality to gain new knowledge. The methods of the veterinary forensics are formed on the basis of corresponding tested methods, the nature of qualities of the object of examination, the experience of solving practical tasks <sup>13</sup>.

- 6 Risselada M., de Rooster H., Taeymans O., van Bree H. Penetrating injuries in dogs and cats. A study of 16 cases. *Veterinary and Comparative Orthopaedics and Traumatology*. 2008. Vol. 21. No 5. C. 434—439. DOI: 10.3415/VCOT-07-02-0019 (date accessed: 09.08.2021).
- 7 Byard R. W., Boardman W. The potential role of forensic pathologists in veterinary forensic medicine. *Forensic Science, Medicine and Pathology*. 2011. Vol. 7. No 3. C. 231—232. DOI: 10.1007/s12024-011-9241-x (date accessed: 09.08.2021).
- 8 Яценко І. В., Парилівський О. І., Коломовець Д. К. Обґрунтування питань, що ставляться в ухвалі суду та постанові слідчого при призначенні судово-ветеринарної експертизи трупа тварини з ознаками насильницької смерті від жорстокого поводження. *Ветеринарія, технології тваринництва та природокористування*. 2019. № 4. С. 184—197. DOI: 10.31890/vtpp.2019.04.34 (date accessed: 09.08.2021).
- 9 Cooper J. E., Cooper M. E. Future trends in forensic veterinary medicine. *Seminars in Avian and Exotic Pet Medicine*. 1998. Vol. 7. Is. 4. P. 210—217. DOI: 10.1016/S1055-937X(98)80066-2 (date accessed: 09.08.2021).
- 10 Інструкція про призначення та проведення судових експертиз та експертних досліджень : затв. наказом Мініюсту України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 09.08.2021).
- 11 Про затвердження Порядку атестації та державної реєстрації методик проведення судових експертиз : Постанова КМУ від 02.07.2008 р. № 595 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/595-2008-%D0%BF#Text> (date accessed: 09.08.2021).
- 12 Основи судової експертизи: навчальний посібник для фахівців, які мають намір отримати або підтвердити кваліфікацію судового експерта / авт.-уклад.: Л. М. Головченко, А. І. Лозовий, Е. Б. Сімакова-Єфремян та ін. Харків, 2016. 928 с.
- 13 Grela M., Listos P., Gryzinska M., Chagowski W., Buszewicz G., Teresinski G. Imaging

The choice of research methods (except the subject, tasks, objects of examination) is significantly influenced by the degree of effectiveness of a particular method, which is expressed in its effectiveness, hypothetical economy, legality, level of complexity, possibility of re-research, reliability, duration, etc <sup>14</sup>.

At the same time, neither a systematic analysis nor a clear differentiation of methods of the veterinary forensics in the domestic scientific literature has been done yet.

### The Article Purpose

To reveal the components of the system and possibilities of application of forensic methods in the veterinary forensics.

### Main Content Presentation

The methods used by specialists in the veterinary forensics are mostly borrowed from the natural sciences (in particular, forensic veterinary medicine) and transformed in accordance with the specifics of the tasks and objects of this examination. At the same time, they can differ significantly in the form of implementation – techniques, technical equipment. Research methods must meet the requirements set by law – see the flowchart in fig. 1.

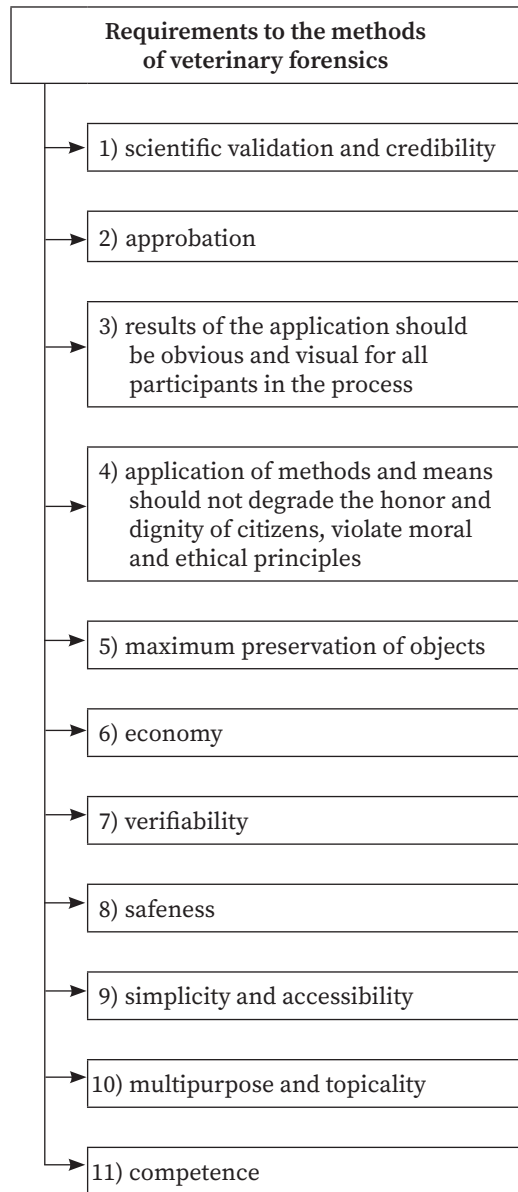


Fig. 1. Flowchart *Requirements to the methods of veterinary forensics*

techniques as a method of sectional examination in forensic veterinary medicine. *Medycyna Weterynaryjna*. 2018. Vol. 74. No 12. С. 751–758. DOI: 10.21521/mw.6005 (date accessed: 09.08.2021).

14 Сімакова-Єфремян Е. Б., Балинян Т. Є., Дереча Л. М. Про критерії оцінювання методик проведення судових експертиз в Україні. *Теорія та практика судової експертизи і криміналістики*. 2010. Вип. 10. С. 151–161.

Since the veterinary forensics is a field of scientific and practical activities, the factors that determine the need to create new and modify existing methods of expert research are expert practice and practice of justice in general<sup>15</sup>. The main source of formation of the newest methods is the special scientific developments caused by necessity of the decision of actual expert problems realized in scientific researches of forensic establishments of the Ministry of Justice of Ukraine and other institutions and organizations concerning sphere of forensic veterinary both in Ukraine, and abroad.

As it was already mentioned, the methodology of veterinary forensics is an integrated system, which includes the general (logical) separate and special methods, techniques and methods of research.

The success of veterinary forensics largely depends on the qualifications and experience of the expert. When conducting research, the expert must be well versed in various areas of veterinary medicine, animal husbandry and forensics<sup>16</sup>. The latest advances in physics, chemistry, biology, forensics, forensic science, other sciences, as well as the use of modern equipment in expert practice significantly expand the range of issues that can be addressed during the veterinary forensics.

Instruments, optical devices, photographic devices, X-ray equipment, chemical-analytical devices, computer equipment, etc., are widely used in the process of veterinary forensics.

Any examination, in particular the veterinary forensics, begins with a visual examination of the object: specialists describe the object in detail, determine its morphological features, size, weight, etc. In some cases, the selection of organs or biological fluids from the object under examination.

Only having informative material, it is possible to undertake selection of the corresponding scheme and reliable methods of its research for the comprehensive and objective substantiation of future results.

Methods of expert activity are a system of actions and operations for solving practical expert tasks. For their part, they are formed and based on appropriate scientific methods, the nature and qualities of the object of the expert activity, the experience of solving specific practical problems (in particular, on algorithms and rules developed by heuristic experts).

According to the degree of commonality and subordination of research methods in forensic examination A. I. Vinberg and O. R. Shliakhov<sup>17</sup> offered their distribution, adapted us to the needs of the veterinary forensics (Fig. 2). Systematization according to such a hierarchy, taking into account belonging to the general methods of cognition of the comprehensive dialectical method and logical methods, is acceptable for any type of expert research, in particular for the veterinary forensics.

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15 Cooper J. E., Cooper M. E. Forensic veterinary medicine: a rapidly evolving discipline. *Forensic Science Medicine and Pathology*. 2008. Vol. 4. Is. 2. P. 75–82. DOI: 10.1007/s12024-008-9036-x (date accessed: 09.08.2021).

16 Mills G. Proving the crime: how veterinary forensics can help. *Veterinary Record*. 2013. Vol. 172. No 18. С. 465—466. DOI: 10.1136/vr.f2694 (date accessed: 09.08.2021).

17 Винберг А. И., Шляхов А. Р. Общая характеристика методов экспертного исследования. *Общее учение о методах судебной экспертизы* : сб. науч. тр. Москва, 1977. № 28. С. 54—93.

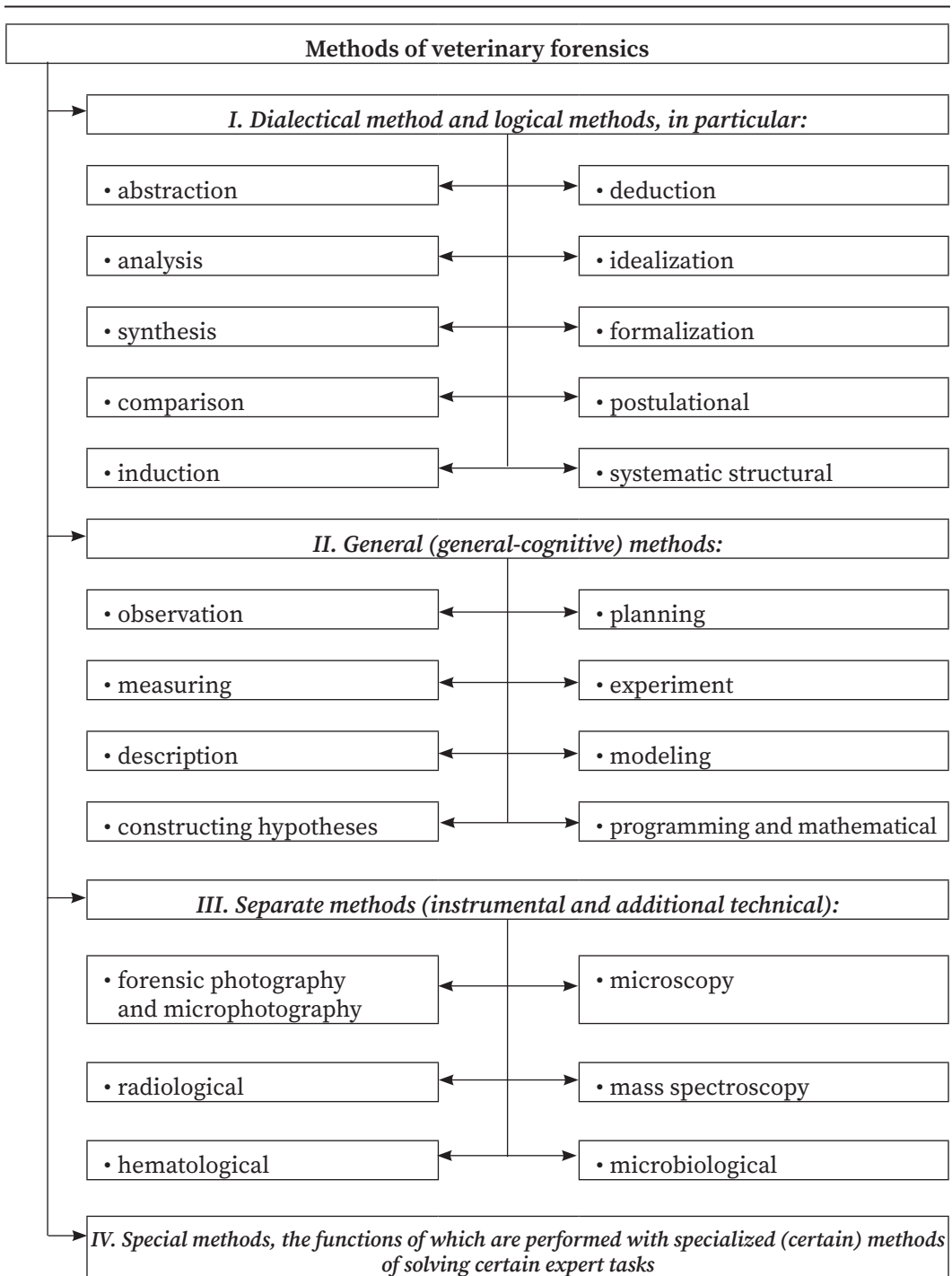
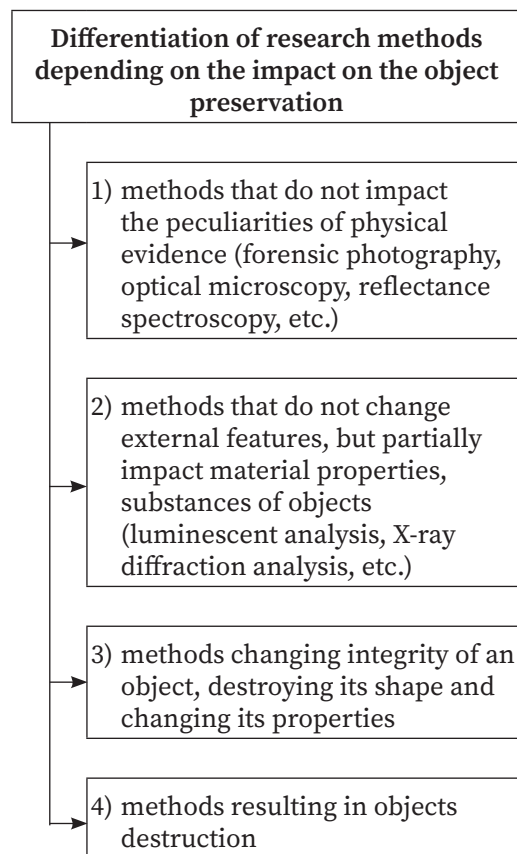


Fig. 2. Flowchart *Methods of veterinary forensics*

It is proposed to differentiate the methods of forensic veterinary examinations depending on the impact on preservation of the object as physical evidence<sup>18</sup> (Fig. 3).



**Fig. 3.** Differentiation of forensic veterinary examination methods depending on the degree of objects preservation

Such differentiation applies not only to physical evidence but also to other physical objects of forensic examination that do not possess the status of physical evidence; for example, live animals, corpse or its parts, scene, samples, etc.

According to the nature of properties, features of objects that are subjected to forensic veterinary examination, there are methods which help to study: morphological properties and features, physical and chemical properties of the object, microbiological or toxicological parameters, etc.<sup>19</sup>

Let's consider in more detail the system of forensic veterinary examination methods.

### *1. Dialectical method and logical methods*

**1. Forensic veterinary examination** as a means of cognition uses the methods of dialectics. Since the components of dialectics are the theory of knowledge, epistemology, any phenomenon should be viewed by researching and summarizing the history of its origin in development, moving from ignorance to knowledge. Such a process is the basis for any expert research<sup>20</sup>.

Let us illustrate the above on the example of the dialectical law of the transition of quantitative to qualitative changes. Performing a forensic veterinary examination of a live test animal, the forensic expert examines it in order to determine injury severity. In case

18 Бибииков В. В. Схема комплексного исследования веществ, материалов, изделий. *Экспертная практика* : сб. статей / ВНИИ МВД СССР. 1985. № 23. С. 37–42.

19 Шляхов, А. Р. О классификации методов судебной экспертизы. *Рефераты научных сообщений на теоретическом семинаре — криминалистических чтениях*. Москва, 1977. Вып. 18. С. 3–11.

20 Шербаковский М. Г. Методологія дослідження феномена судових експертиз. *Вісник Луганського державного університету внутрішніх справ імені Е. О. Дідоренка*. Луганськ, 2016. Т. 3. № 75. С. 133–142. URL: <https://journal.lduvs.lg.ua/index.php/journal/article/view/496> (date accessed: 09.08.2021).

of coincidence of a certain number of clinical signs found in animals and forensic criteria characteristic of severe, moderately severe or minor harm of an injury, these quantitative changes take a qualitatively new form: the expert conclusion regarding the exact severity of the injury that will affect the legal qualification of an offense committed against an animal.

Another example of the transition from quantitative to qualitative changes: before a forensic veterinary examination of the animal's carcass, the forensic expert has no answer to the question as to the cause of animal death, whether it is violent, what is the prescription of death coming. After a full research on the animal's carcass (accumulation of quantitative changes), the forensic expert forms a clear and objective idea of the nature of detected changes in the animal's carcass, and therefore the cause of death (qualitative changes).

The basis for methodology development of a forensic veterinary examination are leading laws of dialectics, in particular, dialectical negation, development in spirals, discontinuity, transition of quantitative into qualitative changes, unity and struggle of opposites, interconnection and close dependence of all aspects of each phenomenon, ability of matter to reflect its primacy in relation to cognition, as well as such categories as singular and special, part and whole, form and content.

The dialectical method implies that the basic concepts of veterinary forensics can be rightly perceived only if we consider them in development as variable categories. Such an approach helps to reveal the essence of the subject, objects, tasks and methods of veterinary forensics, their internal content.

Along with the method of dialectics, the arsenal of forensic veterinary examination includes logical methods: abstraction,

analysis, synthesis, induction, deduction, idealization, comparison, analogy, hypothesis, experiment and others, as well as such general (cognitive) methods as observation, measurement, description, planning, modeling, construction of hypotheses, etc. They are used at different stages of expert research.

**2. Analysis** (analysis, from Greek division, fragmentation, review) is a method of research involving the imaginary fragmentation (division) of a recognizable object into different components, any complex phenomenon into components: the simplest parts, elements, singling out of certain aspects, elements, properties, connections, relations, etc. in objects. This fragmentation helps a forensic expert to outline and study specific, most significant properties, aspects and relations of a studied object to address tasks assigned to the forensic expert.

As an example, research on health condition of a live test animal is generally performed by examining the condition of individual body systems: cardiovascular, excretory, respiratory, digestive, etc. Analyzing the state of individual systems of the animal organism, an expert can identify signs of deviation from physiological or anatomical norms. Investigative and judicial practice implements not all materials of analysis as a source of evidence in cases, but only those that, revealing negative deviations, do not have reasonable explanations but are logically linked to investigated crimes; for example when a forensic expert finds that a hematoma has developed as a result of a blunt traumatic instrument force. However, the negative phenomena and deviations from anatomical and physiological norms revealed during the analysis do not always indicate the violent nature of their cause, since an animal could have experienced them without outside interference, but

only involve a more detailed research on a test animal or carcass.

**3. Synthesis** is a method of research intended to combine, reproduce links between individual parts, elements, sides, components (e.g., individual body systems) of a complex phenomenon (e.g., animal organism) and achievement of the whole in its unity, i.e. synthesis is a process of uniting previously separated things or concepts into one whole.

The analysis and synthesis of identified features is a process of imaginary division and unification of the general object of research. Thus, having considered the characteristic pathomorphological changes in the carcass of an animal while a forensic veterinary autopsy and analyzed them, a forensic expert further establishes a posthumous forensic veterinary diagnosis, clarifies the mechanism of injuries, synthesizes obtained results and forms a conclusion. In this way, the synthesis of individual results of the evaluation on the whole set of signs identified in the previous stages allows getting an idea of the diagnosis of disease, injury or death of an animal.

**4. Induction** (guidance) is a method of cognition helping to reach a general conclusion based on the analysis of individual facts (from individual to general), as well as a method of reasoning determining the validity of a proposed assumption or hypothesis. For example, extensive bleeding into the thoracic and abdominal cavities due to polytrauma of the abdominal wall, rupture of the diaphragmatic lobe of the left lung, diaphragm, complete multifragmental fracture of the rib bone of the 13th left rib as a consequence of causing damage to an animal by a cutting tool and, as a result, collapse (rapid drop in arterial pressure) led to paralysis of the heart, having caused the animal death.

However, the application of this method does not always provide grounds for sufficient justification: the list of facts may be exhaustive and the forensic expert will not be sure that the following fact will not contradict the rest. Thus, in the course of forensic veterinary examination, the list of injuries types ensures the acquisition of possible but unreliable knowledge.

**5. Deduction** (from Latin *deductio*: inference) is a method that intends to draw conclusions based on knowledge of certain general provisions, i.e. the principle of cognition (flow of thinking) from general to individual (partial). In the course of deductive research, general principles and laws make it impossible for forensic experts to deviate from a certain path: on the contrary, they help to adequately interpret particular phenomena of reality. For example, when determining the severity of damage to animal health, establish the dynamics of changes in the clinical condition of an animal until its complete recovery or death, consider the time period during which the animal was sick or injury was healing, take into account the period in which there was loss of general or special work capacity of an animal.

In the course of a forensic veterinary examination, deduction (cognition from general to individual) and induction (cognition from individual to general) constantly change and complement each other at different stages of research by expert estimation of identical information reflected in signs of a single injury, different types of information contained in characteristic of various injuries, diverse information reflected in pathologies of various organs of an animal, united by cognition process. For example, bleeding may take place as a result of injury to an animal or as a result of non-traumatic pathology. However, during a forensic veterinary clinical examination of the

test animal, an expert narrows the range of diagnoses and specifies the cause of bleeding in an animal under specific circumstances.

#### 6. Method of input data formalization.

Formalization is the presentation of any substantive information (reasoning, descriptions, scientific theories) in the form of a formal system using a mathematical principle. When performing forensic veterinary researches, the forensic expert should strive not only to compile a qualitative description of the object features but also to provide a quantitative definition, which is fulfilled by creating a formalized system of description of these features and research procedures<sup>21</sup>. Such an approach clearly emphasizes features and absolves the forensic expert from a subjective approach to problem solving, creating better conditions for the use of the latest information technologies in order to solve a set task.

7. **Concretization** (from Latin *concretus*: fusion) is reproduction of the objective specificity of the studied object in a holistic system of theoretical knowledge<sup>22</sup>. Unlike the abstract, it is a comprehensive, in-depth study of objects, for example, to identify an error in the actions of a veterinarian who performed a surgical operation that resulted in animal death on the operating table.

8. **Analogy** (from Greek *analogia*: correspondence, similarity, resemblance) is a conclusion in which based on the similarity of objects by one features come to the conclusion about a possible similarity of these objects by other features. Under this conclusion, the knowledge acquired during consideration of a particular object

of study is applied to another object, less accessible to study, less visual. For example, the mechanism of injury to an animal with similar injuries will be similar (analogous) to the above.

9. **Idealization** is a method of scientific cognition involving an imaginary construction of objects that do not exist in reality. Idealization includes a moment of abstraction from real objects and processes. Such created ideal imaginary models are simpler than real ones, thus allowing to apply mathematical research methods to them. It is the imaginary creation of concepts about objects that do not exist in nature but for which there are prototypes in the real world.

10. **The method of comparison** is most often applied for identification researches, when comparing different properties, features of objects, phenomena by their embodiment: traces. Comparisons can be implemented both in a simple (visual) way and with the use of microscopes, other technical devices enabling to compare the qualitative or quantitative characteristics of studied objects, for example to establish the possibility of traces origin from an animal's dental apparatus.

The imaginary process of comparison is always present while diagnostic analysis (when studying the object itself to determine its belonging to the known, conventional taxonomy, that is to establish: "What is it?": for example to find out that the studied thoracic vertebra belongs to a horse), and during the situational where the process of comparison is that the forensic expert uses imaginary situational "reference models" to address the question: "Is there already a known situational 'model'?"

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21 Shamir M. H., Leisner S., Klement E., Gonen E., Johnston D. E. Dog bite wounds in dogs and cats: a retrospective study of 196 cases. *Journal of Veterinary Medicine Series A*. 2002. Vol. 49. Is. 2. C. 107–112. DOI: 10.1046/j.1439-0442.2002.jv416.x (date accessed: 09.08.2021).

22 Щербаковський М. Г. Проведення та використання судових експертиз у кримінальному провадженні : монографія. Харків, 2015. 560 с.

An imaginary comparison is also expedient when, in order to establish the nature, properties or states of objects or mechanisms of interaction, a forensic expert mentally compares established properties, states and mechanisms with similar categories already known in science and practice.

The comparative anatomical method is based on comparing properties or features of several objects. The comparison objects must be comparable, i.e. of the same type. Comparison is aimed at identifying common and special (divergent) features. Thus, similar objects are compared, for example, ribs of a horse and a cattle, stomachs of a rabbit and a cat, the mandibular bone of several species of animals<sup>23</sup>. This method helps to establish the species and individual belonging of organs.

In the scheme of a multidisciplinary forensic veterinary examination, the above methods should be chosen in a sequence in which they will complement each other, each previous method will be the basis for the next one, and the expert conclusion will be enriched with new information through the use of another method. As a result, research process will gradually acquire greater objectivity (examination algorithm).

**11. The system-structural method** is to study the object of forensic veterinary examination as a holistic set of elements in the sum of relations and links between them, that is viewing an object as a system.

Therefore, depending on an assigned expert task, a forensic expert selects the

set of analytical methods and techniques allowing to establish the cause of animal death or to determine the degree of damage caused to animal health, etc.

## **II. General (general cognitive) methods**

General (cognitive) methods of veterinary forensics are interconnected, follow or pass from one to another and generate separate methods. General cognitive methods are: observation, description, measurement, experiment, modeling.

**1. Observation method** is used by a forensic veterinarian to study a certain object, phenomenon, process. Visual inspection is an integral part of veterinary forensics. Results of the direct visual object perception (for example, a living animal or an animal carcass) are the basis for its further research. For example, forensic veterinarian establishes existence of bruises, hematomas, scars on the animal body, color of mucous membranes and skin, hair color on the basis of visual inspection of live animal or carcass.

Observation can be both simple (visual perception of the object) and qualified (with the use of special technical means: for example, microscope, refractometer, ionometer, etc.) one.

Through the observation in combination with other instrumental research methods, forensic veterinarian establishes the fact of loss of vision, hearing, type of live animal lameness, as well as animal posture at the scene, its anatomopathological changes in organs during forensic autopsy<sup>24</sup> etc. While clinical objective examination of the

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23 Журавлева И. А., Бобровский А. Я., Боев В. И. Особенности анатомического строения тушек кролика, нутрии и кошки. *Актуальные проблемы ветеринарной науки* : тез. докл. Москва, 1999. С. 166–167.

24 de Siqueira A., Cassiano F. C., de Albuquerque Landi M. F., Marlet E. F., Maiorka P. C. Non-accidental injuries found in necropsies of domestic cats: a review of 191 cases. *Journal of Feline Medicine and Surgery*. 2012. Vol. 14. Is. 10. С. 723–728. DOI: 10.1177/1098612X12451374 (date accessed: 09.08.2021).

subject animal, forensic veterinarian forms a general idea of animal health and while subsequent research stages he specifies the results of direct visual perception using certain methods.

Observation is carried out by forensic expert personally as while physical evidence inspection of other objects at the time of their receipt, as well as during direct research for identification, diagnosis or situational analysis.

The observation value in solving the tasks of veterinary forensics is a combination of sensory and rational cognition, as a result of which forensic expert perceives the research object (due to certain signs of its properties and states) as a holistic structure.

**2. Description method** is a research method that consists in indicating qualitative (involves use of descriptive characteristics) and quantitative signs, object properties in a certain sequence. Description is a means of capturing information. This method is used for research on biological material of animal origin (for example, anatomical features of bones <sup>25</sup>, teeth, as well as to describe organs and tissues of animal carcass during forensic veterinary autopsy or while examining live injured subject, etc.

Description as a result of practical observation use is a necessary condition for capturing observation, other methods of cognition and evaluation of identified signs (properties, states, processes). It is impossible to conduct a forensic veterinary examination without description. It is displayed in alphanumeric characters, graphs, diagrams, photographs, drawings, symbols, etc.

Descriptive (qualitative) signs are less objective than metric (quantitative) ones, they are more difficult to analyze mathematically. Evaluation of qualitative criteria can be subjective, as opposed to evaluation of quantitative criteria that is always objective.

**3. Measurement method** makes possible to achieve the maximum accuracy of results as far as possible taking into account nature of measured objects and characteristics of measuring instruments. Necessary measurements of linear dimensions are most often performed using scales, measuring ruler, Vernier caliper, thermometer, sphygmomanometer, heart rate monitor, microscope, refractometer, colorimeter, etc., making descriptions.

Measurement methods are used to determine the size of the animal body, injuries, instruments of injury, size, weight, age of biological material of animal origin <sup>26</sup> (in particular, individual organs and physiological parameters of the animal, e.g. temperature, pulse, respiration, blood pressure, etc.). They are important for describing results of external inspection and for analytical research.

**4. Experimental method** is one of the forms of practical cognition, characterized by active action on research object using various devices and experimental means for reproduction of phenomena in artificially created similar conditions. The experiment is conducted to establish possibility, sequence, mechanism, causes and conditions of the event that occurred (or may occur), in particular in the field of veterinary medicine or

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25 Рудик С. К. Спланхнокраний Cervidae і Bovidae. Київ : Академія наук вищої освіти України. 2008. 208 с.

26 Гаврилін П. М. Морфофункціональний статус кісткової системи неонатальних телят. *Ветеринарна медицина України*. Київ, 1997. № 12. С. 28—29.

animal husbandry<sup>27</sup>. The need for such actions arises to address issues related to establishing the causes and conditions of animal death in certain microclimate conditions during their keeping indoors, poisoning by plants while pasturing on certain meadows, etc. Classic experiment example is a bioassay in laboratory animals or other biological test systems to confirm an infectious disease diagnosis.

Importance of this method use is that while the experiment forensic veterinarian can repeat a certain phenomenon in certain conditions, consciously changing experiment conditions, because the key point while experiment is a series of experiments in different versions. It can be intended to confirm or refute forensic expert version, to clarify the phenomenon nature, etc.

Forensic experiment is widely used to solve all task categories of multidisciplinary examination of contact object interaction, for example, to check possibility or variability of reflection of certain signs (for example, hair or body parts of animal) on a particular trace surface (for example, on a moving car) while traffic collision involving an animal, depending on the state of contact objects and various trace formation mechanisms.

**5. Modeling method** is aimed at creating and using different object models, situations in practice (material modeling of prints, objects, graphic modeling, etc.) and in imaginary cognition (imaginary

modeling)<sup>28</sup>. Method of injury modeling<sup>29</sup> and the method of graphic modeling are the most common in veterinary forensics. Graphic model (photo lineups) is a means of recording the results of observations and measurements obtained by a forensic veterinarian while forensic veterinary autopsy of animal with signs of violent death, or capturing injuries found on a living subject. Creation of photo lineups by forensic expert becomes an integral part of forensic veterinarian conclusion and if they fairly accurately reflect the object under research in all details, it makes forensic expert conclusion more persuasive and clearer while its evaluation. The method of graphic modeling is used while drawing up diagrams of animal carcass position in the environment and in the location of its parts, etc.

Material modeling is performed by making casts from animal teeth, wound canal, drawing diagrams, making drawings, as well as using other methods of reproducing object, etc.

These general cognitive methods of forensic examination are inextricably linked; they follow or pass from each other, complement each other and generate separate methods.

### *III. Separate methods*

Peculiarity of separate methods is they are used in some but not all areas of knowledge. These include forensic photography, microphotography, microscopic exami-

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27 Byard R. W., Cains G. E., Gilbert J. D. Use of a pig model to demonstrate vulnerability of major neck vessels to inflicted trauma from common household items. *American Journal of Forensic Medicine and Pathology*. 2007. Vol. 28. No 1. C. 31–34. DOI: 10.1097/01.paf.0000233530.18744.07 (date accessed: 09.08.2021).

28 Шигун М. М. Моделювання як метод наукових досліджень та інші методи пізнання дійсності. *Проблеми теорії та методології бухгалтерського обліку, контролю і аналізу*. 2016. Вип. 3 (9). С. 203–214. DOI: 10.26642/pbo-2007-3(9)-203-214 (date accessed: 09.08.2021).

29 Weber B., Lackner I., Haffner-Luntzer M., Palmer A., Pressmar J., Scharffetter-Kochanek K., Knöll B., Schrezenemeier H., Relja B., Kalbitz M. Modeling trauma in rats: similarities to humans and potential pitfalls to consider. *Journal of Translational Medicine*. 2019. Vol. 17. No 1. C. 305. DOI: 10.1186/s12967-019-2052-7 (date accessed: 09.08.2021).

nation methods (cytological, histological, electron microscopic ones), radiological, ultrasonographic, histological, microbiological (bacteriological, virological, mycological), immunological, hematological used in resolving issues of forensic veterinary examination using modern devices (X-ray machines, devices for ultrasonographic examination, microscopes including electronic ones, etc.). Recently, they are becoming more widespread due to development intensification of various areas of veterinary forensics.

**1. Forensic photography.** Fixing, research and microphotography are used in veterinary forensics. Capture photography allows you to display a general view of the research object. It is necessary to use scale bars while photographing macro objects. Research photography allows you to photograph the research object during its analysis in infrared or ultraviolet radiation. Special micro-nozzles are used to photograph micro-objects.

Stereoscopic photography allows you to explore an object in volume and space. For example, it is used to fix the carcass posture, location of individual parts of its body, details of injuries.

Thus, veterinary forensics uses forensic photography to capture the animal appearance, its carcass, individual organs or organ complexes and to solve direct identification tasks, diagnostic or situational nature (photography in UV and IR rays with different light filters, etc.).

**2. Measurement methods** make possible to determine the size of injuries, instruments of injury, body length, the size of bone remains, micro-objects, traces-overlays using rulers, soft tapes, Vernier

calipers and micrometers. Technical, torsional and analytical scales are used to measure the mass of body objects and its parts. Chemical, mercury and electric thermometers are used to determine temperature.

**3. Veterinary forensics uses Microscopic methods** to examine traces, materials, objects, substances, etc. in order to establish their micro signs: for example, to detect metals in the entrance wound with animal gunshot wounds.

It is possible to carry out measuring and comparative researches, isolation of objects and their components by the means of microscopic methods; they help to perceive small or invisible to the naked eye particles<sup>30</sup>. Optical methods involve the use of different types of microscopes. Thus, using binocular microscope, forensic expert can examine individual small objects. Raster electron microscopy provides a three-dimensional object image (such as hair) and helps to examine their cross-section in detail. Optical methods are used to examine objects: for example, damage to the animal body, instruments of injury that can contain traces of their action (using various microscopes).

The microscopic method includes histological method consisting in the fact that selected fragments of organs by autopsy from a live animal or from a carcass during a forensic veterinary autopsy are fixed, then poured into paraffin or celloidin, make different thick histoslices that are stained with special dyes (for example, hematoxylin and eosin, according to Mallory, for research on connective tissue condition, impregnated with silver nitrate while research on nervous tissue condition,

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30 Museyko O., Marshall R. P., Lu J., Hess A., Schett G., Amling M., Kalender W. A., Engelke K. Registration of 2D histological sections with 3D micro-CT datasets from small animal vertebrae and tibiae. *Computer Methods in Biomechanics and Biomedical Engineering*. 2015. Vol. 18. Is. 15. C. 1658–1673. DOI: 10.1080/10255842.2014.941824 (date accessed: 09.08.2021).

etc.) with subsequent microscopy or morphometry of histoslice structures<sup>31</sup>.

The histologic method makes possible to confirm the forensic veterinary diagnosis established while research on carcass on the basis of research on internal organ pieces, as well as to determine through cellular reactions whether injuries were antemortem ones.

**4. X-ray methods.** X-ray research, or radiography is a method of diagnosis carried out by projecting X-rays on paper or film that allows to assess to anatomical structure of internal organs, joints, body parts, skeletal bones<sup>32</sup>.

Modern radiation diagnostics is a complex of the basic X-ray method and new visualized diagnostic technologies that are actively developing. With advent of computer technology, computed tomography (hereinafter referred to as CT scan) has emerged and is rapidly improving that is a method of obtaining layered images of organs and tissues under research.

Compared with classical X-ray methods, CT scan has many advantages, namely: CT scan gives a clear layered image of the object due to the fact that research mode is with the angle of rotation of the X-ray tube relative to the object by 360°, helps to conclude not only about condition of the body under research but about the impact of pathological process on the organs and tissues located nearby; makes possible to obtain tomograms, i.e. a longitudinal image of the area under research, similar to an

X-ray, by moving the subject animal along a stationary tube; helps to distinguish more details in the image of the studied object against radiography; allows to quantify the X-ray density of the object under research which complements the visual assessment of the computed tomography picture by analyzing the density of visualized structures<sup>33</sup>.

Combined devices that join different imaging methods: radioisotope and CT scan increasing the level of obtaining diagnostic information have been invented.

Currently, radiological research methods are ancillary in veterinary forensics. They solve many tasks: non-invasive detection of pathological changes in the structure and function of organs and tissues, their degrees and stages, differential diagnosis of detected pathological changes, assessment of immediate and long-term results of various injuries, etc., that affects determining severity of the damage caused to the animal health, for example.

X-ray research methods are used to determine the mechanism of skeletal bone injury. In case of damage by a firearm, availability, type of bullet or projectile, location of the input and output holes are determined. Radiography makes it possible to establish the peculiarities of the skeleton structure, existence of nucleus ossification of synostoses that is important for determining the age of animals.

X-ray diagnostics is based on basic veterinary and physical and mathematical

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- 31 Горальський Л. П., Хомич В. Т., Кононський О. І. Основи гістологічної техніки і морфофункціональні методи досліджень у нормі та при патології : навч. посіб. Житомир : Полісся, 2005. 288 с.
- 32 Heng H. G., Teoh W. T., Sheikh-Omar A. R. Postmortem abdominal radiographic findings in feline cadavers. *Veterinary Radiology & Ultrasound*. 2008. Vol. 49. No 1. C. 26–29. DOI: 10.1111/j.1740-8261.2007.00312.x (date accessed: 09.08.2021).
- 33 Grela M., Panasiuk-Flak K., Listos P., Gryzinska M., Buszewicz G., Chagowski W., Teresinski G. Post-mortem analysis of gunshot wounds to the head and thorax in dogs by computed tomography, radiography and forensic necropsy. *Medicine, Science and the Law*. 2020. Vol. 61. No 2. C. 105–113. DOI: 10.1177/0025802420971176 (date accessed: 09.08.2021).

sciences. It reflects the basic integrated knowledge of normal, topographic, pathological anatomy and physiology of animals, biological physics and chemistry.

**5. Ultrasonography** (hereinafter referred to as USG) is a method of studying the animal body using high-frequency ultrasound waves illuminated by internal tissues or organs and reflect signals displayed on the ultrasound device screen in the form of a sonogram (image of body tissues). This method is a study of visual diagnosis, harmless and painless, very meaningful and fast. With its help in forensic veterinary forensics assess the structure of various organs and soft tissues during forensic veterinary determination of the severity of damage to animal health <sup>34</sup>.

**6. Electrocardiography** (hereinafter referred to as ECG) is a method of graphical registration of electrical phenomena from the body surface of the that occur in the heart muscle while its activity. This method is one of the main ways to study the heart and diagnose diseases of the cardiovascular system <sup>35</sup>. ECG is indispensable in the diagnosis of arrhythmias and conduction, hypertrophy, coronary heart disease. This method allows you to localize focal changes in the myocardium fairly accurately, their prevalence, depth and time of onset. ECG

helps to detect dystrophic and sclerotic processes in the myocardium, electrolyte disturbances that occur under the influence of various toxic substances. This method is used in veterinary forensics while research on alive experimental animal to determine consequences of injury, mutilation, severity of damage to the animal health.

**7. Hematology tests** is a comprehensive blood test providing complete information about the quantitative and qualitative composition (number of erythrocytes, leukocytes, white blood cell differential, erythrocyte sedimentation rate, biochemical analysis of blood, etc.) <sup>36</sup>. Complex of hematology tests is an integral part of the forensic veterinary research on a live subject (for example while determining the severity of damage to its health).

**8. Forensic toxicology researches** is a set of methods to determine availability and amount of venom in animal body or its carcass to diagnose fatal and non-fatal animal poisoning <sup>37</sup> (for example, to confirm the death of a dog from isoniazid (antibiotic used for the treatment of tuberculosis) <sup>38</sup> or a lethal dose of sodium chloride in pig body, etc.).

**9. Methods for determining the mineral composition of research object.** Among such methods a special place belongs to

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34 Li Q., Deng D., Tao J., Wu X., Yi F., Wang G., Yang F. Ultrasonic imaging of gunshot wounds in pig limb. *Genetics and Molecular Research*. 2015. Vol. 14. Is. 2. C. 4291–4302. DOI: 10.4238/2015.april.30.1 (date accessed: 09.08.2021).

35 Baumwart R. D, Meurs K. M., Atkins C. E., Bonagura J. D., DeFrancesco T. C., Keen B. W., Kop-litz S., Luis Fuentes V., Miller M. W., Rausch W., Spier A. W. Clinical, echocardiographic and electrocardiographic abnormalities in Boxers with cardiomyopathy and left ventricular systolic dysfunction: 48 cases (1985–2003). *Journal of the American Veterinary Medical Association*. 2005. Vol. 226. No 7. C. 538–541.

36 Влізлю В. В., Максимович І. А., Галяс В. Л., Леню М. І. Лабораторна діагностика у ветеринарній медицині : довідник. Львів, 2008. 92 с.

37 Gwaltney-Brant S. M. Veterinary Forensic Toxicology. *Veterinary pathology*. 2016. Vol. 53. Is. 5. C. 1067–1077. DOI: 10.1177/0300985816641994 (date accessed: 09.08.2021).

38 Павлушенко В. Г., Омеляненко М. М., Гаркуша С. Є., Клименко Д. М. Гістологічні зміни у собак за гострого отруєння ізоніазидом. *Ветеринарія, технології тваринництва та природокористування*. 2018. № 2. С. 136–139. DOI: 10.31890/vtpp.2018.02.35 (date accessed: 09.08.2021).

emission-spectral and atomic-adsorption. They involve isolating of fragments of organs in a muffle furnace and research on obtained ash for the content of minor components. This method can be used to determine the species, the age of animal death poisoning by metals and metalloids, determine the live birth of animals, determine the type of detected metal instrument that caused the injury and the shot distance. The research objects while forensic examination using this method can be ash, physical evidence, objects of both biological and non-biological origin, objects of different time limitation.

**10. Physical methods.** For example, the age of animal death is determined using a dynamometer; electrographic method makes possible to remove the impregnated metal from the object under research using photographic paper, which a layer of metal is formed on while electrolysis, etc.

Spectral method is used when the research objects do not differ in color under normal lighting with the colored background of the object in which they are located. Ultraviolet radiation is used to detect on white tissues washed away and invisible to the naked eye traces of blood, early cadaveric spots and scar tissue changes (using incandescent lamps, mercury-quartz or fluorescent lamps).

Infrared radiation detects inconspicuous bruises, hemorrhages, overlays covered with blood, lubricants (in case of traffic collision involving animals).

Luminescent examination is used to detect traces of saliva, blood, lubricants,

subcutaneous hemorrhages, scars, some poisons.

**11. Chemical methods.** Color chemical reaction methods are used to study macro-objects, namely: damage caused by blunt and sharp objects. For example, the Pearls reaction is used to detect ferrous salts (if they are found, the edges of the damage turn blue-green), and the Tirman reaction is used to detect ferrous salts (followed by the edges of the damage turn blue)<sup>39</sup>. The method of color prints is used to establish the nature of the metal and its localization using photographic paper and sensitive qualitative reactions of the developer reagent (dyeing color: type of metal and intensity, its relative amount: for example, copper provides dark green color and lead red-purple).

**12. Microbiological methods** (bacteriological, virological, mycological) make it possible to identify pathogens of animals that caused the epizootic or animal death by isolating microorganisms from animal biological material (blood, urine, sputum, cerebrospinal fluid, etc.)<sup>40</sup>.

**13. Parasitological methods** make possible to identify the causative agents of invasive animal diseases that caused the death by laboratory examination of material taken from animals: samples of feces, blood, urine, conjunctival sac, oral and nasal cavities, extirpated pieces of muscle, ligaments, tendons, skin, etc.<sup>41</sup> The research purpose is to detect eggs or larvae of helminths or even the parasites themselves and their fragments.

Thus, the nature of studied objects plays a major role in the choice of research

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39 Лилли Р. Патогистологическая техника и практическая гистохимия. Москва : Мир, 1969. 646 с.

40 Маслій І. Г., Беліба Л. П., Десятникова О. В., Рудова Н. Г., Матковська С. Г. Діагностика вірусних хвороб бджіл в Україні за використання ПЛР. *Ветеринарна медицина*. 2017. Вип. 103. С. 134–138.

41 Сорока Н. М., Довгий Ю. Ю., Дубова О. А., Фещенко Д. В., Бахур Т. І. Паразитарні хвороби м'ясоїдних тварин : навч. посіб. Житомир : Полісся, 2014. 216 с.

methods. For example, if a common studied object is a live test animal that has been injured, then for clinical research on such an animal, the forensic expert uses certain methods relating to establishing body temperature, counting heart rate and a number of respiratory movements, condition of habitus, lymph nodes, conducting common clinical examinations (in the course of which determine the state of the cardiovascular system, respiratory organs, digestion, reproduction, nervous system, five senses, etc.), clinical, biochemical analysis of blood, histological examinations, etc.

The system of expert research often uses separate methods to study features of animal objects located in the open area (anatomical study). For example, the anatomical method enables (if there are reliable macroscopic taxonomic features on the bone object) to establish its belonging to a certain taxonomic unit (family, genus, species).

During the study of contact-interacting complex: moving vehicle – animal – road section forensic veterinarians use certain methods related to the direct study of traces on the vehicle, animal, road section, conditions and properties of these objects (diagnostics and analysis of injuries to the animal's body, blood, hair, etc. if there are traces of them on the vehicle or road section), i.e. use different methods of veterinary medicine, etc.

#### IV. Special methods

Special methods which functions are realized through specialized (specific) techniques are applied for solving specific expert tasks of a forensic veterinary examination. The technique of a forensic veterinary examination (expert research)

is the system of methods (means and technical tools) which are implemented for research on objects of a forensic veterinary examination to establish facts that are linked to forensic examination subject. The technique for conducting a forensic veterinary examination is the result of a research comprising of a system of research methods that are used in the process of successive actions of the forensic expert to perform a specific expert task.

Functions of special methods of a forensic veterinary examination are implemented through methods of clinical forensic veterinary diagnostics of animal diseases and methods of pathomorphological forensic veterinary diagnostics. They are aimed at solving particular tasks specific to a forensic veterinary examination. Thus, the techniques of clinical diagnostics of animal diseases are directed at establishing a forensic veterinary diagnosis for a live test animal with signs of injuries, diseases, mutilations, as well as determining severity of damage to animal health, etc.

Clinical researches of a live test animal to determine the degree of damage to its health involve the description of an animal's overall condition, its habitus, skin and hair coat, superficial mucous membranes, superficial lymph nodes, skeletal bones and joints; establishment of the state of organ systems (cardiovascular, respiration, digestion, urination, reproduction, nervous, five senses). Methods of clinical examination of a test animal help to establish a life long forensic veterinary diagnosis, the severity of damage caused to the animal's health, etc.<sup>42</sup>.

The techniques of pathomorphological forensic veterinary diagnostics with possible visualization are applied to

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42 Benetato M. A., Reisman R., McCobb E. The veterinarian's role in animal cruelty cases. *Journal of the American Veterinary Medical Association*. 2011. Vol. 238. No 1. C. 31–34. DOI: 10.2460/javma.238.1.31 (date accessed: 09.08.2021).

establish a posthumous forensic veterinary diagnosis, to determine the severity of damage caused to animal health, as well as signs of violent death, etc.<sup>43</sup>. Thus, forensic veterinary examinations of the animal's corpse or its individual fragments involve external and internal examination of the corpse.

During external examination of the corpse gain data on its appearance (location of the corpse before autopsy, its body-build, constitution, fatness, the degree of algor mortis and rigor mortis, the severity of decay signs, describe the condition of visible mucous membranes (eyes, nasal and oral cavities), condition of the hair coat (color, density, adhesion to the skin, hair ruffle, severity of molting); skin condition (pigmentation, color, elasticity, moisture, odor, subcutaneous tissue development) with the establishment of a life long forensic veterinary diagnosis.

During internal examination of the animal's carcass the obligatory is examination of at least three cavities (thoracic, abdominal and cranial), and in the cavities: examination of all organs with the establishment of a postmortem forensic veterinary diagnosis (using instrumental methods: radiological, ultrasonographic, tomographic, etc.), as well as laboratory tests of biological body fluids: blood, urine, feces, stomach contents, etc. cell biology or histological analysis of biological material obtained from a test animal (with the use of methods: visualized, forensic toxicological, forensic histological, forensic immunological, microbiological, parasitological, etc.).

The scheme and sequence of application of research techniques may vary depending on the questions addressed

to a forensic veterinarian, the number and previous condition of objects submitted for research.

Techniques of forensic examinations, in particular forensic veterinary (except forensic medical and forensic psychiatric) examinations, are subject to certification and state registration in the manner stipulated by the Cabinet of Ministers of Ukraine. The techniques that have passed the certification are added to the state Register of techniques of forensic examinations.

To create an information fund on the availability of methods of forensic examinations recommended for implementation in expert practice, as well as certified in accordance with existing legislation, the state Register of techniques of forensic examinations was developed. The state registration of techniques is performed by the Ministry of Justice of Ukraine, which is the holder of the Register of techniques of forensic examinations and determines the organizational and methodological principles of its keeping<sup>44</sup>.

Information contained in the Register is available for requests of law enforcement agencies, judges and interested legal and natural persons.

In parallel to certified techniques other sources of information are used while forensic examinations that are not a subject to certification and obligatory for application in Ukraine (in particular, legal regulations and regulatory documents: international, national and industry standards, technical specifications, rules, norms, regulations, instructions, recommendations, lists, guidelines of Derzhstandart of Ukraine, etc.).

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43 Grela M., Listos, P., Gryzinska M., Chagowski W., Buszewicz G., Teresinski G. Op. cit. DOI: 10.21521/mw.6005 (date accessed: 09.08.2021).

44 Про затвердження Порядку атестації ... URL: <https://zakon.rada.gov.ua/laws/show/595-2008-%D0%BF#Text> (date accessed: 09.08.2021).

If necessary, during a forensic veterinary examination, experts also have the right to use scientific, scientific-methodical, scientific-technical and reference literature, monographs, information databases from the Internet, and also information expert systems recommended for use in expert practice according to the decision of the Coordination Council on issues of forensic examination under the Ministry of Justice of Ukraine <sup>45</sup>.

In the case when based on knowledge of a particular technique, personal experience, the forensic expert develops a method for solving each individual task and/or a program to study a specific situation, it is proposed to refer to such a technique: specific technique <sup>46</sup>. It exists in the imagination of a forensic expert: it is an unwritten, one-time technique, which is a scientific generalization of a number of similar, specific techniques (according to literary publications and copies of expert conclusions): a newly formed, individual technique <sup>47</sup>.

Four levels <sup>48</sup> are singled out in a hierarchy of techniques (e.g. fig. 4).

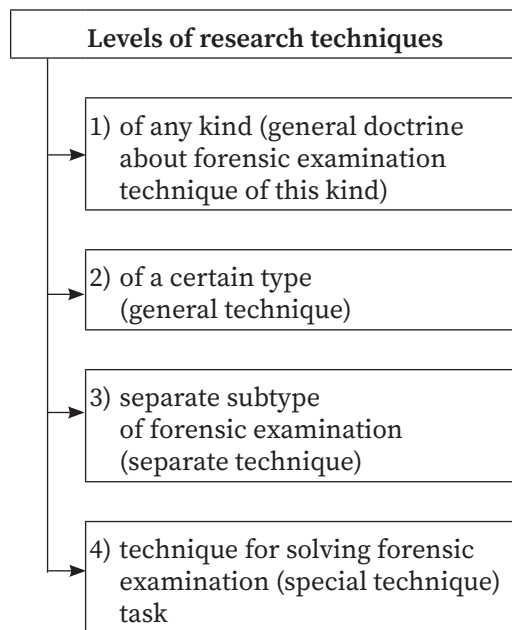


Fig. 4. Levels of research techniques

## Conclusions

Considering that the methodology of the veterinary forensics, being on the stage of formation, requires a clear systematization of methods, identification of forms and grounds for their application, the present day we create methods of describing and assessing the state of body areas and organs of the animal carcass based on the results of forensic veterinary autopsy, removal of objects of the veterinary forensics out of the animal carcass and their transfer

45 Про затвердження Порядку ведення Реєстру методик проведення судових експертиз : наказ Мініюсту України від 02.10.2008 р. № 1666/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0924-08#Text> (date accessed: 09.08.2021).

46 Винберг, А. И., Шляхов А. Р. *Op. cit.*

47 Мирский Д. Я. Понятие и структура методики экспертного исследования. *Проблемы теории судебной экспертизы* : сб. науч. тр. Москва, 1980. Вып. 44. С. 33.

48 Шляхов, А. Р. Понятие методик, методов судебных экспертиз : метод. рек. Москва : ВНИИСЭ, 1979. С. 12 ; Его же. Определение методик и методов судебных экспертиз с позиций внедрения научных разработок. *Рекомендации в экспертную практику* : мат-лы к учён. совету ВНИИСЭ. Москва, 1977. С. 11.

for laboratory tests, determination the prescription of death coming of dogs and cats in the early postmortem period, information and expert system *Forensic veterinary section*, which automates the error correction and prevent them at all stages of examination: after all, automation of operations and registration of results in the form of file blocks will help to reduce the time frame of the expert research.

In addition, we have prepared a manual *Practice of the veterinary forensics of animal carcasses* for publication which combines various expert cases and clearly demonstrates the application of specific methods of the veterinary forensics in practice.

We test and implement scientific and theoretical developments during the veterinary forensics of animal carcasses at National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» (Kharkiv), the number of which is rapidly increasing every year.

#### **Методы судебной экспертизы и их применение в судебно-ветеринарных исследованиях**

*Иван Яценко, Элла Симакова-Ефремян, Лариса Дереча*

*Раскрыты возможности применения общих методов судебной экспертизы в судебно-ветеринарной экспертизе. Отмечено, что к методам судебно-ветеринарных исследований предъявляются следующие требования: научная обоснованность, апробированность, очевидность и наглядность результатов их применения для всех участников процесса, а также отсутствие унижения чести и достоинства граждан, соблюдение морально-этических принципов при применении методов и средств, обеспечение максимальной сохранности объектов.*

*Показано, что к методам судебно-ветеринарной экспертизы относятся: диалектико-материалистический метод и методы логики, общие (общепознава-*

*тельные) методы, отдельные методы (инструментальные и вспомогательно-технические), а также специальные методы, функции которых выполняют специализированные (конкретные) методики решения определённых экспертных задач.*

*Такая систематизация с учётом принадлежности к общим методам познания всеобъемлющего диалектического метода и методов логики приемлема для любого вида экспертного исследования, в частности — судебно-ветеринарной экспертизы.*

*На избрание методов исследования в значительной степени влияют предмет, задачи, объекты экспертизы, степень эффективности того или иного метода, что выражается в его действительности, условной экономичности, допустимости с точки зрения закона, сложности, возможности проведения повторного исследования, надёжности, продолжительности и т. п. Схема и последовательность применения методик исследования могут варьироваться в зависимости от вопросов, поставленных для решения судебно-ветеринарным экспертом, количества и состояния объектов, предоставленных для исследования.*

*Функции специальных методов судебно-ветеринарной экспертизы выполняют методики клинической диагностики болезней животных и методики патоморфологической диагностики. Они направлены на решение определённых задач, присущих судебно-ветеринарной экспертизе. Так, методики клинической диагностики болезней животных направлены на постановку прижизненного судебно-ветеринарного диагноза живому подэкспертному животному с признаками травм, болезней, увечий, а также на определение степени тяжести ущерба, причинённого здоровью животного, и пр.*

*Методики патоморфологической диагностики используют для постановки посмертного судебно-ветеринарного диа-*

гноза, определения степени тяжести ущерба, причинённого здоровью животного, выявления признаков насильственной смерти.

**Ключевые слова:** судебно-ветеринарная экспертиза; диалектический метод; методы логики; отдельные и специальные методы; животное; диагноз; клиническая диагностика; патоморфологическая диагностика; определение степени тяжести ущерба.

### **Методи судової експертизи та їх застосування у судово-ветеринарних дослідженнях**

**Іван Яценко, Елла Сімакова-Єфремян, Лариса Дереча**

Розкрито можливості застосування системи методів судової експертизи у судово-ветеринарних дослідженнях. Наголошено на необхідності дотримання певних вимог під час застосування цих методів у судовій ветеринарній експертизі.

Доведено, що до методів судово-ветеринарної експертизи належать: диалектичний метод, методи логіки й інші загальні (загально-пізнавальні) методи, окремі методи (інструментальні та допоміжні технічні), а також спеціальні методи, функції яких виконують спеціалізовані (конкретні) методики, призначені для розв'язання певних експертних завдань.

Систематизація за такими критеріями з урахуванням належності до загальних методів пізнання всеохопного диалектичного методу й методів логіки прийнятна для будь-якого виду експертного дослідження, зокрема судово-ветеринарної експертизи.

Схема та послідовність застосування методів дослідження можуть змінюватися залежно від питань, поставлених судово-ветеринарному експертові, кількості та стану об'єктів, наданих для дослідження.

Функції спеціальних методів судово-ветеринарної експертизи виконують методики клінічної діагностики хвороб

тварин і методики патоморфологічної діагностики, які покликані розв'язувати конкретні завдання судово-ветеринарної експертизи. Так, методики клінічної діагностики хвороб тварин спрямовані на встановлення судово-ветеринарного діагнозу живої підекспертної тварини з ознаками травм, хвороб, каліцтва, а також визначення ступеня тяжкості шкоди, заподіяної здоров'ю тварини, тощо.

Методики патоморфологічної діагностики використовують для постановки посмертного судово-ветеринарного діагнозу, визначення ступеня тяжкості шкоди, заподіяної здоров'ю тварини, виявлення ознак насильницької смерті.

**Ключові слова:** судово-ветеринарна експертиза; диалектичний метод; методи логіки; окремі та спеціальні методи; тварина; діагноз; клінічна діагностика; патоморфологічна діагностика; визначення ступеня тяжкості шкоди.

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# Features of forensic psychology analysis of psychological abuse

Ruben Aghuzumtsyan \*<sup>a</sup>, Gayane Shahverdyan \*\*<sup>b</sup>

\* PhD in Psychology, Professor, “National Bureau of Expertises” of the National Academy of Sciences of the Republic of Armenia, Yerevan, Republic of Armenia, ORCID: <https://orcid.org/0000-0003-4933-4776>, e-mail: [info@nbe.am](mailto:info@nbe.am)

\*\* “National Bureau of Expertises” of the National Academy of Sciences of the Republic of Armenia, Yerevan, Republic of Armenia, ORCID: <https://orcid.org/0000-0001-7682-8697>, e-mail: [info@nbe.am](mailto:info@nbe.am)

<sup>a</sup> Project administration, Conceptualization, Writing — original draft.

<sup>b</sup> Investigation, Writing — original draft.

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*The article discusses issues related to psychological violence and identifying the features of conducting forensic psychological examinations in order to establish the fact of psychological violence. Particular attention is paid to the interpretation of the concepts: psychological violence, psychological impact, psychological pressure, emotional violence, verbal aggression, coercion. The article highlights and describes the characteristic features of forensic psychological examination of psychological abuse victims.*

*This article purpose is to identify the key features of the forensic psychology examination of psychological abuse victims. The main research content allows us to list the characteristic features of forensic psychology analysis in the following way.*

*In most cases, the issues related to the forensic psychology analysis of violent actions refer to sexual or physical violence or are aimed at explaining the actions of various forms of violence on the human psyche. These circumstances lead to the fact that human psyche begins to play secondary role while performing forensic research. It is for this reason that forensic psychology analysis of psychological abuse in general and its types in particular is referred to as non-traditional types of examination.*

*Various types of violent actions in different ways affect the human psyche and the secondary nature of the examination does not always*

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*reveal the essence and results of psychological abuse that unjustifiably narrows the real scope of manifestations of violence in society.*

*The authors defend the opinion that at this stage it is more correct to conduct a psychological examination aimed specifically at psychological violence and not at the secondary effect of violence on the psyche. In this regard, the article proposes necessary definitions that can be used in the conduct of forensic psychological and forensic linguistic expert research.*

*Considering importance of conducting examinations to establish existence or lack of the psychological violence fact, it is planned to continue research to develop criteria for assessing results of forensic psychology analysis of psychological abuse.*

**Keywords:** *psychological abuse, sexual violence, economic violence, physical violence, insult, psychological impact, psychological interaction, psychological effects, non-traditional species of forensic science, emotional harm, profanity.*

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## **Formulation of Research Problem**

At the current stage of society development, in the context of crisis phenomena in economy, politics, culture against the background of the COVID-19 coronavirus pandemic, establishment of “colored” zones of restrictions, lockdowns and even curfews, the problem of psychological abuse and forensic psychology analysis of this phenomenon is as never relevant.

Forensic psychology analysis (hereinafter referred to as FPA) is a specific procedure consisting in research by a specialist on expert materials provided on the instructions of an investigator or a court. The FPA purpose is to assist the court and preliminary investigation authorities in a deeper understanding of the psychological content of specific issues included in the proof subject in criminal cases, civil disputes and cases of administrative offenses, as well as in research on the psychological content of

a number of legal concepts contained in law.

## **Analysis of Essential Researches and Publications**

It should be noted that many professionals, research centers, institutions in the Republic of Armenia deal with the problem of violence, as this phenomenon has a huge negative impact on the formation, development, adaptation and ultimately on building a healthy society. In recent years, more and more attention has been paid to domestic violence and violence against women and children. Therefore in 2013 the *Types of services provided in the Republic of Armenia to women victims of domestic violence* research was published. The purpose of publishing this research was to map territorial location of services provided in the Republic of Armenia <sup>1</sup>.

Mention should also be made of guidelines published with assistance

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1 Виды услуг предоставляемые в Республике Армения женщинам ставшими жертвами домашнего насилия: справочное издание. Ереван, 2013. 37 с.

of the European Union within the framework of the *Reducing Violence against Children in Armenia* program aimed at professional work with children who have been subjected to cruel treatment. In this publication, it was emphasized that violence can hinder the physical and psychological development of a child, prevent the establishment and maintenance of adequate interpersonal relationships, contribute to the delay in development of cognitive and mental abilities and formation of behavioral disorders, etc. <sup>2</sup>

Forensic Psychologists of the Department of Psychological Expertise of the National Bureau of Expertise SNCO of the National Academy of Sciences of the Republic of Armenia also carried out work aimed at clarifying and highlighting this issue published a number of scientific articles. Practice of forensic psychiatric examinations in the Republic of Armenia monitors an increase in the number of cases of forensic psychiatric examinations of victims of violence appointed by law enforcement agencies. Reasons for this increase in the indicator include such factors as the more frequent commission of similar crimes. Positive dynamics of the growth of filing and consideration in the courts of cases of similar content, most likely can be due to the fact that people have become more aware of this issue, since numerous printed materials

are published based on the results of psychological research regarding involved crimes.

Ukrainian researchers O. Mikheeva and L. Mikheeva pay attention to the problems of psychological violence in their research papers. In the *Issue of Forensic Psychological Examination of Victims of Domestic Violence in Modern Scientific Psychological Discourse* article scientists study the issue of forensic psychology analysis of victims of domestic violence. It is noted that domestic violence is becoming one of the most pressing social problems of modern Ukrainian family. It is emphasized that the analysis of current forensic expert practice testifies to the lack of corresponding methods for conducting psychological examination in criminal cases, developed and approved by the Ministry of Justice of Ukraine, under Art. 126-1 of the Criminal Code of Ukraine. The need to optimize methodological support of forensic activities in relation to victims of domestic violence is highlighted. It is noted that problem under consideration is at the initial stage of theoretical study and practical implementation in current forensic science activities <sup>3</sup>.

Whole section in the conference proceedings: *Topical issues of forensic examination and forensic science* (Kharkiv, April 18–19, 2019) is devoted to issues of psychological examination, namely: research papers of T. Egorova and V. Egorov, T. Savkina and T. Kharina <sup>4</sup>. A. Zhmakova

- 2 Саакян А., Курдова А., Сафарян А., Сваджян А., Манукян А. Профессиональная работа с детьми, подвергшимися насилию: руководство по переподготовке специалистов. Ереван, 2013. 80 с.
- 3 Міхеєва О. І., Міхеєва М. Л. Проблема судової психологічної експертизи потерпілих від домашнього насильства у сучасному науковому психологічному дискурсі. *Теорія та практика судової експертизи і криміналістики*. 2019. Вип. 19. С. 456–463. DOI: 10.32353/knife.1.2019.036 (date accessed: 06.09.2021).
- 4 Егорова Т. М., Егоров В. В. Дискусійні питання щодо об'єкта та предмета судової психологічної експертизи. *Актуальні питання судової експертизи і криміналістики* : мат-ли міжнар. наук.-практ. конф (Харків, 18–19.04.2019). Харків, 2019. С. 428–430 ; Савкіна Т. В., Харіна Т. Г. Обставини, що підлягають встановленню з метою призначення судово-психологічної експертизи емоційних станів. *Ibid*. С. 437–439.

(Republic of Belarus) researched the problems of psychological influence on personality<sup>5</sup>. Also noteworthy are articles by authors such as: S. F. I. Rizvi, N. Najam, F. B. Annor, L. K. Gilbert, E. P. Davila, G. M. Massetti, H. Kress, D. Onotu, O. Ogbanufe, N. Tracy, B. Donohue, T. Maier-Paarlberg, A. M. Parsons, R. E. Heyman, D. M. Mitnick, A. M. S. Slep, M. A. Rodríguez, D. Benton, V. A. Kelly and others<sup>6</sup>. Bearing in mind the above, we note that in the field of forensic psychology, the signs of psychological abuse remain a less studied subspecies of forensic science. Very often psychological abuse is presented as a result of physical and sexual violence and in most cases is not considered as a direct object of research while appointing forensic examinations of occurred violence.

### Article Purpose

This *Article Purpose* is to determine key positions of forensic science activity in the issue context of forensic psychology

analysis of victims of psychological violence.

### Main Content Presentation

Professional readings distinguish between traditional and relatively new (non-traditional) FPA species. Forensic psychological examination of victims on violence facts is one of the main FPA types. This type usually refers to sexual abuse or use of physical force. It should be noted that recently the problem of psychological violence has become more widespread within the framework of investigated crimes. In litigation, establishing existence or lack of the fact of psychological violence or psychological impact in general is a rather difficult task and at the moment this type of forensic examination is considered methodologically incomplete. It should be noted that this is precisely why forensic examination of the impact of psychological violence, in the opinion of many forensic psychologists, refers to non-traditional types of examination.

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5 Жмакова А. С. О необходимости определения понятия психологического воздействия в Республике Беларусь. *Ibid.* С. 433—434.

6 Rizvi S. F. I., Najam N. Parental Psychological Abuse toward children and Mental Health Problems in adolescence. *Pakistan Journal of Medical Scitycts*. 2014. Mar-Apr; 30 (2): 256—260. URL: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3998989> (date accessed: 06.09.2021) ; Annor F. B., Gilbert L. K., Davila E. P., Massetti G. M., Kress H., Onotu D., Ogbanufe O. Emotional violence in childhood and health conditions, risk-taking behaviors, and violence perpetration among young adults in Nigeria. *Child Abuse & Neglect*. 2020. Aug; 106: 104510. DOI: 10.1016/j.chiabu.2020.104510 (date accessed: 06.09.2021) ; Tracy N. Emotional-Psychological Abuse Articles. *HealthyPlace*. 2012. July 24. URL: <https://www.healthyplace.com/abuse/emotional-psychological-abuse/emotional-psychological-abuse-articles> (date accessed: 06.09.2021) ; Donohue B., ... , Maier-Paarlberg T. Domestic Violence / Encyclopedia of Stress ; Editor-in-Chiff G. Fink. Academic Press ; 2nd Edition, 2007. 8676 p. URL: <https://www.sciencedirect.com/topics/psychology/psychological-abuse> (date accessed: 06.09.2021) ; Parsons A. M., Heyman R. E., Mitnick D. M., Slep A. M. S. Intimate partner violence and child maltreatment: Definitions, prevalence, research, and theory through a cross-cultural lens / Cross-Cultural Family Research and Practice ; In W. K. Halford & F. van de Vijver (Eds.). *Ibid*, 2020. Pp. 249—285. DOI: 10.1016/B978-0-12-815493-9.00008-9 (date accessed: 06.09.2021) ; Rodríguez M. A., Benton D. Elder Abuse / Encyclopedia of Applied Psychology ; Editor-in-Chiff C. D. Spielberger. *Ibid*, 2004. Pp. 693—701. DOI: 10.1016/B0-12-657410-3/00828-X (date accessed: 06.09.2021) ; Kelly V. A. Psychological Abuse of Women: A Review of the Literature. *Sage Journals*. 2004. Oct. 1. DOI: 10.1177/1066480704267234 (date accessed: 06.09.2021).

One of the most important issues for conducting effective forensic examination is a clear definition of the problem. Therefore, we consider it necessary to clarify the concepts of *violence*, *psychological consequences of violence* and *psychological abuse*, as this will allow to form complete idea about this forensic psychological species of examination.

Violence is usually interpreted as the use of physical force, coercion, illegal, unjust action, arbitrariness, oppression, tyranny<sup>7</sup>. As follows there are physical, social and psychological manifestations of violence in this lexical commentary. In professionals readings, violence is defined as a physical, psychological, social impact on a person (child) from another person (child or adult), family, group or state forcing him to interrupt significant activities and perform other contradicting activities, or threaten his physical or psychological health and integrity<sup>8</sup>.

At all times, psychologists have tried to describe various types of violence. Currently, in accordance with the accepted classification, the following main species of violence should be distinguished:

- physical violence;
- financial exploitation;
- sexual violence;
- psychological abuse.

One of the most widespread types of violence is physical, according to T. I. Shulga, it is expressed in beatings, pinching, slaps, etc. The beatings can be applied both by hand and using objects. This type of violence is easiest to identify,

as after it the victim can develop bruises on the face, lips, torso, burns, fractures or sprains, cuts, and areas without hair on the head. Sometimes there are cases when after physical violence there are no *traces*, there are traces that pass quickly and some blows without leaving bruises can lead to injury to internal organs<sup>9</sup>.

Economic violence or financial exploitation is control over the use of money and other material resources, which is characterized by denial of access to livelihood, strict financial control, restriction, obstruction and criticism of his purchases and transactions, unexpected financial problems or loss of money, withholding income, using banking cards when an elderly person cannot walk, economic dependence on their abuser.

Sexual violence is often described as a violent act when a person is forced, threatened or tricked, against his will, into some form of sexual relationship. Sexual violence is any behavior of a sexual nature through which another person is controlled, manipulated or humiliated. Sexual violence in couples may be more common than is commonly thought, because patriarchal culture implies compulsory submission to the sexual partner desires<sup>10</sup>.

A more complete description of sexual violence is given by T. I. Shulga: compulsion to dress in very open clothes in which a person feels uncomfortable, unwanted touching of certain parts of the body, unwanted kisses, verbal abuse, sexual intercourse, sexual acts in the presence of a child<sup>11</sup>.

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7 Толковый словарь армянского языка. URL: <https://bararanonline.com> (date accessed: 06.09.2021).

8 Платонова Я. М., Руднева М. В., Тарасенко Я. М., Киселева М. В., Кучукова Я. Ю., Гарскова Г. Г., Тулупьева Т. В. *Насилие в семье: особенности психологической реабилитации* : учеб. пособ. ; под ред. Н. М. Платоновой и Ю. П. Платонова. Санкт-Петербург, 2004. 154 с.

9 Шульга Т. И. *Работа с неблагополучной семьей* : учеб. пособ. Москва, 2005. 254 с.

10 Ibid.

11 Ibid.

According to Clause 3 of Article 3 of the Republic of Armenia Law: *On Preventing Domestic Violence, Protecting Victims of Domestic Violence and Restoring Family Solidarity*, psychological violence is a deliberate infliction of severe mental suffering, including a real threat of physical, sexual or economic violence, deliberate and regular performance of such actions, which cause well-founded fears of a threat to his personal safety or family members, regular humiliation of dignity, extreme social isolation, coercion of a person to abortion<sup>12</sup>. Psychological abuse, according to colleagues from MTÜ Ida-Virumaa Naiste Tugikeskus-Varjupaik IVNTV (Eastern Virumaa Women's Shelter-Support Center), is verbal or non-verbal violence aimed at humiliating and subordinating another person to their control.

Emotional abuse is the constant and conscious infliction of emotional pain on another and rejection of their feelings. This is not necessarily a direct resentment or shouting at the person. It can be expressed in subtle and skillful manipulation and humiliation.

Psychological abuse can be expressed in the following behavior: ignoring, silence, threats, harassment, systematic control, observation, quarrels, intimidation, abuse, humiliation, criticism, accusations, manipulations, persuasion of bad qualities (constant repetition of "You are "), jealousy, social isolation, use of children as a means of violence, organization of property dependence, limitation of ability to move, etc.

In addition to above main species, they also highlight neglect, verbal abuse, cultural violence, emotional abuse that are quite common in the context of psychological abuse.

There are now a huge number of conventions that focus on combating violence against women and children and gender inequality. In one of the mentioned conventions:

- *violence against women* is understood as a violation of human rights, that is a form of discrimination against women and means all acts of gender-based violence that lead or can lead to physical, sexual, psychological or economic harm or suffering against women, including threats of acts such as coercion or arbitrary deprivation of liberty, whether in public or private life;
- *domestic violence* means all acts of physical, sexual, psychological or economic violence that occur in the family or in the home, or between former or current spouses or partners, regardless of whether the perpetrator lives or not, in the same place as the victim<sup>13</sup>.

As a rule, it is difficult to imagine a situation when aggressor uses only one species of violence; victims often suffer from the simultaneous manifestation of its various species. Being closely related, each violence has a certain impact on the mental state of a person and life in general.

The consequences of each type of violence can also be very different. Thus, while sexual violence, the following can appear:

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12 О предотвращении семейного насилия, защите лиц, подвергшихся семейному насилию, и восстановлении согласия в семье : Закон Республики Армения от 30.12.2017 г. № ЗР-320 (принят Национальным Собранием РА 13.12.2017 г.).

13 Конвенция Совета Европы о предотвращении и борьбе с насилием в отношении женщин и домашним насилием от 11.05.2011 г. № 210. URL: <https://rm.coe.int/16806b0687> (date accessed: 06.09.2021).

- physical consequences (most often in the genital area): psychosomatic pain;
- social consequences: fear of human groups; sexualized behavior: confusion of intimacy with sexuality, promiscuity emanating from this (with each / everyone immediately try to sleep) or severe complex; a state of uncertainty about one's own sexual orientation; sexually aggressive behavior;
- mental consequences: return to infant behavior (urinary incontinence, thumb sucking ...); sleep disorder (fear when falling asleep, dreaming nightmares); fear when touched; dependence of the most different severity<sup>14</sup>.

Children who are abused or witness domestic violence can behave in the following ways:

- refuse to go to school because they fear that someone might find out about the family violence situation;
- care about others more than for themselves; can be overly aggressive or vice versa, too passive;
- to any remarks addressed to them, they react with insults, mocking phrases, try to attack;
- behave in such a way as to draw attention to themselves;
- deliberately hurt other children or animals;
- drink, drug up or take intoxicating substances;
- talk about suicide;
- have unusual sexual knowledge;

- behave like little adults – flawlessly;
- are active in social activities in order to be at home less;
- have problems with appetite<sup>15</sup>.

According to the World Health Organization, consequences of child abuse include lifelong physical and mental health problems, and its social and professional consequences could ultimately slow down the country's economic and social development. Abuse consequences can also include committing violence or becoming a victim of violence.

Even this incomplete list of consequences of violence indicates that violence is not limited to the pain or feelings experienced at the moment. Its consequences can accompany a person throughout his life.

The listed definitions and approaches are largely focused on physical manifestations of both aggression and violence and their consequences. This unnecessarily narrows the real scope of manifestations of aggression and violence in society. It is enough to point out essential social nature of interaction and psyche of people, the consequence of which is a person's perception of even purely property losses and physical injuries, primarily through the psychological "prism" of relationships with other people and through relationships with oneself.

In a number of cases, this is directly or indirectly recognized, in particular, in the practice of lawsuits for compensation for moral damage, in relation to sexual violence and sexual exploitation. In all likelihood, the recognition of psychological aggression and psychological violence appears especially clearly in the system of restrictions and

14 Определение понятия и элементы сексуального насилия / Отпор сексуальному насилью. URL: [https://sexueller-gewalt-begegnen.de/fileadmin/fachbeirat/downloads/13137\\_Missbrauch-Broschu\\_re\\_Inhalt\\_RU2013\\_web.pdf](https://sexueller-gewalt-begegnen.de/fileadmin/fachbeirat/downloads/13137_Missbrauch-Broschu_re_Inhalt_RU2013_web.pdf) (date accessed: 06.09.2021).

15 О предотвращении семейного насилия, защите лиц, подвергшихся семейному насилию, и восстановлении согласия в семье ... .

punishments spreading in the West regarding the so-called “sexual harassment” (usually translated as “sexual harassment”), qualification of which is predominantly social and psychological nature<sup>16</sup>.

It is obvious that psychological violence against the victim can manifest itself in almost any type of crime against the person. As M. V. Kroz, N. A. Ratinova, O. R. Onishenko note, such an impact may have a background nature and its results will be of little or no importance for qualifying a crime, studying the way it is committed and assessing occurred consequences<sup>17</sup>.

However, in other corpus delicti, it is psychological violence against the victim and its consequences that is the main result of the criminal’s unlawful actions leading to his goal. If specialists have sufficiently studied physical, sexual violence and the consequences of violence, have clear definitions and even legislatively enshrined, then concept of psychological violence is vaguer.

However, it should be noted that in the legal sciences, psychological impact, that has signs of destructiveness, affecting the victim in commission of a wide range of crimes, is called the *mental violence*.

With this in mind, it becomes necessary to clarify the concept of psychological violence and limits of its perception. Thus, psychological abuse is most often characterized as a form of influence on the psyche of a partner with the help of threats, intimidation, insults, criticism, condemnation, etc. That is, a constant verbal negative impact on another person.

However, similar definitions are limited and represent only part of psychological abuse.

I. N. Alekseev proposes to formulate the concept of mental abuse: “strictly in a narrow sense, since with a broad interpretation it is actually equated to coercion” considering mental violence, in any case, wider than a threat, because in case of no harm to the psyche, the threat from the category of *violence* goes into the category of *restriction of freedom of expression*. The author refers to mental violence as an extreme degree of mental coercion, and systematic humiliation of dignity, accompanied by insults, and hypnosis in the case of direct harm to the psyche (otherwise hypnosis is proposed to be considered as a restriction of freedom of expression), and if mental violence is understood as any purposeful destructive effect on the psyche, then blackmail and the threat of destruction or damage to property are naturally included in it (for example, the objective side of the crime under Art. 133 of the Criminal Code of the Russian Federation). Thus, the author understands mental violence as a type (method) of mental coercion, which consists in committing a socially dangerous and illegal act in the form of a direct mental destructive impact on the victim. At the same time, since coercion is also realized in the form of a protective function of the state and law, which does not entail deliberate purposeful harm, it can be used both in a positive (legislatively enshrined coercive measures) and in a negative sense, in contrast to *violence* that carries extremely negative nature<sup>18</sup>.

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16 Волков Е. Н. Критерии, признаки, определения и классификации вредящего психологического воздействия: психологическое травмирование, психологическая агрессия и психологическое насилие. *Журнал практического психолога*. 2002. № 6. С. 183–199.

17 Кроз М. В., Ратинова Н. А., Онищенко О. Р. Криминальное психологическое воздействие. Москва, 2008. С. 8, 61.

18 Алексеев И. Н. Понуждение, принуждение и насилие в уголовном праве. *Уголовный процесс*. 2006. № 1. С. 3–13.

An attempt to construct terminology of psychological violence was undertaken by A. B. Orlov in relation to child-parent relations. Its definition is as follows: “psychological (behavioral, intellectual, emotional and other) violence is deliberate manipulation of an adult child as an object, ignoring his subjective characteristics (freedom, dignity, rights, etc.), or destroying the relationship of attachment between adults and a child, or, on the contrary, fixing these relations and leading to various deformations and disorders of mental (behavioral, intellectual, emotional, volitional, communicative, personal) development”<sup>19</sup>.

According to A. B. Orlov, the spectrum of psychological violence includes:

- psychological influences (threats, humiliation, insults, excessive demands, excessive criticism, lies, isolation, prohibitions on behavior and experience, negative assessment, frustration of the basic needs and needs of the child, etc.);
- psychological effects (loss of confidence in oneself and the world, diffuse self-identity, field-dependent cognitive style, external locus of control, concern, anxiety, sleep and appetite disorders, depression, aggressiveness, compliance, complaisance, poor academic performance, communicative incompetence, low self-esteem, tendency to be alone, suicidal tendencies, delays in physical and mental development, etc.);
- psychological interactions (dominance, efficiency,

unpredictability, inconsistency, inadequacy, rejection by parents and subordination, insensitivity, rigidity, irresponsibility, insecurity, helplessness, self-deprecation on the part of children<sup>20</sup>).

According to E. N. Volkov, psychological abuse is a social and psychological influence that deliberately forces another person or a group of people to actions or behavior that were not part of their intentions; violating psychological boundaries of a person or a social group, carried out without informed consent and without ensuring the social and psychological safety of an individual or a group of people, as well as all their legal rights; leading to social, psychological, physical or material harm (damage)<sup>21</sup>.

Generalization of the above different formulations of the concept of *psychological violence* allows us to identify a number of its common features:

- psychological abuse manifests itself in external environment;
- it is expressed in concrete, conscious acts of human behavior;
- expressed in certain forms (as a rule, it has an informational impact on the victim);
- can have a direct (directed at the victim) and mediated (against his relatives, property, facing the future, etc.) nature;
- has a specific addressee;
- pursues certain goals (causing physical, material harm or moral damage, restriction of free will);
- acts as a means of crime committing;
- causes certain consequences.

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19 Орлов А. Б. Психологическое насилие в семье — определение, аспекты, основные направления оказания психологической помощи. *Психолог в детском саду*. 2000. № 2—3. С. 183—184.

20 Ibid.

21 Волков Е. Н. *Op. cit.*

Considering these signs, a quite successful, in our opinion, definition of psychological violence was proposed by L. V. Serdyuk back in the early 80s of the last century. "Mental violence is a deliberate and socially dangerous influence on the human psyche, which is carried out against her will by informational and non-informational means and that can suppress freedom of expression or cause mental trauma"<sup>22</sup>.

It should be mentioned that despite the fact that concept characteristics of *Psychological abuse* in both professional and public fields are quite different (mental abuse, psychological impact, psychological pressure, emotional violence, verbal aggression, coercion, etc.), all of them taken together are united by one common concept of *psychological abuse*. We consider it important to emphasize that, in contrast to the concepts of *psychological impact*, *aggression* and *coercion* being multifaceted phenomena, can be positive in nature (education, training, legislative measures of coercion) and have negative consequences (crimes, suicide), the concept of *psychological abuse* is extremely negative.

The task of the psychologist, within the framework of the forensic psychological examination of the victim on the fact of sexual violence is to obtain answers to the following questions:

Could the victim understand the nature and significance of the actions taken against him in the current situation under investigation considering his individual psychological characteristics, level of intellectual and personal development and his state of mind?

Could he have resisted the victim in the current situation under investigation considering his individual psychological characteristics, state of mind?

Can individual psychological characteristics of the victim significantly affect the victim behavior in current situation under investigation?

As noted earlier, the species of forensic examination is considered one of the main ones; it is widely used in both civil and criminal cases.

Given the importance of conducting an examination to establish existence or lack of psychological violence fact, it should be noted that in some cases it is more expedient to conduct a multidisciplinary forensic linguistic and psychological examination and in cases where there is suspicion of mental health: forensic psychological and psychiatric one.

This species of forensic examination can provide invaluable assistance in establishing socially dangerous emotional consequences of psychological violence. We believe that such expert conclusion will be the objective and most convincing evidence of causing socially dangerous consequences<sup>23</sup>. This species of forensic examination is assigned to determine what negative influence lexical means have on a person as a bearer of social values. If we take insult as a type of psychological violence, the most significant sign reflecting insult (its measure) is social assessment. As G. V. Kusov notes, forensic linguistic examination of an insult, built on scientific foundations, can significantly reduce judicial errors<sup>24</sup>. Within the framework of this research, the task of

22 Сердюк Л. В. Психическое насилие как предмет уголовно-правовой оценки следователем : учеб. пособ. Волгоград, 1981. 62 с. ; Ключенко Л. Н. Психическое насилие: вопросы уголовно-правовой регламентации и квалификации : дис. ... канд. юрид. наук. Москва, 2019. С. 29.

23 Сидорова И. В. Оскорбление как разновидность психического насилия. *Психопедагогика в правоохранительных органах*. 2017. № 1 (68). С. 28—32.

24 Кусов Г. В. Судебная лингвистическая экспертиза «оскорбления»: развитие современной

linguists is to get an answer to the question: «Whether information is defaming the honor and dignity of a person, or damaging his reputation, offensive for the victim?» Competence of psychologists should include establishment of influence characteristics of expressed information on a specific person and the diagnosis of psychological state of the victim at the moment and after the perception of this information by him. At the stage of preparation for an examination of this type, it is necessary to pay special attention to collecting facts from the life of the subject that are necessary to identify his psychological characteristics. Such data of the subject as: conditions of development and upbringing, character, interests, typical forms of psychological reaction, as well as the relationship between the victim's parents, the condition of life and the presence of brothers and sisters are of particular importance.

Based on the analysis of research results of the issues of general composition of insult as a type of mental violence, as well as generalizing the accumulated practical experience, we fully support the conclusions of I. V. Sidorova, who formulated the following conclusions:

Social conditionality of the administrative and legal prohibition of insult follows from the fact that this offense is one of the varieties of socially dangerous mental violence having all signs of the latter (unlawful intentional encroachment on a person's mental safety, causing mental harm).

Insult as a type of mental violence is intentional negative expressed in obscene vocabulary or other indecent form; evaluation of another person, causing him emotional harm in the form of humiliation of dignity.

Objective side basis of the insult is an action in the form of humiliation of a person's dignity (his negative assessment), performed in one of three possible forms: physical impact on the victim, word, gesture.

Insult as material composition of the offense should be recognized as completed from the moment of the onset of socially dangerous consequences: emotional harm in the form of humiliation of the victim's dignity. From a psychological point of view, the harm caused by an insult is suffered by the victim in the form of experiencing a negative emotional state, namely: an offense.

Emotional harm is patchy. Representing as a whole a kind of mental harm, causing damage to mental health, it has properties inherent in psychological state of the individual, closely intersects in the process of insult with moral harm.

Profanity as a means of humiliation of human dignity should be recognized as a sufficient basis for the conclusion about an indecent form of insult <sup>25</sup>.

## Conclusions

Expressing a generalized description of the forensic psychology analysis of psychological abuse, the main attention should be paid first of all to the fact that in the process of conducting forensic psychological and forensic linguistic analysis it is necessary to determine whether information defaming the honor and dignity of a person, undermining his reputation is offensive for the victim, as well as to establish influence peculiarities of expressed information on a specific person, diagnose the psychological state of the victim at the moment and after he perceives this information.

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теории и практики. *Российский судья*. 2011. № 9. С. 15–19.  
25 Сидорова И. В. *Op. cit.*

In the future, bearing in mind that this issue continues to remain debatable, it is planned to continue the study while which the issues of subjective perception of psychological violence victims will be analyzed and studied in more detail, influence specifics of negative information expressed on mental health of a particular person and the assessment of psychological trauma in cases of compensation for moral harm and protection of honor, dignity and business reputation of citizens.

### **Особливості судово-психологічної експертизи психологічного насильства** **Рубен Агузумцян, Гаяне Шахвердян**

Розглянуто питання, що стосуються психологічного насильства та виявлення особливостей проведення судово-психологічних експертиз для встановлення факту психологічного насильства. Особливу увагу приділено інтерпретації понять: «психологічне насильство», «психологічний вплив», «психологічний тиск», «емоційне насильство», «словесна агресія», «примус». Виокремлено й описано характерні особливості проведення судово-психологічної експертизи жертв психологічного насильства.

Мета — визначити ключові особливості судово-психологічної експертизи потерпілих від психологічного насильства.

Основний зміст дослідження дає змогу класифікувати характерні особливості судово-психологічної експертизи в наведений далі спосіб.

Здебільшого питання, пов'язані із судово-психологічною експертизою насильницьких дій, належать до сексуального чи фізичного насильства або спрямовані на пояснення дій різних форм насильства на психіку людини. Зазначені обставини призводять до того, що людська психіка під час проведення судово-експертних досліджень починає відігравати вторинну роль. Саме через ці причини судово-психо-

логічну експертизу психологічного насильства загалом та її види зокрема вважають нетрадиційними видами експертизи.

Різні види насильницьких дій по-різному впливають на психіку людини, і вторинність у процесі експертизи не завжди дає змогу виявити сутність та результати психологічного насильства, що не виправдано звужує реальну сферу проявів насильства у соціумі.

Автори обстоюють думку, що на цьому етапі більш коректним є проведення психологічної експертизи, спрямованої саме на психологічне насильство, а не на вторинність впливу насильства на психіку. У зв'язку із цим запропоновано необхідні визначення, які можна застосувати під час проведення судово-психологічних і судово-лінгвістичних експертних досліджень.

Зважаючи на важливість проведення експертиз зі встановлення наявності чи відсутності факту психологічного насильства, планується продовжити дослідження щодо розроблення критеріїв оцінювання результатів психологічної експертизи психологічного насильства.

**Ключові слова:** психологічне насильство; сексуальне насильство; економічне насильство; фізичне насильство; образа; психологічний вплив; психологічна взаємодія; психологічні ефекти; нетрадиційні види експертиз; емоційна шкода; обценна лексика.

### **Особенности судебно-психологической экспертизы психологического насилия**

**Рубен Агузумцян, Гаяне Шахвердян**

Статья посвящена изучению психологического насилия и выявлению особенностей судебно-психологической экспертизы, направленной на установление факта психологического насилия. В работе представлены классификация и характеристики различных видов насилия, а также примеры проявления последствий различ-

ных видов насилия. Проведено сравнение таких понятий, как «психологическое насилие», «психологическое воздействие», «психологическое давление», «эмоциональное насилие», «словесная агрессия», «принуждение». Особое внимание уделено преступлениям, где именно психологическое насилие над жертвой и его последствия являются основным итогом противоправных действий преступника. В настоящем исследовании предпринята попытка описать характерные особенности судебно-психологической экспертизы жертв психологического насилия.

Цель статьи — определить ключевые особенности судебно-психологической экспертизы потерпевших от психологического насилия.

**Ключевые слова:** психологическое насилие; сексуальное насилие; экономическое насилие; физическое насилие; оскорбление; психологическое воздействие; психологическое взаимодействие; психологические эффекты; нетрадиционные виды экспертизы; эмоциональный вред; обценная лексика.

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### Contributors

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### Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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## Specific expertise use while investigation of crimes related to drug trafficking

José Manuel Colodrás \*<sup>a</sup>, Kateryna Sylenok \*\*<sup>b</sup>

\* Spanish National Police, Regional coordinator of EU-ACT, Madrid, Spain,  
ORCID: <https://orcid.org/0000-0001-6225-9534>, colodras@gmail.com

\*\* National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»,  
Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0001-9355-5010>, e-mail: [theoreticl@hniise.gov.ua](mailto:theoreticl@hniise.gov.ua)

<sup>a</sup> Methodology, Conceptualization.

<sup>b</sup> Formal analysis, Writing — original draft.

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*Some issues of specific expertise application while investigation of crimes related to drug trafficking are considered. Scientific literature and legal regulations devoted to the issues of specific expertise application, research on narcotic drugs, psychotropic substances and precursors are analyzed. Statistics on the level of drug crime in Ukraine published by the Prosecutor General's Office are presented. Increase in the number of drug crimes has led to increase in the requirements for specific expertise use requiring an urgent legislative solution to a number of problematic issues. This article purpose is to identify methodological and organizational and legal problems that arise while applying specific expertise while investigation of crimes related to drug trafficking.*

*Attention is drawn to the activities of “EU-ACT Project: EU measures to combat drugs and organized crime. Intensive cooperation and capacity building to combat organized crime in the field of drug trafficking along the heroin route”. For this project realization, the Ukrainian Drug Research Working Group (hereinafter referred to as UDR WG) was formed, one of the main goals of which is to improve the quality of forensic science services in Ukraine. Among the main forms of work of UDR WG is carrying out interlaboratory collaborative exercises (hereinafter referred to as CE). Results of participation in CE indicate either laboratory effectiveness, or potential problems that have arisen in. For forensic examination of*

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*narcotic drugs, psychotropic substances and precursors, professionals need comparative (standard) samples, which receipt by relevant forensic science institutions is very difficult due to a large number of different factors.*

*Keywords: specific expertise; forensic expert; forensic examination; research on narcotic drugs; psychotropic substances and precursors; crimes; illicit drug trafficking; EU-ACT.*

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## Research Problem Formulation

One of the priority areas and tasks of applying specific expertise is their use for investigation of crimes and offenses. Modern technologies in any field of public life are constantly evolving. According to V. M. Shevchuk, currently in Ukraine for effective solution of issues facing criminalistics, active innovative activity is carried out, latest information technologies, various intelligent systems, nanotechnologies are successfully developed, introduced and applied (In particular, innovative forensic products are created and put into practice, which use is aimed primarily at optimizing law enforcement activities) <sup>1</sup>. Specific expertise used by professionals while crime investigation, in particular related to drug trafficking, should contain latest technologies, meet the realities and requirements of the time.

Illicit drug trafficking in Ukraine is an urgent issue that needs to be addressed as a matter of priority. Specific expertise use while investigation of drug-related crimes is an important source of evidence to establish the degree of guilt of suspects.

Thus, according to the statistics of the Prosecutor General's Office that O. V. Lashchuk provides in his research, bodies and units of the National Police of Ukraine in 2019 alone registered 28.0 thousand criminal offenses related to illicit trafficking in narcotic drugs, psychotropic substances, their analogues and precursors (Articles 305-320 of the Criminal Code of Ukraine<sup>2</sup>). 4.7 tons of narcotic drugs and psychotropic substances (including: 127 kg of heroin, 9.8 kg of cocaine and 20.3 kg of amphetamines) were seized, 103 underground drug laboratories and 506 drug houses were liquidated. Due to the high level of drug and psychotropic substance use, drug offenders are expanding their drug and psychotropic drug distribution networks to attract new victims. In 2019, 6.1 thousands criminal proceedings related to the sale of narcotic drugs and psychotropic substances were exposed and sent to court (Article 307 of the Criminal Code of Ukraine). During this period, drug crime units across the country exposed more than 300 criminal offenses of trafficking in narcotic drugs and psychotropic substances using the Internet <sup>3</sup>.

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- 1 Шевчук В. М. Інноваційні засади криміналістичного забезпечення правозастосовної діяльності: проблеми формування концепції. *Теорія та практика судової експертизи і криміналістики*. Вип. 23. С. 7–23. DOI: 10.32353/khrife.1.2021.01 (date accessed: 08.09.2021).
  - 2 Кримінальний кодекс України: Закон України від 05.04.2001 р. № 2341-III (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/2341-14#Text> (Date accessed: 03.06.2020).
  - 3 Лащук О. В. Типові слідчі ситуації під час збуту наркотичних засобів та психотропних речовин із використанням інтернет-мережі. *Вісник Луганського державного університету внутрішніх справ ім. Е. О. Дідоренка* : наук. журн. 2020. Вип. 3 (91). С. 276–278. DOI: 10.33766/2524-0323.90.267-278 (date accessed: 08.09.2021) ; Про зареєстровані кримінальні

As of August 2021, 22 thousand criminal offenses related to illicit trafficking in narcotic drugs, psychotropic substances, their analogues and precursors were registered, 11 thousands criminal proceedings were detected and sent to court<sup>4</sup>.

While investigating drug-related crimes, for the fullest possible collection of evidence and examination of all factual data, the authorities and persons shall involve professionals and forensic experts who are well versed in the field of specific expertise as for comprehensive investigation of seized drugs.

I. R. Shynkarenko draws attention to the Strategy of State Policy on Drugs for the period up to 2020 which states that factors complicating the situation in the field of illicit trafficking in these substances are: increasing the volume of illegal drug production and smuggling; combining drug trafficking, corruption, terrorism and other forms of organized crime. In addition, the author emphasizes that law enforcement effectiveness in this area should increase primarily through formation of a system of scientific support aimed at detecting

signs of criminal activity in the field of drug trafficking and through formation of effective investigative, forensic and expert support of pre-trial and judicial investigation<sup>5</sup>.

As can be seen from the above, there is a need for effective methods of combating crimes in the field of drug trafficking. Specific expertise use is part of the mechanism, methods of investigating crimes and offenses. An important aspect in the investigation of this type of offense is the compliance of existing theoretical developments and strategies with the practical needs and current requirements.

### Analysis of Essential Researches and Publications

At different times, such outstanding Soviet and Ukrainian scholars as T. V. Averyanova, R. S. Belkin, A. I. Winberg, O. O. Eisman, H. H. Zuikov, V. Ya. Koldin, Yu. G. Korukhov, A. V. Ishchenko, N. I. Klimenko, B. S. Kuzmichev, V. H. Lukashevich, O. R. Rossinskaya, M. V. Saltevsykyi, M. Ya. Segai, E. B. Simakova-Yefremian, V. Yu. Shepitko and many others<sup>6</sup>

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правопорушення та результати їх досудового розслідування. Статистична інформація. 2019 рік // Офіс Генерального прокурора : сайт. URL: <https://www.gp.gov.ua/ua/1stat> (date accessed: 20.09.2021).

- 4 Про зареєстровані кримінальні правопорушення та результати їх досудового розслідування. Статистична інформація. 2021 рік // Офіс Генерального прокурора : сайт. URL: <https://www.gp.gov.ua/ua/1stat> (date accessed: 29.09.2021).
- 5 Шинкаренко І. Р. Проблеми наукового забезпечення державної політики у сфері протидії незаконному обігу наркотичних засобів, психотропних речовин і прекурсорів. *Науковий вісник Дніпропетровського державного університету внутрішніх справ* : наук. журн. 2018. Спецвип. № 1 (91) «Протидія наркозлочинності в Україні та у світі: проблеми та шляхи їх вирішення». С. 190–198.
- 6 Аверьянова Т. В., Белкин Р. С., Корухов Ю. Г., Россинская Е. Р. Энциклопедия судебной экспертизы. Москва, 1999. 552 с. ; Винберг А. И., Малаховская Н. Т. Судебная экспертология (общетеоретические и методологические проблемы судебных экспертиз) : учеб. пособ. Волгоград, 1979. 183 с. ; Эйсман А. А. Заключение эксперта (структура и научное обоснование). Москва, 1967. 152 с. ; Клименко Н. І. Інтеграційна функція експертології [Integration Function of Expertology]. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2006. Вип. 6. С. 117–124 ; Сімакова-Єфреман Е. Б. До питання про введення у кримінальне процесуальне законодавство поняття «висновок спеціаліста». *Ibid.* 2019. Вип. 20. С. 110–120. DOI: 10.32353/khrife.2.2019.08 (date accessed: 20.09.2021).

dedicated their research papers to the problems of specific expertise use in litigation.

Researchers from CIS and foreign countries have been conducting active scientific research in the field of combating drug crime and ensuring control over drug addiction for more than a decade. In Ukraine in recent years, the legal, organizational and criminological foundations of prevention and counteraction to crime in general and drug crime in particular have been developed by: L. M. Anisimov, A. Yu. Babiy, O. M. Bandurka, S. A. Butkevych, A. A. Venediktov, V. V. Golina, I. M. Grinenko, O. M. Dzhuzha, V. O. Konovalova, O. M. Litvak, A. A. Muzyka, O. V. Oderiy, V. M. Smitienko, O. M. Shevchuk, Yu. M. Yubko and others <sup>7</sup>.

Foreign researchers pay attention to regional features of drug trafficking, taking into account the specifics of the legislation of their own countries: T. Nefau, S. Karolak, L. Castillo, V. Boireau, J.-D. Berset, A. Solgadi, T. Gunnar, A. Arponen, A. Al-Matrouk, M. Al-Hasan, H. Naqi and others <sup>8</sup>.

The primary source of methods and algorithms for research on drugs, psychotropic substances and precursors are methods and algorithms of chemistry and biology, so certain technical, technological and methodological recommendations used in these sciences will be useful for forensic examination of drugs, psychotropic substances and precursors.

### Article Purpose

To identify methodological and organizational and legal issues that arise while applying specific expertise while investigation of crimes related to drug trafficking.

### Main Content Presentation

In criminalistics specific expertise means scientific, technical and practical knowledge acquired as a result of professional training or work in a certain specialization by a person involved as a professional or forensic expert to assist an investigator or court in clarifying

- 7 Голіна В. В. Теоретико-прикладні засади стратегії скорочення злочинності: сучасний досвід і перспективи. *Проблеми законності* : зб. наук. пр. 2020. Вип. 150. С. 141–149 ; Музика А. А. Злочини у сфері обігу наркотичних засобів, психотропних речовин, їх аналогів або прекурсорів. *Вісник Асоціації кримінального права України* : електрон. наук. вид. 2016. Вип. 2 (7). С. 297–303. URL: <http://vakp.nlu.edu.ua/issue/view/9584> (date accessed: 20.09.2021) ; Шинкаренко І. Р. *Op. cit.*
- 8 Nefau T., Karolak S., Castillo L., Boireau V., Levi Y. Presence of illicit drugs and metabolites in influents and effluents of 25 sewage water treatment plants and map of drug consumption in France. *Science of the Total Environment*. 2013. Vol. 461–462. Pp. 712–722. DOI: 10.1016/j.scitotenv.2013.05.038 (date accessed: 20.09.2021) ; Souchier M., Benali-Raclot D., Benanou D., Boireau V., Gomez E., Casellas C., Chiron S. Screening triclocarban and its transformation products in river sediment using liquid chromatography and high resolution mass spectrometry. *Ibid.* 2015. Vol. 502. Pp. 199–205. DOI: 10.1016/j.scitotenv.2014.08.108 (date accessed: 20.09.2021) ; Ort C., van Nuijs A. L. N., Berset J.-D., Bijlsma L. etc. Spatial differences and temporal changes in illicit drug use in Europe quantified by wastewater analysis. *Addiction*. 2014. Vol. 109. Is. 8. Pp. 1338–1352. DOI: 10.1111/add.12570 (date accessed: 20.09.2021) ; Al-Matrouk A., Al-Hasan M., Naqi H., Al-Abkal N., Mohammed H., Haider M., Al-Shammeri D., Bojbarah H. Snapshot of narcotic drugs and psychoactive substances in Kuwait: analysis of illicit drugs use in Kuwait from 2015 to 2018. *BMC Public Health*. 2021. Vol. 21. Article number: 671. DOI: 10.1186/s12889-021-10705-z (date accessed: 20.09.2021).

circumstances relevant to criminal proceedings, or providing conclusion on issues requiring the expertise use<sup>9</sup>.

The main forms of specific expertise application include involvement of an expert to provide an opinion on issues arising while criminal proceedings and relating to the scope of his knowledge (Art. 69 of the Criminal Procedural Code of Ukraine) and a specialist for consulting while pre-trial investigation and trial on issues requiring relevant specific expertise and skills (Art. 71 of the Criminal Procedural Code of Ukraine)<sup>10</sup>.

An important sign of specific expertise in criminal procedure sense is the purpose of its use. They are used to prove what is happening in the manner prescribed by law, as well as for non-procedural purposes while investigative measures. The purpose of specific expertise application is also to facilitate collection of evidence and indicative information for investigation of crime and its prevention, as well as for the development of tactical and technical means and methods of collecting such information. Not only expert witnesses (forensic experts, professionals) but also persons carrying out investigative measures and investigators have the right to use specific expertise, although the results of such application specific expertise will have different procedural significance<sup>11</sup>.

First of all, it is necessary to define the *specific expertise* concept. Scholars usually offer authorial definitions of special

knowledge used in criminal proceedings. I. V. Pyrih and H. S. Bidniak having analyzed the opinions of scientists which to some extent reveal the essence, purpose and directions of the use of specific expertise, formulated the main criteria for defining the *specific expertise* concept. Defining the *specific expertise* term, it should be borne in mind that: 1) specific expertise is non-legal, except as noted above, i.e. it is knowledge that is not professional for investigator, operative staff, prosecutor, judge; 2) specific expertise should be based on achievements of science, not be well known; 3) specific expertise can be acquired in the process of either theoretical mastery of certain information, or periodic practical classes in a particular type of work; 4) purpose of specific expertise use is to assist in solving tasks of criminal proceedings<sup>12</sup>.

In other words, as noted by I. V. Pyrih and Ha. S. Bidniak, *specific expertise* is a set of theoretical knowledge and practical skills in the field of science, technology, art or craft, acquired as a result of professional training or professional experience used for crime prevention and investigation.

One of the most important forms of specific expertise application in criminal proceedings is forensic science, due to which investigator and court receive new information that has probative value for criminal proceedings and cannot be obtained by other procedural means. The Law of Ukraine: *On Judicial Examination* (Art. 1)<sup>13</sup> defines forensic examination as

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9 Ольховенко С. І. Сучасний стан судової експертизи та можливості її використання у розслідуванні злочинів. *Криміналістичний вісник* : зб. наук. пр. 2015. № 1 (23). С. 86. URL: [http://nbuv.gov.ua/UJRN/krvs\\_2015\\_1\\_14](http://nbuv.gov.ua/UJRN/krvs_2015_1_14) (date accessed: 20.09.2021).

10 Кримінальний процесуальний кодекс України : Закон України від 13.04.2012 р. № 4651-VI (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 08.09.2021).

11 Пиріг І. В., Бідняк Г. С. Використання спеціальних знань на досудовому розслідуванні : навч. посіб. Дніпро, 2019. С. 14.

12 Ibid.

13 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=4038-12> (date accessed: 20.09.2021).

research based on specific expertise in the field of science, technology, art, craft, etc. of objects, phenomena and processes in order to provide a conclusion on issues that are or will be the trial subject.

In our country, involvement of forensic expert and carrying out forensic examination while criminal proceedings is regulated by the Law of Ukraine: *On Judicial Examination*<sup>14</sup>, the *Criminal Procedural Code of Ukraine*<sup>15</sup>, *Instruction on appointment and conducting forensic examinations and researches (hereinafter referred to as the Instruction)*<sup>16</sup> and other regulations. According to the current legislation of Ukraine, forensic examination is conducted by forensic expert who has specific expertise to clarify the circumstances relevant to criminal proceedings<sup>17</sup>.

According to Part 1 of Art. 242 of Criminal Procedural Code of Ukraine, forensic examination is carried out by forensic science institution, forensic expert or forensic experts involved by the parties to the criminal proceedings or the investigating judge at the request of the defense, if specific expertise is required to clarify the circumstances relevant to criminal proceedings<sup>18</sup>. Forensic examination as one of means of gathering

evidence contributes to a comprehensive, complete and objective investigation of the circumstances of relevant to criminal proceedings, adoption of lawful and reasonable court decisions<sup>19</sup>.

According to Part 1 and 2 of Art. 69 of Criminal Procedural Code of Ukraine:

*“1. Forensic expert in criminal proceedings is a person who has scientific, technical or other specific expertise, has the right to conduct an examination in accordance with the Law of Ukraine “On Judicial Examination” and who is instructed to study objects, phenomena and processes containing information about the circumstances criminal offense and give a conclusion on issues arising while criminal proceedings and relate to the scope of its knowledge.*

*2. Persons who are in official or other dependence on the parties to the criminal proceedings or the victim may not be experts”<sup>20</sup>.*

Parts 3-7 of the same article outline the rights and duties of forensic expert<sup>21</sup>.

With increase in the number of crimes in the field of drug trafficking, researches on narcotic drugs, psychotropic substances and precursors are quite relevant, which are now carried out using highly effective analytical techniques (due to admission to the study of semi-synthetic (heroin,

14 Ibid.

15 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 20.09.2021).

16 Інструкція про призначення та проведення судових експертиз та експертних досліджень : затв. наказом Міністерства юстиції України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 20.09.2021).

17 Калиновська О. І. Використання спеціальних знань під час розслідування злочинів, пов'язаних із незаконним збутом наркотичних засобів. *Науковий вісник Національної академії внутрішніх справ*. 2018. № 2 (107). С. 185. URL: [http://nbuv.gov.ua/UJRN/Nvknvvs\\_2018\\_2\\_18](http://nbuv.gov.ua/UJRN/Nvknvvs_2018_2_18) (date accessed: 20.09.2021).

18 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 20.09.2021).

19 Ольховенко С. І. *Op. cit.* С. 87. URL: [http://nbuv.gov.ua/UJRN/krvis\\_2015\\_1\\_14](http://nbuv.gov.ua/UJRN/krvis_2015_1_14) (date accessed: 20.09.2021).

20 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 20.09.2021).

21 Ibid ; Пиріг І. В., Бідняк Г. С. *Op. cit.* С. 17.

cocaine) and synthetic drugs, (LSD, amphetamine)<sup>22</sup>.

For detecting illicit drug trafficking, it is necessary to analyze the sources and channels of their receipt:

- narcotic drugs used in domestic medicine (papaveretum, trimeperidine, codeine, glutethimide, etc. and their derivatives);
- narcotics smuggled into Ukraine (cocaine, heroin, etc.);
- synthetic narcotics produced in underground drug laboratories using chemical reagents and special equipment, as well as drugs made by hand from some drugs;
- plants containing narcotics, or parts of such plants and substances from which drugs are produced by hand (hemp, marijuana (cannabis), hashish (hash), cannabis extract (hash oil), opium poppy, opium (black tar heroin), poppy straw (poppy husk), poppy straw tincture, etc.)<sup>23</sup>.

Illicit drug trafficking is schematically considered as a set of several technologically interdependent stages. O. I. Kalinovska, analyzing the opinions of scientists on the drug trafficking chains, notes that

some researchers divide drug trafficking into the following stages: cultivation – production – trade for profit. For example, V. A. Tymoshenko, V. B. Ivashenko, M. S. Krupp distinguish the following stages: production – transportation (delivery) – narcotic drug sale<sup>24</sup>.

In criminal proceedings related to drug trafficking, appointment of forensic examination is mandatory and the most informative form of specific expertise application.

Forensic examination is appointed and conducted in order to establish affiliation of studied objects and materials to a certain group of drugs according to the List of narcotic drugs, psychotropic substances and precursors, compiled in accordance with domestic legislation and international obligations of Ukraine and approved by the Cabinet of Ministers of Ukraine (hereinafter referred to as *CabMin Resolution*)<sup>25</sup> that is important for criminal offense investigation.

As noted, for example, O. A. Rivchachenko, O. I. Kalinovskaya and M. S. Khrupp, forensic examinations should be carried out at the initial stage, as some drugs of synthetic origin have ability to change if they are not stored in proper conditions<sup>26</sup>.

22 Ольховенко С. І. Оп. cit. URL: [http://nbuv.gov.ua/UJRN/krvis\\_2015\\_1\\_14](http://nbuv.gov.ua/UJRN/krvis_2015_1_14) (date accessed: 20.09.2021).

23 Грень Р. Виявлення ознак злочинів у сфері обігу наркотичних засобів. *Національний юридический журнал: теорія і практика*. 2016. № 5 (21). С. 152–153.

24 Калиновська О. І. Оп. cit. С. 187. URL: [http://nbuv.gov.ua/UJRN/Nvknvvs\\_2018\\_2\\_18](http://nbuv.gov.ua/UJRN/Nvknvvs_2018_2_18) (date accessed: 20.09.2021); Тимошенко В. А. Наркобізнес: національна та міжнародна протидія новим викликам : монографія. Київ, 2006. 440 с. ; Хруппа М. С., Вінс О. Кримінологічне поняття наркобізнесу [Criminological concept of drug trafficking]. *Право України*. 1993. № 4. С. 25–27.

25 Перелік наркотичних засобів, психотропних речовин і прекурсорів : затв. Постановою КМУ від 06.05.2000 р. № 770 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/770-2000-%D0%BF#Text> (date accessed: 20.09.2021).

26 Калиновська О. І. Оп. cit. С. 189. URL: [http://nbuv.gov.ua/UJRN/Nvknvvs\\_2018\\_2\\_18](http://nbuv.gov.ua/UJRN/Nvknvvs_2018_2_18) (date accessed: 20.09.2021); Рівчаченко О. А. Розслідування незаконних дій з обладнанням для виготовлення наркотичних засобів, психотропних речовин та їх аналогів : дис. ... канд. юрид. наук. Київ, 2016. 261 с. URL: <http://elar.naiu.kiev.ua/jspui/handle/123456789/1438> (date

In order to help investigate crimes related to illicit drug trafficking, researchers offer a fairly large list of different types of forensic examinations that should be assigned in each separate case.

However, directions and exhaustive list of such examinations in modern criminalistics have not yet been finalized. Thus, O. I. Kalinovskaya cites proposals of scientists to conduct certain species (subspecies) of forensic examinations while crime investigation of illicit narcotic drug trafficking, psychotropic substances and precursors: N. A. Zaporoschenko: forensic chemical, forensic narcology, forensic psychiatric, psychological and psychiatric (in some cases: forensic: trace evidence, fingerprinting, handwriting examinations)<sup>27</sup>; M. V. Saltevsykyi: forensic, forensic medical, chemical, forensic pharmacological, agrotechnical, psychiatric examinations<sup>28</sup>; O. A. Rivchachenko: forensic (materials, substances and products); fingerprinting; forensic handwriting analysis; medical forensic immunological; trace evidence; computer hardware and software products; materials and means of sound recording; regarding to person: forensic narcological and forensic psychiatric examinations<sup>29</sup> etc.<sup>30</sup>.

Certainly, primary forensic examination is forensic examination of materials, substances and products and more specifically drugs, psychotropic substances, their analogues and precursors (research of plants (their parts) in order to establish the affiliation to objects containing narcotic substances is competence of biological examination).

*Narcotic drugs* is a group of pharmacologically active substances of plant and synthetic origin that can selectively affect the central nervous system, leading to complete loss of consciousness, loss of all sensations and relaxation of skeletal muscles (general anesthesia) or to a specific psychological and physiological state of the body there is no usual poison for (narcotic) causes unpleasant sensations; it requires periodic use of this poison (narcotic).

This reaction is due to the fact that narcotic drugs quickly join the metabolic system and become vital. In addition, they are called poison for a reason, because they physically weaken the body and, ultimately, inevitably cause death. Drugs are addictive both mentally (in their default, addict feels emotional discomfort) and physical (there is pain due to dysfunction of some systems until the fatal end)<sup>31</sup>.

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- accessed: 20.09.2021) ; Хруппа М. С., Никифорчук Д. Й., Семенюк В. А. та ін. Діяльність підрозділів по боротьбі з незаконним обігом наркотиків з виявлення та ліквідації підпільних нарколабораторій : посібник / за заг. ред. М. С. Хруппи. Київ, 2004. 192 с.
- 27 Запорощенко Н. А. Розслідування організації або утримання місць для незаконного вживання, виробництва чи виготовлення наркотичних засобів, психотропних речовин або їх аналогів : дис. ... канд. юрид. наук. Київ, 2011. С. 178—183.
- 28 Салтевський М. В. Криміналістика : підручник. У 2 ч. Ч. 1. Харків, 2000—2001. С. 372.
- 29 Рівчаченко О. А. Оп. cit. URL: <http://elar.naiu.kiev.ua/jspui/handle/123456789/1438> (date accessed: 20.09.2021).
- 30 Калиновська О. І. Оп. cit. С. 190. URL: [http://nbuv.gov.ua/UJRN/Nvknvvs\\_2018\\_2\\_18](http://nbuv.gov.ua/UJRN/Nvknvvs_2018_2_18) (date accessed: 20.09.2021).
- 31 Кофанов А. В., Кобилянський О. Л., Давидова О. О. Криміналістичні дослідження наркотичних засобів : метод. рек. Київ, 2010. С. 23.

Narcotic effect is characteristic of many substances, including such common ones as nicotine and alcohols. The most pharmacologically active of these substances in the Single Convention on Narcotic Drugs, 1961<sup>32</sup> is called *Drug*. At one time, Ukraine ratified amendments to the Single Convention, made in accordance with the 1972 Protocol, the Convention on Psychotropic Substances (1971)<sup>33</sup> and the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (1988)<sup>34</sup>. Drug abuse, despite the active development of international cooperation in the fight against drug addiction is gaining catastrophic proportions almost worldwide.

Subject of forensic examination of drugs is to find out (using specific expertise) the facts and crime circumstances for which professional should perform the following tasks :

- detect traces of drugs on various objects-carriers, except for organs and tissues of body of humans and animals, as well as products of life of living organisms that are objects of forensic (toxicological) examination;

- determine affiliation of substances to narcotic drugs with the indication of their name;
- establish a common group affiliation of homogeneous drugs on the basis of raw materials, technology of their treatment, storage conditions, etc.;
- find out common source of drugs according to place and method of their production;
- identify specific masses of drugs by their separate parts;
- determine the method, technologies and characteristics of drug production<sup>35</sup>.

Instruction offers an indicative list of questions that the expert is asked and issues that he should solve:

*“Are there any traces of narcotic drugs, psychotropic substances, their analogues or precursors on the carrier object (it is indicated on which one)? If so, which ones?*

*Is this drug a narcotic drug, psychotropic substance, their analogue or precursor and which one exactly?*

*Do these drugs, psychotropic substances, their analogues or precursors have a common generic (group) affiliation?*

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32 Единая конвенция о наркотических средствах 1961 года с поправками, внесенными в нее в соответствии с Протоколом 1972 года о поправках к Единой конвенции о наркотических средствах 1961 года : принята 30.03.1961 г. (Нью-Йорк) ; вступ. в силу для Украины 13.12.1964 г. (с изм. и доп.). URL: [https://zakon.rada.gov.ua/laws/show/995\\_177#Text](https://zakon.rada.gov.ua/laws/show/995_177#Text) (date accessed: 20.09.2021).

33 Конвенция о психотропных веществах : принята 21.02.1971 г. (Вена) ; ратиф. 27.10.1978 г. ; вступ. в силу для Украины 18.02.1979 г. URL: [https://zakon.rada.gov.ua/laws/show/995\\_176#Text](https://zakon.rada.gov.ua/laws/show/995_176#Text) (date accessed: 20.09.2021).

34 Конвенція Організації Об'єднаних Націй про боротьбу проти незаконного обігу наркотичних засобів і психотропних речовин : ратифік. Постановою ВР України від 25.04.1991 р. № 1000-XII ; набула чин. для України 27.11.1991 р. URL: [https://zakon.rada.gov.ua/laws/show/995\\_096#Text](https://zakon.rada.gov.ua/laws/show/995_096#Text) (date accessed: 20.09.2021).

35 Кофанов А. В., Кобилянський О. Л., Давидова О. О. Оп. cit. С. 24.

*Do these narcotic drugs and psychotropic substances have a common source of origin in terms of quality and relative quantity?*"<sup>36</sup>.

Illicit drug trafficking as an objective reality is carried out at different levels: international, national, regional, etc. In this regard, both general and special criminological measures to combat drug crime are carried out at different levels: nationwide, differentiated within the region or district, as well as taking into account specifics of different age and occupational groups and at the individual level.

The fight against crimes in the field of drug trafficking is one of the top priorities for Ukraine and the world community as a whole. One of the mechanisms for influencing the international level is the EU-ACT aimed at building capacity to expand regional and interregional cooperation between law enforcement agencies and coordinate the fight against organized crime and heroin trafficking, as well as to support the development of effective drug counteraction policy and measures to reduce drug demand<sup>37</sup>.

In Ukraine, within the framework of "EU-ACT Project: EU measures to combat drugs and organized crime. Intensive cooperation and capacity building for the fight against organized crime in the field of drug trafficking along the heroin route"<sup>38</sup>. UDR WG was formed under the auspices of the project. One of its main goals is to

improve the quality of forensic services in Ukraine<sup>39</sup>.

Many forensic laboratories in Ukraine operate in isolation from each other without constant access to a single comparative database, as without this there is a risk that the professionals of such laboratories can make an unfortunate mistake and/or the results of their researches and similar foreign laboratories will differ.

One of the forms of UDR WG work is conducting CEs. Results of participation in the CE indicate either laboratory effectiveness, or potential issues that have arisen in.

Participation in CE is anonymous, researches should be performed according to the usual method used by the laboratory for each type of sample, so such samples cannot be used for any purpose other than this exercise. Therefore, positive CF results are the best lever to convince stakeholders of the laboratory competence.

Other potential benefits that may be available to UDR WG member institutions include staff training, increased trust in the work of management and management by external users of laboratory services, providing laboratories with additional risk management capabilities, and meeting the requirements of regulators and accreditation bodies. Therefore, participation of UDR WG members and other providers of forensic services in

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36 Інструкція про призначення та проведення судових експертиз ... URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 20.09.2021).

37 What is EU-ACT? // EU Action Against Drugs and Organised Crime : website. URL: <https://eu-act.info/en/page/what-is-eu-act> (date accessed: 20.09.2021).

38 Проект «ДІЯ — ЄС: Заходи ЄС з питань протидії наркотикам та організованій злочинності. Інтенсивне співробітництво та нарощування потенціалу для боротьби з організованою злочинністю у сфері наркоторгівлі вздовж героїнового маршруту» // Державна судова адміністрація України : сайт. URL: <https://dsa.court.gov.ua/dsa/pokazniki-diyalnosti/234/lkjhgj> (date accessed: 20.09.2021).

39 Посібник з проведення міжлабораторних вправ в рамках Української Робочої Групи з дослідження психоактивних речовин : внутріш. док. EU-ACT. 75 с.

Ukraine in CE is an important step for the development of this sector <sup>40</sup>.

For conducting forensic examination of narcotic drugs, psychotropic substances and precursors, professionals need comparative (standard) samples which receipt by relevant forensic science institutions is very difficult due to a large number of different factors.

At the 4th UDR WG meeting, provisions of the normative act on exchange of standard samples containing controlled substances between state laboratories conducting their forensic examination were proposed. Forensic experts agreed that act would apply to narcotic drugs, analogues and precursors and the list of substances specified in this regulation. During the meeting, it was proposed to appoint a body (for example, a coordinator of the sample exchange system) which could accept orders from other government agencies for their participation in sample exchange procedure. Forensic experts agreed that this normative act will cover two types of reference materials, namely: the first – standards imported from outside the territory of Ukraine, and the second – *internal* standards, prepared, in particular, in Ukrainian state laboratories. It is also taken into account that import of drugs is regulated by another normative act developed by the Ministry of Healthcare. Participants decided to review the legal act related to the work with samples in forensic laboratories: with their removal and selection for further transportation to laboratories. Participants of the meeting emphasized that a certificate indicating not only the indicator of a specific

characteristic (for example, concentration), but information on uncertainty and confirmation of metrological traceability should be attached to each reference sample, as this information is required by quality system auditors. The normative draft act covers various aspects of the activity including storage, transportation, acquisition, provision and import of standard samples. Therefore, the issue of consistency of protocols used in different types of laboratories was discussed with a view to finding procedures that could be applied in each institution involved in such procedures <sup>41</sup>.

Forensic experts stressed that the production of a standard sample must comply with ISO 17034 on the general qualification requirements for manufacturers of reference materials. Qualifications of the persons authorized to process standard samples, the equipment necessary for their storage, as well as conditions of environmental protection were discussed. Finally, the issues of registration of standard samples in laboratories and procedure application in case of defects were considered <sup>42</sup>.

For simplifying obtaining and exchanging comparative samples between forensic institutions, a draft resolution approving the procedure for exchanging standard samples has been prepared within the work of the UDR WG. The new regulation would allow all forensic laboratories (regardless of subordination and status) to freely exchange standard samples (primary and secondary) of controlled substances for qualification test, CE and other purposes <sup>43</sup>.

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40 Ibid.

41 Напрацювання (результати) 4-го засідання Української Робочої Групи з дослідження психоактивних речовин. 12–14.11.2019 р. Львів. 13 с.

42 Ibid.

43 Напрацювання (результати) 5-го засідання Української Робочої Групи з дослідження психоактивних речовин. 01–02.10.2020 р. Київ. 8 с.

EU-ACT Project sent a proposal to the Ministry of Justice of Ukraine (hereinafter referred to as the Minjust of Ukraine) to amend the legislation, taking into account UDR WG conclusions. The response of the Ministry of Justice contains, in particular, the following: “Given the second part of Article 9 of the Law of Ukraine: On Circulation of Drugs, Psychotropic Substances, their Analogs and Precursors in Ukraine”<sup>44</sup> [Emphasis added]. Legislative grounds for the development and adoption by the Cabinet of Ministers of Ukraine of the draft Procedure in other cases regarding the implementation of Articles 19, 20 of the Law of Ukraine: “On Circulation of Drugs, Psychotropic Substances, their Analogs and Precursors in Ukraine”<sup>45</sup> and Article 20 of the Law of Ukraine: “On Judicial Examination”<sup>46</sup> and educational purposes, no, as the Law does not establish and does not give the Cabinet of Ministers of Ukraine the authority to adopt appropriate procedures for other cases and purposes of trafficking in narcotic drugs and psychotropic substances, their analogues and precursors.

Given the above, settlement of circulation of narcotic drugs, psychotropic substances and precursors should be preceded by amendments to the Law of Ukraine “On Circulation of Drugs, Psychotropic Substances, their Analogs and Precursors in Ukraine” which will cover other cases of trafficking in these substances, in particular in the field of forensic science, and the powers of the Cabinet of Ministers of Ukraine to adopt the relevant procedure are fixed.

*At the same time, before the adoption of relevant legislative changes, the Ministry of Justice expresses its readiness to join the work on amendments to the Procedure for acquisition, transportation, storage and use of precursors for scientific and educational purposes approved by the Cabinet of Ministers of Ukraine № 529<sup>47</sup>, dated on 19.06.2019 for improving its provisions in order to ensure access to drug samples and the achievement of Ukrainian laboratories technical competence in conducting their research”<sup>48</sup>.*

In view of the above, UDR WG agreed to include changes in the legislation as one of the goals of the new Strategy of State Drug Policy until 2030.

## Conclusions

Given the above, it can be concluded that specific expertise use while investigation of crimes related to drug trafficking is an integral part of the evidence-gathering procedure. Scientific literature contains lists of forensic examinations that relevant authorities and individuals may appoint while crime investigation, for example: forensic (materials, substances and products); biological; trace evidence; hardware and software products; content and means of sound recording; fingerprinting; handwriting; forensic psychiatric; forensic narcology ones, etc. Forensic examinations are appointed at the initial stage of the investigation taking into account the specifics of some drugs and the

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44 Про наркотичні засоби, психотропні речовини і прекурсори : Закон України від 15.02.1995 р. № 60/95-ВР (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/60/95-%D0%B2%D1%80#Text> (date accessed: 20.09.2021).

45 Ibid.

46 Про судову експертизу : ... URL: <http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=4038-12> (date accessed: 20.09.2021).

47 Про затвердження Порядку придбання, перевезення, зберігання і використання прекурсорів у наукових та навчальних цілях : Постанова КМУ від 19.06.2019 р. № 529. URL: <https://zakon.rada.gov.ua/laws/show/529-2019-%D0%BF#Text> (date accessed: 20.09.2021).

48 Напрацювання (результати) 5-го засідання ...

risk of changes in their chemical properties due to improper storage or transportation conditions.

There is an urgent need to develop an effective mechanism that will allow all laboratories (regardless of subordination and status) to exchange standard samples (primary and secondary) of controlled substances for qualification test, CE and for other purposes of forensic laboratories. As of today, research and draft law work is underway to develop such a normative legal act.

**Застосування спеціальних знань під час розслідування злочинів, пов'язаних із незаконним обігом наркотичних речовин**

*Хосе Мануель Колодрас,  
Катерина Силенок*

*Розглянуто деякі питання застосування спеціальних знань під час розслідування злочинів, пов'язаних із незаконним обігом наркотичних речовин. Проаналізовано наукову літературу й нормативно-правові акти, присвячені питанням застосування спеціальних знань, дослідженню наркотичних засобів, психотропних речовин і прекурсорів. Наведено статистичні дані рівня наркозлочинності в Україні, оприлюднені Офісом Генерального прокурора України. Збільшення кількості наркозлочинів зумовило зростання вимог до застосування спеціальних знань, що, зі свого боку, потребує нагального законодавчого розв'язання низки проблемних питань. Мета статті — визначити методологічні й організаційно-правові проблеми, які виникають у процесі застосування спеціальних знань під час розслідування злочинів, пов'язаних із незаконним обігом наркотичних засобів.*

*Звернено увагу на діяльність проєкту «ДІА — ЄС: Заходи ЄС з питань протидії наркотикам та організованій злочин-*

*ності. Інтенсивне співробітництво та нарощування потенціалу для боротьби з організованою злочинністю у сфері наркоторгівлі вздовж героїнового маршруту». Для реалізації цього проєкту сформовано Українську Робочу Групу з дослідження психоактивних речовин (далі — УРГ ДПАР), однією з головних цілей якої є вдосконалення якості судово-експертних послуг в Україні. Поміж основних форм роботи УРГ ДПАР — проведення міжлабораторних вправ (далі — МВ). Результати участі у МВ свідчать про ефективність роботи лабораторії або про потенційні проблеми, які в ній виникли. Для проведення експертизи наркотичних засобів, психотропних речовин і прекурсорів фахівцям необхідні порівняльні (стандартні) зразки, отримання яких відповідними експертними установами вельми ускладнено через значну кількість різноманітних чинників.*

**Ключові слова:** спеціальні знання; експерт; експертиза; дослідження наркотичних засобів, психотропних речовин і прекурсорів; злочини; незаконний обіг наркотичних речовин; ДІА — ЄС.

**Применение специальных знаний в ходе расследования преступлений, связанных с незаконным оборотом наркотических веществ**

*Хосе Мануэль Колодрас,  
Екатерина Силенок*

*Рассмотрены отдельные вопросы применения специальных знаний в ходе расследования преступлений, связанных с незаконным оборотом наркотических веществ. Проанализирована научная литература, нормативно-правовые акты, посвященные вопросам применения специальных знаний при исследовании наркотических средств, психотропных веществ и прекурсором. Приведены статистические данные Офиса Генерального*

прокурора Украины, свидетельствующие о значительном росте уровня наркопреступности в Украине. Увеличением количества наркопреступлений обусловлено возрастание потребности в применении специальных знаний при их расследовании. В процессе применения специальных знаний возникает ряд проблемных вопросов, требующих законодательного решения. Целью статьи является определение методологических и организационных проблем, возникающих в процессе применения специальных знаний при расследовании преступлений, связанных с незаконным оборотом наркотических веществ.

Обращено внимание на проект «Действие — ЕС: Мероприятия ЕС по вопросам противодействия наркотикам и организованной преступности. Интенсивное сотрудничество и наращивание потенциала для борьбы с организованной преступностью в сфере наркоторговли вдоль героинового маршрута». Под эгидой указанного проекта была сформирована Украинская Рабочая Группа по исследованию психоактивных веществ, одной из главных целей работы которой является совершенствование качества судебно-экспертных услуг в Украине, а одной из основных форм работы — проведение межлабораторных упражнений. Результаты участия в межлабораторных упражнениях предоставляют возможность подтвердить эффективность работы конкретной лаборатории либо свидетельствуют о существующих в такой лаборатории проблемах. Для проведения экспертизы наркотических средств, психотропных веществ и прекурсоров необходим доступ к сравнительным (стандартным) образцам, свободное получение которых (или обмен ими между учреждениями) осложнено многими факторами.

**Ключевые слова:** специальные знания; эксперт; экспертиза; исследование нар-

котических средств, психотропных веществ и прекурсоров; преступления; незаконный оборот наркотических веществ; Действие — ЕС.

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The authors declare that they have no conflict of interest.

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## Problems of human personal identification by appearance in investigation of criminal offenses

Vlada Husieva \*

\* Doctor of Legal Sciences, Associate Professor, Kharkiv National University of Internal Affairs, Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0001-8614-1573>, e-mail: [odin@univd.edu.ua](mailto:odin@univd.edu.ua)

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*Establishing the identity of the criminal is one of the main tactical tasks of investigation, it is carried out on various grounds: in particular, by appearance features. Law enforcement agencies use both procedural (presentation of a person for identification) and non-procedural ways of identification.*

*The Article Purpose is to identify typical problems arising in the implementation of a person's identification based on appearance and to develop recommendations for their eradication and elimination.*

*The complex of general scientific methods was used in the study, in particular, a systematic approach determines the application of these methods and allows you to study problems voiced. The dialectical method makes it possible to establish the objectives of the study in dynamics and interrelationships, to find out the subjective and objective problems of a person's identification. The logical method and the method of generalization enable to formulate recommendations for eliminating typical errors that occur in investigative and forensic expert practice.*

*It has been determined that presentation of a person for identification refers to those investigative (search) actions, which result, in terms of evidentiary value, cannot be obtained in another way. Main problematic issues arising while presentation of a person for identification are classified into two groups: subjective (that can be solved by increasing the professional competence of the prosecution) and objective (that are quite difficult to eliminate,*

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*though sometimes they generally make it impossible to carry out the specified investigative (search) action).*

*It was stressed that a typical problem that excludes the possibility of solving identification problems during composite drawing is the low quality of comparative samples. It has been proven that the main task of the prosecution is provision of comparative materials of appropriate quality, in compliance with the relevant requirements, and, if necessary, involvement of forensic experts of a corresponding specialization.*

**Keywords:** *criminal offense, identification of a person, appearance features, presentation for identification, composite drawing.*

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### Formulation of Research Problem

Investigation of each criminal offense presupposes identification of a person who committed it, collection of evidence proving guilt of the indicated person, as well as determination of other circumstances. Determination of the criminal's identity is possible due to solution of the range of identification tasks.

Identification of a person is carried out according to different features. Unfortunately, this process is not devoid of certain problems. Thus, O. Izotov highlights falsification facts. The researcher emphasizes that this is mainly due to lack or insufficiency of funding, but this argument is not persuasive given the damage (both material and moral) that can be triggered by misidentification of a person in a criminal proceeding or unrecognized false evidence and which will exceed possible expenditures for the development of falsification counteraction methods<sup>1</sup>.

A separate group: problems associated with insufficiency and low quality of technical and forensic support. In particular, T. H. Chashnytska notes that identification of a person by video recordings necessitates further researches on the development of methodological support and increase in the efficiency of software and hardware support, since the existing ones cannot entirely meet the needs of law enforcement agencies<sup>2</sup>. Furthermore, the process of a person's identification by appearance is also influenced by other factors, in particular the COVID-19 pandemic (sanitary and epidemiological measures: wearing masks, gloves, etc.)<sup>3</sup>, promotion of cosmetic procedures and so on. Identification factors conditioned by the activities of the prosecution, defense, etc. also complicate the identification process. This stipulates the need for urgent research on the identification of persons by appearance to address a number of controversial issues that arise, as well as for the development

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1 Ізотов О. Ідентифікація особи при проведенні досудового розслідування. *Науковий часопис Національної академії прокуратури України*. 2016. № 3. С. 108.

2 Чашницька Т. Г. Можливості ідентифікації особи за матеріалами відеозапису. *Актуальні питання криміналістики* : зб. мат-лів Всеукр. наук.-практ. конф. (Київ, 19.12.2019). Київ, 2019. URL: <http://elar.naiu.kiev.ua/jspui/handle/123456789/16061> (date accessed: 20.06.2021).

3 Protasevich A. A., Foygel E. I. On the scope of criminalistic habitoscopy in the implementation of measures against modern cyber Crime. *Russian Journal of Criminology*. 2020. Vol. 14. No. 3. Pp. 471–480. DOI: 10.17150/2500-4255.2020.14(3).471-480 (date accessed: 25.06.2021).

of new methods for identification to ensure a rapid, full and impartial investigation.

### Analysis of Essential Researches and Publications

Problematics of forensic support of criminal offenses investigation is one the most relevant ones in legal literature. Scientists study components of forensic support and peculiarities of its implementation in the issues of crime counteraction<sup>4</sup>.

Significant attention is drawn to the research on the categories of general theory of forensic science and general tasks of practical forensic activity<sup>5</sup>. Scientists are also focusing on composite drawing<sup>6</sup>.

Taking into consideration the fact that for a long time the most tried and tested identification of a person by appearance, which was carried out during presentation

for identification, innovative for its time was the work by I. V. Zholnovych, in which the scientist studied theoretical problems and practices of composite drawing of a person by appearance<sup>7</sup>. Its particular provisions are still applicable today. Among recent extensive researches on the tactics of a person's identification by a mental image while presentation for identification, the work by B. V. Bezkorovainyi<sup>8</sup> should be noted.

At present, a rather relevant area in personal identification is research on problematics of personal identification by peculiarities of gait, carried out by both domestic and foreign scientists<sup>9</sup>. Gait identification is a new biometric modality for automatic visual observation and monitoring, as gait patterns highly correlate with the subject's personality. The number of researches on persons' identification

- 4 Юхно О. О. Криміналістичне забезпечення діяльності установ судових експертиз та органів досудового розслідування і дізнання у протидії злочинності. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2021. Вип. 23. С. 61–74. DOI: 10.32353/khrife.1.2021.04 (date accessed: 25.06.2021).
- 5 Полянський А. О., Юодкайте-Гранскіене Г. Щодо класифікації завдань загальної теорії судової експертизи і практичної судово-експертної діяльності (оглядова стаття). *Ibidem*. 2020. Вип. 22. С. 179–192. DOI: 10.32353/khrife.2.2020.13 (date accessed: 25.06.2021).
- 6 Е. г., Гулкевич З. Т. Про поняття і проблемні аспекти габітоскопії — криміналістичного вчення про дослідження зовнішності людини. *Вісник Чернівецького факультету Національного університету «Одеська юридична академія»*. 2018. № 1. С. 140–153; Манько Є. С. Історія розвитку, поняття та теоретичні основи ідентифікації особи за ознаками зовнішності. *Криміналістичний вісник* : зб. наук. пр. 2017. № 1 (27). С. 148–153. URL: [http://nbuv.gov.ua/UJRN/krvis\\_2017\\_1\\_25](http://nbuv.gov.ua/UJRN/krvis_2017_1_25) (date accessed: 25.06.2021) ; Шепітько В. Ю., Борисенко І. В., Когут С. О., Могильников О. М. Ідентифікація людини за ознаками зовнішності : наук.-практ. посіб. Харків, 2003. 112 с. та ін.
- 7 Жолнович І. В. Теоретичні проблеми та питання практики криміналістичного опису особи за зовнішністю : автореф. дис. ... канд. юрид. наук. Київ, 2007. 20 с.
- 8 Безкоровайний Б. В. Криміналістична ідентифікація за уявним образом під час пред'явлення для впізнання : дис. ... канд. юрид. наук. Київ, 2018. 210 с.
- 9 Е. г., Хахановський В. Г., Чашницька Т. Г. Ідентифікація особи за ходою, зафіксованою в матеріалах відеозапису. *Криміналістичний вісник* : наук.-практ. зб. 2020. Т. 33. № 1. С. 72–80. DOI: 10.37025/1992-4437/2020-33-1-72 (date accessed: 25.06.2021) ; Khan M. H., Farid M. Sh., Grzegorzec M. Vision-based approaches towards person identification using gait. *Computer Science Review*. 2021. Vol. 42. DOI: 10.1016/j.cosrev.2021.100432 (date accessed: 25.06.2021) ; Khedher M. Ibn, El-Yacoubi M. A., Dorizzi B. Fusion of appearance and motion-based sparse representations for multi-shot person re-identification. *Neurocomputing*. 2017. Vol. 248. Pp. 94–104. DOI: 10.1016/j.neucom.2016.11.073 (date accessed: 25.06.2021).

by gait has increased drastically over the past two decades due to the fact that these methodologies do not presuppose active collaboration with users and they could be performed without participation of these users. Besides, gait is very hard to simulate and identification can be implemented by analyzing video recordings with low resolution and with the help of simple devices<sup>10</sup>. At the same time, let's emphasize that today there are no such registered methodologies of forensic examinations in Ukraine, therefore results of these researches can't be used as procedural sources of evidence, that foregrounds the need in studying other means of a person's identification.

Scholars make a major contribution to the problematics we study, developing and improving methods for identifying people who are in crowded places (in the crowd) on the basis of video recordings. This problem is successfully solved by using modern software allowing you to identify people as individuals (separating them from groups or even a moving crowd). Interestingly, in certain countries, such as Italy, visual identification of a person who is in the area where various cameras document, that is from video recordings, is defined as re-identification of a person. In such conditions, scientists not only study a video recording but also use information reported by others who also were within the area of cameras operation and who were close to a person to be identified,

since it may provide a corresponding visual context for increasing efficiency of re-examination of persons in a group<sup>11</sup>.

Considering the fact that obtained video recordings by which a person's identification should be carried out can be of a low quality, for effective improvement of facial recognition based on video recordings, scientists explore various technologies to improve this process. For example, representatives of Guangzhou University suggest synthesizing facial images through 3D modeling of the face and its blurring. In the proposed algorithm, firstly, they used 2D frontal faces with high resolution to build a 3D model, after they synthesized a few virtual faces from different positions from a 3D model, and ultimately some degraded images of the face were created from the original and virtual edges by using the process of blurring<sup>12</sup>. Somewhat similar methodologies are applied, again, to identify a person by gait<sup>13</sup>.

Developments of these scientists and certain provisions of their researches confirm the fact that a person's identification based on pressing was and remains relevant. At the same time, we suggest focusing on problematic issues that arise while identification of a person in the course of presenting for identification and while appointment and conduct of composite drawing, since these forms of identification by appearance remain the most common in Ukrainian investigative practice.

- 10 Khan M. H., Farid M. Sh., Grzegorzek M. Ibid. DOI: 10.1016/j.cosrev.2021.100432 (date accessed: 25.06.2021).
- 11 Lisanti G., Martinel N., Micheloni C., Del Bimbo A., Foresti G. L. From person to group re-identification via unsupervised transfer of sparse features. *Image and Vision Computing*. 2019. Vol. 83–84. Pp. 29–38. DOI: 10.1016/j.imavis.2019.02.009 (date accessed: 25.06.2021).
- 12 Hu X., Peng Sh., Wang L., Yang Zh., Li Zh. Surveillance video face recognition with single sample per person based on 3D modeling and blurring. *Neurocomputing*. 2017. Vol. 235. Pp. 46–58. DOI: 10.1016/j.neucom.2016.12.059 (date accessed: 25.06.2021).
- 13 Huynh-The Th., Hua C.-H., Tu N. A., Kim D.-S. Learning 3D spatiotemporal gait feature by Convolutional Network for person identification. *Ibid*. 2020. Vol. 397. Pp. 192–202. DOI: 10.1016/j.neucom.2020.02.048 (date accessed: 25.06.2021).

## Article Purpose

To determine typical problems arising while a person's identification by appearance and develop recommendations for their eradication and elimination.

## Main Content Presentation

Identification of a person is possible due to a certain physical individuality of each person. Some personal features are unique: for example, papillary patterns of fingers, DNA molecules, iris, etc. Appearance features are also to some extent unique, thereby identification of a person by appearance has been successfully implemented in the investigation process.

Currently, scientists perform researches aimed at facilitating a person's identification procedure by appearance and obtaining most accurate results. This is due to the fact that sometimes results of a person's identification by appearance which can be implemented both while investigative-search actions and forensic examinations can be the only source of direct evidence of a person's guilt in committing a criminal offense.

The process of identification is a common skill which has long been overlooked in psychology and cognitive neuroscience. Neuroscientists studying the process of a person's identification, which is remembered from the last meeting, note that identification of a person is conditioned by activating differences in the medial prefrontal cortex, left inferior

frontal cortex, left and right inferior parietal lobule, precuneus (within the parietal cortex), lateral occipital cortex and thalamus<sup>14</sup>.

At the same time, the processes in the cerebral cortex enabling us to identify other people occur due to our perception of certain features of others' appearance. Scientists believe that they are: individuality, relative stability and reflexivity. Individuality of a person's appearance is his uniqueness, difference from appearance of other people, conditioned by the complexity of a person's appearance, a great number of features of his appearance and their variants. The relative stability of appearance is largely due to the fact that anatomical features of appearance change only after significant periods of time, due to disease or medical intervention (e.g. plastic surgery). Reflexivity means an opportunity of exact representation of appearance in different digital media, namely tangible and ideal<sup>15</sup>.

Features of human appearance are classified on various grounds. For example, V. Iu. Shepitko divides all appearance features into three groups:

- anatomical (characterize the external composition of the human body: height, physique, head shape, facial features, etc.);
- functional (mobile, speech, etc. which a person manifests externally, in particular behavioral features: gait, posture, gestures, facial expressions, voice, habits, etc.);

14 Tholen M. G., Schurz M., Perner J. The role of the IPL in person identification. *Neuropsychologia*. 2019. Vol. 129. Pp. 164–170. DOI: 10.1016/j.neuropsychologia.2019.03.019 (date accessed: 25.06.2021).

15 Доляева Г. Э., Хильченко Е. Д. Идентификация человека по внешним признакам. Габитоскопия. *Научно-практический электронный журнал «Аллея Науки»*. 2016. № 4. С. 640–641. URL: <https://docplayer.com/46812850-Identifikaciya-cheloveka-po-vneshnim-priznakam-gabitoskopiya.html> (date accessed: 25.06.2021).

- features of clothing, shoes, etc. which were worn constantly, i.e. related<sup>16</sup>.

I. V. Zholnovych suggested to divide human features of appearance according to belonging into personal and accompanying. Personal features are those that belong to this person as a tangible body. They contain: 1) physical and demographic (general physical and demographic); 2) anatomical features; 3) functional features; 4) distinguishing marks (distinguishing features). Accompanying features supplement characteristics of appearance. The latter include: clothing, jewelry, makeup, etc.<sup>17</sup>. This classification is quite detailed and generally describes the set of appearance features which identify people.

Features of appearance are recorded by means of verbal and subjective portraits. Verbal portrait is a forensic method of describing a person by appearance which is carried out according to a certain system during investigative and procedural actions to identify living persons and corpses. Subjective portrait is a materialized representation of a person's appearance (or its part) based on a mental image of a person who was watching him earlier<sup>18</sup>.

To ensure implementation of criminal proceeding tasks, information which is used while creating verbal and subjective portraits may be mentioned in reports. In particular, it can be outlined in interrogation minutes of a witness, victim, suspected, while a person's presentation for identification.

Determination of a person by appearance is carried out on the grounds of identification theory, based on relative consistency and identification significance of appearance features, their classification, using corresponding research methodologies and tactical recommendations developed by criminalistics<sup>19</sup>. In view of the above, we propose to determine procedural ways for identifying a person by appearance and problems arising while their realization.

The current criminal procedure legislation stipulates the possibility of identifying a person in the course of such investigative (search) action as presenting a person for identification.

In the course of pre-trial investigation, presentation for identification is carried out quite infrequently. However, it is difficult to overestimate the importance, informativeness and evidentiary value of this investigative (search) action. Sometimes presenting a person for identification is a leading investigative (search) action, based on which charges are brought, a person is completely exposed in committing a criminal offense. Results of this investigative (search) action, which are similar in evidentiary value, cannot be obtained in any other way<sup>20</sup>.

Oftentimes, presentation is performed to recognize the suspect or a person with regard to whom there is a reason to believe that he is involved in criminal offense commission. The need in performing presentation for identification of a suspect

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16 Шепітько В. Ю. Криміналістика : слов. термін. Київ, 2004. С. 59.

17 Жолнович І. В. *Op. cit.* С. 9.

18 *Ibidem.* С. 9–10.

19 Осипенко І. П., Гарига-Грихно М. М. Ідентифікація людини за ознаками зовнішності : *Криміналістичний вісник*. 2017. № 1 (27). С. 146. URL: [http://nbuv.gov.ua/UJRN/krvvis\\_2017\\_1\\_24](http://nbuv.gov.ua/UJRN/krvvis_2017_1_24) (date accessed: 20.06.2021).

20 Климчук М. П., Саковський А. А., Дударець Р. М., Фурман Я. В. та ін. Пред'явлення особи для впізнання за ознаками голосу та мовлення під час досудового розслідування : метод. рек. Київ, 2019. С. 4.

person arises in the following cases: when he takes responsibility for a committed criminal act, but evidence in a case disregard this fact; when a suspect pretends to be another person or does not have documents confirming his personality; when the victim or witness saw a person who committed a criminal offense, and they can recognize him, etc.<sup>21</sup>

Identification can be conducted by photographs and video recordings, and at the same time such identification excludes the possibility of further presentation of a person for identification<sup>22</sup>.

Without going into details of tactical and organizational features of presentation for identification, we deem it expedient to note that the essence of presentation for identification is to carry out identification according to a mental image. B. V. Bezkorovainyi defines the structure of this process as follows: 1) psychological mechanism of identification; 2) forensic mechanism of identification; 3) the nature of identification object; 4) integrity of forensic identification process; 5) identity of identification subject; 6) nature of mental image formation; 7) identification results; 8) actions of investigation subject on procedural registration of results<sup>23</sup>. Referring to the analysis of investigative and judicial practice, it can be concluded that each of these elements is characterized by a number of difficulties.

Main challenging issues arising while a person's identification by appearance features in the course of presenting a person for identification are procedural errors of persons conducting investigation or entrusted to conduct investigative (search)

actions, which we will conditionally call subjective; another group: objective, independent of the activities of criminal procedure subjects. Subjective factors are considered to be the following: 1) failure to conduct preliminary interrogation of a person with whose participation identification will be performed, with a detailed reflection of appearance by which he will be able to identify a person; 2) existence of previous visual contact between a person who identifies and a person to be detected, or showing a photo of the latter; 3) selection of extras who do not meet features of appearance established in the criminal procedure legislation (in particular, without sharp differences in appearance), or photographs that have different shapes or other features significantly affecting perception of an image; 4) failure to involve required number of extras or photos or presenting a video recording showing less than four people for identification; 5) the absence of witnesses while such investigative (search) action or a continuous video recording of the course of this action; 6) missing of signatures of all investigative (search) action participants in minutes.

Objective issues are deemed to be those that do not depend on the prosecution and are conditioned by changes that object of identification has undergone, i.e. a person being identified or factors that influenced the identification subject. Among them are: 1) change in appearance due to surgery (plastic surgery); 2) change of appearance through cosmetic procedures (biorevitalization; mesotherapy; thread lifting; face modelling using fillers;

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21 Гусева В. О. Теоретичні основи методики розслідування злочинів проти авторитету органів державної влади у сфері правоохоронної діяльності : дис. ... д-ра юрид. наук. Харків, 2021. С. 279.

22 Кримінальний процесуальний кодекс України : Закон України від 13.04.2012 р. № 4651-VI (зі змін. та допов.) *Відомості Верховної Ради України (ВВР)*. 2013. № 9–10, 11–12, 13. Ст. 88.

23 Безкоровайний Б. В. *Op. cit.* С. 82–83.

botulinum toxin injections, etc.); 3) make-up; 4) change in appearance due to age-related changes; 5) change in appearance due to illness or injury (for example, appearance of spots as a result of psoriasis, improperly mended nasal bones after a fracture, etc.); 6) impossibility of identification due to expiration of a long period of time and forgetting features of the identification object; 7) evasion of the identification subject from solving identification tasks out of fear or desire to hide certain facts known to him, etc.

Another procedural way to establish a person by appearance is composite drawing. Its main task is identification of a person (corpse) by a photography (photocard, negative) and a video recording<sup>24</sup>. This separate type of identification research consists in the separate and comparative analysis of external features of a person which were shown in photos, with application of special methodologies of comparison, combination, graphic modeling and calculations of mutual arrangement of face features<sup>25</sup>.

In the course of criminal offenses investigation, the necessity in performing composite drawing to identify unrecognized corpse arises in case of the absence of a person being able to identify the deceased and living relatives of the latter, that is due

to inability to obtain comparative samples for conducting forensic molecular genetic analysis.

Analysis of case files of criminal proceedings demonstrates that in order to identify living persons, video recordings of illegal activities of such persons are most frequently sent to forensic experts for forensic examination. The use of video recordings in law enforcement is due to a certain thoroughness and efficiency of the recording of the event (time, conditions, nature of actions) and its participants<sup>26</sup>.

Relying to the overview of forensic expert practice, we conclude that the main challenging issues enabling to perform composite drawing are: 1) low quality of provided samples; 2) optical deformation of comparative samples due to video camera features; 3) a specific angle of the video image (“top-down”); 4) lack of lighting while recording the environment<sup>27</sup>; 5) condition of the subject’s clothing and his emotional state<sup>28</sup>; 6) recording of a person during active movement, etc. Similar issues, excluding the latter, arise while composite drawing which research object is photographs.

It should be emphasized that low quality of a video recording is one of the most common reasons for inability to obtain a categorical expert conclusion. To

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24 Про затвердження Інструкції про призначення та проведення судових експертиз та експертних досліджень та Науково-методичних рекомендацій з питань підготовки та призначення судових експертиз та експертних досліджень : наказ Міністерства України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98> (date accessed: 25.06.2021).

25 Експертизи у судочинстві України : наук.-практ. посіб. ; за заг. ред. В. Г. Гончаренка та І. В. Гори. Київ, 2015. С. 124–125.

26 Чашницька Т. Г. Проблемні питання ідентифікації особи за матеріалами відеозапису. *Теорія і практика судової експертизи і криміналістики* : мат-ли III Всеукр. наук.-практ. конф. (Київ, 27.02.2020). Київ ; Маріуполь, 2020. С. 293. URL: <http://rp.dsum.edu.ua/handle/123456789/2964> (дата звернення: 30.06.2021).

27 Ibidem.

28 Ильин Н. Н. Судебно-портретная идентификация человека по видеоизображениям. *Методические основы* : монография. Москва, 2017. С. 17.

tackle this problem, i.e. to improve image quality, it is possible to involve experts in the specialization forensic photography, who study methods to improve the quality of video images (video frames). The scientist explains this by the fact that such researches apply specific software to improve video quality and eliminate artifacts (empty areas of an image). With their help you can: eliminate noise; increase video image (number of dots (pixels) in the image vertically and horizontally) resolution; eliminate the defect of “shaking” (stabilize the image); improve sharpness of blurred areas in image; improve contrast; adjust brightness and color saturation; cut video fragments; rotate the image; remove artifact of video frames pixilation in case of video <sup>29</sup> resolution increase.

Special attention should also be drawn to obtaining comparative materials for composite drawing by photographs, since the ability of a forensic expert to solve identification tasks depends on them. Such images are created according to the rules of identification (signaling) photography: three shoulder-length photos: in the right profile, full face (front) and with the head turned to the right (half profile). For the most accurate representation of appearance features, the head of a person being photographed should be in a vertical position while shooting in front and profile. When shooting in half profile, a person's head should be slightly raised and turned to the right so that the left auricle is easily visible. Shooting is performed from the so-called normal point (the position of the camera at which perspective distortions of the subject are the smallest; when photographing the head, this point will

be the location of the camera at eye level of a person being photographed). In photographs in profile and full face, a person who is photographed must be depicted with a natural facial expression, without a hat and other items of clothing hiding any objects; his hair should be combed (women's hair should not cover the auricle). Shooting is performed with lighting allowing you to fully identify the relief of the face and its features. Oftentimes, combined lighting is usually used which consists of one fairly intense light source (window, stage lights) and a screen made of white fabric or paper reflecting light. The turning point is a proper representation of the auricle: the photo must accurately reflect all its features. When shooting, a flat, fairly light, neutral background should be used. It is advisable that comparative samples contain photographs close to the research object at the time of shooting, image angle, lighting <sup>30</sup>.

## Conclusions

To conclude, it should be stressed that identification of a person by appearance is ensured through their individuality, relative stability and reflexivity. The main procedural ways of identifying a person on the basis of appearance are presentation of a person for identification and composite drawing.

Presentation of a person for identification belongs to those investigative (search) actions which results cannot be obtained in any other way according to the evidentiary value. The main pressing issues occurring while identification of a person by appearance in the course of presentation

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29 Чашницька Т. Г. Щодо необхідності комплексного дослідження відеозображень судовими експертами. *Теорія та практика судово-експертної діяльності* : мат-ли VIII Міжвідом. на-ук.-практ. конф. (Київ, 27.11.2019). Київ, 2019. С. 441.

30 *Технологія призначення судових експертиз* : практ. порадник ; авт.-уклад.: С. І. Перлін, С. О. Шевцов, О. В. Кокорін. Харків, 2018. С. 68—69.

of a person for identification can be classified into two groups: subjective, due to procedural errors of the prosecution, and objective, which include changes that experienced the object of identification, and factors having influenced the subject of identification.

Objective ones are hard to eliminate, sometimes they make it impossible to conduct a mentioned investigative (search) action. Subjective issues may be solved by advancing professional competence of the prosecution.

Composite drawing is a procedural way of identifying a person or corpse by appearance. The indicated forensic examination is unique in its evidentiary value, since due to it, it is possible to solve a number of identification tasks that cannot be solved in any other way. It plays an especially significant role in criminal proceedings where it is vital to identify an unrecognized corpse, in case of impossibility to present the corpse for identification or forensic molecular genetic analysis, and also to identify a person involved in commission of a criminal offense whose illegal activities are recorded in video recordings or photographs.

The most common problems preventing us from solution of identification tasks while composite drawing are a low quality of comparative samples resulted from both camera resolution and conditions under which video recordings and photographs are made (distance, angle, lightning, etc.) In this regard, the main task of the prosecution is to produce comparative materials in compliance with corresponding requirements in the case of photographs. To improve the quality of video, it is advisable to use special software, but this should involve forensic experts. If it is impossible to improve the quality of comparative materials, it is expedient to organize search of other samples.

The need to identify a person by appearance arises more frequently, which enhances the relevance of the researched problematics. In the context of the research question, scientists should focus their efforts on the formation of scientific and practical recommendations for law enforcement agencies, the development of new and improvement of modern software to ensure efficient implementation of this process.

### **Проблеми ідентифікації особи за ознаками зовнішності під час розслідування кримінальних правопорушень**

*Влада Гусєва*

*Ідентифікацію особи (як одне з основних тактичних завдань розслідування) здійснюють за різними підставами (зокрема, за ознаками зовнішності). Правоохоронні органи застосовують як процесуальні (пред'явлення особи для впізнання та портретну експертизу), так і непроцесуальні способи такої ідентифікації.*

*Мета статті — визначити типові проблеми, що виникають під час здійснення ідентифікації особи за ознаками зовнішності, і розробити рекомендації щодо їх усунення та запобігання їм.*

*Використано комплекс загальнонаукових методів, а саме: системний підхід визначає застосування цих методів і дає змогу вивчити порушені проблеми; діалектичний метод — встановити цілі дослідження в динаміці та взаємозв'язку, з'ясувати суб'єктивні й об'єктивні проблеми ідентифікації особи; логічний метод і метод узагальнення — сформулювати рекомендації щодо усунення типових помилок слідчої та експертної практики.*

*Установлено, що пред'явлення особи для впізнання належить до тих слідчих (розшукових) дій, результати яких за доказовим значенням неможливо здобути в інший спосіб. Основні проблемні*

питання, які виникають у разі пред'явлення особи для впізнання, класифіковано у дві групи: суб'єктивні (які можна вирішити шляхом підвищення професійної компетентності сторони обвинувачення) й об'єктивні (яких складно позбутися, хоча іноді вони унеможливають проведення такої слідчої (розшукової) дії).

Наголошено, що низька якість порівняльних зразків унеможливує вирішення ідентифікаційних завдань під час проведення портретної експертизи. Доведено, що основним завданням сторони обвинувачення є надання порівняльних матеріалів високої якості, із дотриманням певних вимог, а за потреби — залучення судових експертів відповідного фаху.

**Ключові слова:** кримінальне правопорушення, ідентифікація особи, ознаки зовнішності, пред'явлення для впізнання, портретна експертиза.

### **Проблемы идентификации личности по признакам внешности при расследовании уголовных правонарушений**

**Влада Гусева**

Идентификацию личности (как одно из основных тактических заданий расследования) осуществляют по различным признакам: в частности, по признакам внешности. Правоохранительные органы применяют как процессуальные (предъявление лица для опознания и портретную экспертизу), так и непроцессуальные способы такой идентификации.

Цель статьи — определить типичные проблемы, возникающие при осуществлении идентификации личности по признакам внешности, и разработать рекомендации по их устранению и предупреждению.

Использован комплекс общенаучных методов, а именно: системный подход

определяет применение этих методов и позволяет изучить поднятые проблемы; диалектический метод — установить цели исследования в динамике и взаимосвязи, выяснить субъективные и объективные проблемы идентификации личности; логический метод и метод обобщения — сформулировать рекомендации по устранению типичных ошибок следственной и экспертной практики.

Установлено, что предъявление лица для опознания относится к тем следственным (розыскным) действиям, результат которых по доказательному значению невозможно получить другим способом. Основные проблемные вопросы, возникающие в случае предъявления лица для опознания, классифицированы в две группы: субъективные (которые можно решить путём повышения профессиональной компетентности стороны обвинения) и объективные (которые сложно устранить, хотя иногда они делают невозможным проведение такого следственного (розыскного) действия).

Подчёркнуто, что низкое качество сравнительных образцов лишает возможности решить идентификационные задачи при проведении портретной экспертизы. Доказано, что основной задачей стороны обвинения является предоставление сравнительных материалов высокого качества, с соблюдением соответствующих требований, а при необходимости — привлечение судебных экспертов соответствующей специальности.

**Ключевые слова:** уголовное правонарушение; идентификация личности; признаки внешности; предъявление для опознания; портретная экспертиза.

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The author declares that she has no conflict of interest.

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## Some aspects of forensic research on small texts

Serhii Naumenko \*<sup>a</sup>, Svitlana Briukhan \*\*<sup>b</sup>, Olga Cataraga \*\*\*<sup>c</sup>

\* PhD of Law, Sumy Branch at National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: 0000-002-2167-4149, e-mail: svhnidse@meta.ua

\*\* Sumy Branch at National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0002-6966-2921>

\*\*\* Law Expertise Department of Ministry of Justice of Republic of Moldova, Chişinău, Moldova, e-mail: [olga.cataraga@justice.gov.md](mailto:olga.cataraga@justice.gov.md)

<sup>a</sup> Methodology, Conceptualization.

<sup>b</sup> Formal analysis, Writing – original draft.

<sup>c</sup> Project administration, Supervision.

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*Recently, software products have come to the aid of handwriting experts all over the world, which operation is based on: automatic measurement of segments between the points highlighted in compared signatures; registration of the execution time of individual fragments and comparison of the obtained data with samples; measuring the structural and geometric characteristics of objects, studying the distribution of the density of the dye in order to assess the pressure and pace; the principle of handwriting block structure.*

*This article purpose is to generalize and theoretically substantiate forensic research on small scope texts, highlight the key aspects of this research based on the analysis of forensic expert practice to optimize forensic research.*

*Definitions of handwritten small scope text and a short note, their types and characteristics of differentiation are given. Components determining the small scoops of information about handwriting in the studied manuscripts are noted. Classification of small scope manuscripts is considered and the reasons that complicate research on these objects are analyzed. Attention is focused on the fact that referring small scope manuscripts to uninformative handwriting*

This article is translation of the original Ukrainian content, which source is available at the link: <https://khrife-journal.org/index.php/journal> (translation by Andriy Bublikov). The author acknowledges translation as corresponding to the original.

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*objects does not mean interdependence and unambiguity of these concepts. The factors determining the degree of information content of objects are given. Methodology specifics of research small scope texts are highlighted and the main aspects of the forensic research of short texts and handwritten notes are presented.*

*Efficient approach to solving identification issues of forensic examination of small scope objects is proposed. Examples of the use of traditional and unconventional methods for the forensic research optimization of short handwriting objects, taking into account a specific forensic situation are given.*

**Keywords:** *small scope texts; informativeness; research methodology specifics ; traditional and unconventional methods; forensic expert practice.*

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## **Research Problem Formulation**

Forensic handwriting analysis is appointed while investigation of almost all categories of crimes (usually in cases involving the investigation of various types of fraud), often due to the denial by accused (suspect) of his previous signatures (records) in procedural documents.

In civil proceedings, forensic handwriting analysis is most often appointed in cases of invalidation of wills, contracts, IOUs, etc. In recent decades, citizens' real estate has been a major source of controversy.

In cases considered by commercial court, forensic handwriting examination is appointed for documents that ensure the economic activity of the legal entity (statutes, memoranda of association, minutes of meetings of participants, agreements and contracts and annexes to them, bills, etc.).

The subject of forensic handwriting analysis is the study of patterns of formation, functioning and changes in the writing and motor skills that is the basis of handwriting; study of regularities of expert

research on handwriting; development of methods and techniques for solving issues of forensic handwriting analysis in order to establish the facts that have probative value in criminal proceedings and civil cases.

Current forensic handwriting analysis is constantly improving and optimizing existing methods of identification research, developing quantitative methods of handwriting research based on probabilistic modeling (especially while research on small handwriting objects).

## **Analysis of Essential Researches and Publications**

The development of forensic handwriting analysis is closely connected with the theoretical generalization of the material accumulated over many years. French forensic scientist A. Bertillon as the first who proposed a descriptive direction in forensic handwriting and made an attempt to quantitatively interpret the qualitative characteristics of handwriting<sup>1</sup>. Measurements and quantitative methods were initiated by E. Locard who developed a method of measurement and presentation

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1 Мельник Д. В. Проблеми аспекти використання існуючих кількісних методів дослідження почерку. *Криміналістика і судебна експертиза* : межвед. науч.-метод. сб. 2013. Вып. 58 (2). С. 227–235. URL: [http://nbuv.gov.ua/UJRN/krise\\_2013\\_58\(2\)\\_46](http://nbuv.gov.ua/UJRN/krise_2013_58(2)_46) (date accessed: 22.08.2021).

in the form of statistical curves. In 1915 S. M. Potapov presented a new method of handwriting research (already tested in practice by experts of the Kyiv Cabinet of Forensic Science, which he headed) which was based on comparing the relationships between strokes along the lines formed by their upper and lower endings in their same combinations.

The first handwriting definition belongs to S. M. Potapov and reflects a fundamentally new view of its essence. He defined handwriting as “system of movements expressed in written signs”. This definition focused on the study of motor nature of handwriting and was developed in research papers of forensic scientists who studied handwriting based on the achievements of natural science.

Since the early 1950s, the theory and methods of forensic handwriting analysis have been enriched with new developments that have developed previously advanced provisions based on knowledge in other special sciences (linguistics, physiology, psychology) and aimed at studying the laws of writing and handwriting for identification purposes. The stage of the mid-1950s and late 1980s is characterized by the intensive development of experimental developments and theoretical generalizations. The experiment, used simultaneously with the observation and generalization of practice, becomes the main method of scientific research, gradually acquires the characteristics of a complex natural science, and later probabilistic-statistical, model (based on mathematical modeling) experiment. In addition, experimental research is performed not only by individual criminalists, by entire research teams that unite professionals in various fields:

criminalists, lawyers, physiologists, psychologists, mathematicians.

Such prominent modern scholars as L. Yu. Arotsker, V. V. Lipovskiy, Z. S. Melenevska, S. A. Tsypeniuk, and others paid attention to the study of handwriting. Criminalists M. Ya. Segai and V. K. Strinzha noted that “*object of reflection and information carrier are graphic drawings as materialized traces-reflection of the written-motor act of the person who wrote, they are the original and direct object of expert research*”<sup>2</sup>.

The first ideas of cybernetic (computer) modeling in forensic handwriting analysis belong to P. M. Lanzman who theoretically substantiated and together with mathematicians proved the possibility of using image recognition algorithms to differentiate similar handwriting objects.

Scientific foundations of subject expert fields of knowledge did not stand still: what was sometimes questioned in the 1950s and 1960s already had a solid theoretical and practical basis in the 1990s.

In the 1970s, L. Yu. Arotsker drew attention to the need to assess the scientific foundations of handwriting in the dynamic process of their development.

The rapid development of the basics of forensic handwriting analysis contributed to the strengthening of its scientific foundation to such an extent that results of handwriting researches in the former USSR and in Europe were unequivocally recognized.

In this regard, it is worth mentioning that in the United States, probably due to the insufficient level of development of forensic handwriting, there were doubts as to whether it has a scientific and methodological basis. To clarify this issue, handwriting experts and non-experts were randomly tested – random people who were

2 Сегай М. Я., Стринжа В. К. Судебная экспертиза материальных следов отображений (проблемы методологии) : монография. Киев, 1997. С. 95.

offered to perform a kind of handwriting identification tasks on practical material. The purpose of the study was to determine the professional suitability of handwriting experts or, in other words, to determine whether they have specific expertise. The result of the experiment put an end to this discussion in favor of professionals<sup>3</sup>.

Mathematical theories and approaches, automation of research processes, use of modern computer equipment and tools are of great methodological importance in development of forensic handwriting analysis. The statistical nature of many handwriting patterns has led to the widespread use of the theory of probability and mathematical statistics in development of theoretical concepts and methods of expert study of handwriting objects. The basis of many methods used today in research and examination is the probabilistic approach and statistical analysis.

Modern scientists have also paid attention to the development of research methods for concise signatures, in particular, the work of M. E. Bondar is devoted to the algorithm of calculating object informativeness<sup>4</sup>.

In 2020, prominent scientists: N. V. Syrotenko, R. Tamoshunaite, V. G. Abrosymova considered in detail current issue of forensic handwriting analysis: research on short signatures and

solution of identification and diagnostic issues for such objects<sup>5</sup>.

Research papers of D. I. Gaydamakina, O. S. Drobysheva, L. O. Grinenko, O. V. Matsyuk are devoted to research on short manuscripts made by elderly and old age people<sup>6</sup>.

### Article Purpose

This article purpose is to generalize and theoretically substantiate the forensic research on small texts, identify key aspects of this research based on the analysis of forensic expert practice to optimize forensic research.

### Main Content Presentation

Small scope manuscripts are records where the scope of graphic information that reflecting properties of the performer handwriting is insignificant. In such manuscripts can be traced only part of a holistic system of basic patterns of handwriting.

Small scope of handwriting information is due to the following reasons:

- a) document assignment of or individual records in;
- b) uncommon conditions of execution of records (specific target instructions);
- c) unsuitable storage conditions for documents;

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- 3 Kam M., Fielding G., Conn R. Writer identification by professional document examiners. *Journal of Forensic Sciences*. 1997. Vol. 42. Is. 5. Pp. 778–786. DOI: 10.1520/JFS14207J (date accessed: 22.08.2021).
  - 4 Бондарь М. Е. О совершенствовании методики почерковедческой экспертизы. *Современное состояние, проблемы и перспективы развития судебной экспертологии* : мат-лы Междунар. науч.-практ. конф. (АР Крым, 20–21.09.2007). Симферополь, 2007. С. 153.
  - 5 Сиротенко Н. В., Тамошюнайте Р., Абросимова В. Г. Експертне дослідження коротких підписів. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2020. Вип. 22. С. 293–303. DOI: 10.32353/khrife.2.2020.23 (date accessed: 22.08.2021).
  - 6 Гайдамакіна Д. І., Дробішева О. С., Гріненко Л. О., Мацюк О. В. Дослідження коротких рукописних записів, виконаних особами похилого та старечого віку. *Ibid*. Вип. 21. С. 291–308. DOI: 10.32353/khrife.1.2020.19 (date accessed: 22.08.2021).

d) other factors that complicating detection and evaluation of handwriting signs.

In scientific literature there are definitions of handwritten text of *small scop and concise record*.

Small text in letters contains a limited number of letters for repeated reproduction of the most common («а», «е», «и», «о»); usually contains 4-10 words.

Small digital text contains all or some digits and their combinations up to 8 digits; usually less than 1/3 page of a standard sheet of paper.

Mixed (alphanumeric) small text contains a limited number of letters and numbers; usually less than 1/3 of a page on a standard sheet of paper: up to 2 words and 5 digits.

Concise record is a type of manuscript, which content is recorded using alphanumeric, digital or mixed alphanumeric graphic images, the hallmark of which is a smaller volume of graphic material; contains a limited number of letters and numbers: letter – 1-3 words, digital – 1-7 numeric characters, mixed – no more than 2 words and 5 digits.

Small scope manuscripts can be classified as follows:

- concise texts (inscriptions on envelopes, invoices, other economic and financial and economic documents, etc.);
- concise records (inscriptions on objects, on documents: physical evidence, etc.);
- handwritten texts written in altered handwriting (in unusual conditions, in order to intentionally change handwriting signs) with fragments of unaltered handwriting that have survived;
- handwritten texts made in different alphabets;

- records made in structurally simple handwriting;
- signatures on behalf of fictional persons;
- records preserved in spoiled documents, faded, extinct texts;
- records found while application of methods of questioned document examination (pressed, etched, flooded, burned, etc.).

In small scope manuscripts, a significant part of the informativeness of handwriting properties (individuality, dynamic stability, variability, selective variability) is expressed in abbreviated form.

Therefore, tasks associated with research on small manuscripts and concise manuscripts are the most difficult.

Let us highlight the reasons that cause this:

- limited scope of handwriting material and a small number of features reflected in;
- difficulty in determining stability and variability of individual handwriting signs, because most letters and numbers are not repeated;
- existence of both coincidences and differences, the ratio of that is difficult to explain unambiguously;
- insufficient expressiveness of signs of uncommon conditions of manuscript performing;
- difficulties while research on general signs of handwriting and written language;
- ability to perform the studied small scope records using technical means.

The fact that small manuscripts belong to uninformative handwriting objects does not mean that these concepts are interdependent and unambiguous. Small texts and concise notes can be of varying degrees of information that should be

taken into account while solving the issue of forensic handwriting analysis. In some cases, a small scope of information can be associated with the purpose of records on document, in others with execution conditions, target performer instructions, etc., thereby determining informativeness of such objects, in our opinion, depends primarily on identifying signs of handwriting significance, ability to assess the stability and conditions of occurrence (reflection) of identification and diagnostic signs and only then from the number of letter and digital images.

Methodology specifics of the research on small objects are analysis of all, without exception, identifying handwriting signs. Thus forensic expert pays attention to detailing of signs in elements of written signs and their combination, applies measurement of elements of letters and numbers, establishes exact sequence of movements and their quantity. It is important to measure the angles that form the strokes of written signs and the axes of these signs.

An important step is analysis of the system of structural relations: characteristics of written signs along the length of vertical and horizontal movements and the position of written signs relative to each other, mostly in the same letter combinations, in adjacent letters and numbers. In this case, every detail about stability and characteristics of movements should be identified to establish their systemic nature, patterns of handwriting. For this purpose it is possible to use microscopic examination of strokes.

For comparison of selected characteristics, properties in letters and numbers, you can use different comparative and measuring grids, which allow you to investigate both absolute and relative values of the length of movements

vertically and horizontally. A protractor and a milrule grid can be used to measure angular ratios.

Evaluation of detected handwriting signs while research on small manuscripts is of paramount importance. This is due to difficulty of establishing such criteria as stability and variability, determining the role of signs. Therefore, first of all comparative material, samples of handwriting of alleged performer are studied. It is even possible to compile alphabetical designs of handwriting samples to obtain information about the interdependence of handwriting signs in different written characters.

Evaluation of results of a comparative research on identification signs includes the study of their stability, materiality, interdependence, as well as determining sufficiency of these signs for conclusion. Evaluating, study indicators in the same letters and numbers, in the same type of elements of different written characters, in comparative samples of the alleged performer.

Evaluation of diagnostic signs of small objects is carried out traditionally: by their availability, nature, severity and location.

Recalling research specifics of small objects, it is possible to focus on studying concise and simple records in general. Solving the issue is divided into three research levels.

*First level* is a preliminary research consisting of five stages: acquaintance with received materials; review and preliminary study of the studied record; review and preliminary study of comparative material; preliminary comparison and evaluation of results; planning future research.

Specifics of the previous stage: increased requirements for quality and quantity of comparative material. The smaller the test object, the larger comparative material and the more comparable handwriting samples

should be. Samples should be compared with the studied manuscript in terms of time and conditions of execution, content, purpose, writing materials, etc.

It is obligatory to provide free handwriting samples in the form of entries in documents similar to the subjects and in the amount of not less than 15 sheets.

For obtaining experimental samples, a text should be compiled that would contain a combination of words (numbers, letters and numbers, etc.) found in the research record. Experimental samples should be taken on at least 15 sheets <sup>7</sup>.

*Second level* involves solving the issue on the basis of a qualitative approach and use of quantitative methods to solve individual subtasks. It contains five steps: setting conditions for recording; determining record informativeness; research on general record signs; research on separate record signs; evaluation of results of the second level research.

*Third level* covers solving the issue using software to analyze all information about handwriting object (both structural, geometric and that contained in the distribution of dye and stroke width), use of variance analysis, graphical averaging of written characters. It contains the following stages:

- identifying objective;
- selection of comparative handwriting samples;
- preparation of comparative graphic material, measurement of parameters;
- calculation of crucial functions and adjustment of measurements, interpretation of results.

Specifics of previous stage of third research level:

- while choosing mathematical methods take into account object specifics for application of multidisciplinary methods of research of structural, geometric and pressure characteristics in one-word concise records;
- use methods of questioned document examination to exclude technical forgery of a concise record (for example, using copying techniques).

Specifics of separate stage of third level:

- separate research begins with disputed record; research of separate signs is carried out in the form of text tables-developments or graphic sketches;
- apply significant detailing of the object to obtain additional information and highlight necessary set of signs;
- study dynamic characteristics, in particular the degree and nature of pressure; study distribution of the pressure degree along the device trajectory which they write on;
- while studying such concise records as dates, resolutions (*Agreed, TBD, Approved*, etc.), stable combinations of written characters are found in the whole record.

Specifics of comparative stage of third level:

- use tools for detecting handwriting information (microscope, photographic and computer technology);
- carefully study movements that are not fixed, availability and length (initial and final elements of letters,

7 Науково-методичні рекомендації з питань підготовки та призначення судових експертів та експертних досліджень : затв. наказом Мініюсту України від 08.10.1998 р. № 53/5 (зі змін. та допов). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 22.08.2021).

intervals between individual letters, numerical marks, etc.);

- evaluate stability of the identified individual signs not only in repetitive movements, in letters of the same name, but in the same type of elements of different letters and numbers;
- stability of signs is checked by comparative material;
- all identified stable specifics of movements (even if there are several in one written sign) are added to the set of signs;
- identified individual signs are checked for interdependence; the most dependent signs are found in cyclic and similar movements;
- to the complex are added those signs that are rare in handwriting of different people, which stability is not possible to study.

*Research methods of concise records.* Traditional and unconventional methods are used to study concise handwriting objects.

Under traditional methods understand the methods based on qualitative and descriptive techniques. Traditional methods should be used while researching concise records and signatures at the first level of issue solving (preliminary research). Traditional methods solve diagnostic and identification tasks carried out at second level (separate and comparative research).

Unconventional methods include: instrumental, quantitative methods, automated systems and software

packages<sup>8</sup>. Unconventional methods are used to solve the issues of forensic examination at the third level and are used to study one-word concise entries, concise and simple signatures and signatures made in unusual conditions.

The main instrumental methods for the research on pressure characteristics in concise records, concise and simple signatures are microscopic and sensitometric methods<sup>9</sup>, as well as structural and geometric analysis, determination of dye distribution and stroke width, analysis of variance, graphical averaging of written characters.

As noted by E. Svoboda and A. Zakharkin, the automated system for the research on concise handwriting objects allows to analyze information about handwriting object according to selected algorithms for pattern recognition: as structural and as geometric one and that contained in distribution of dye and width of a stroke<sup>10</sup>.

Final evaluation of research results in the case of unconventional methods is complex, as it synthesizes traditional and unconventional components.

In the Sumy Branch of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» (hereinafter referred to as Sumy Branch) conducted a forensic handwriting examination on civil case files, which object was a brief handwritten record. While research, forensic expert established discrepancies between handwriting signs and Б., handwriting samples, applying structural relations,

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8 Меленевська З. С., Свобода Є. Ю., Шаботенко А. І. Судово-почеркознавча експертиза : навч.-метод. посіб. ; за заг. ред. І. П. Красюка. Київ, 2007. С. 232.

9 Серов В. В. Потреба у використанні нетрадиційних методів під час дослідження мало-об'ємних почеркових об'єктів, виконаних незвичною до письма (лівою) рукою. *Криміналістичний вісник* : наук.-практ. зб. 2014. № 1 (21). С. 101.

10 Свобода Є. Ю., Захаркіна А. Ю. Судово-почеркознавча експертиза: сучасний стан і актуальні питання. *Криміналістика і судова експертиза* : міжвідом. наук.-метод. зб. 2016. Вип. 61. С. 252. URL: [http://nbuv.gov.ua/UJRN/krise\\_2016\\_61\\_31](http://nbuv.gov.ua/UJRN/krise_2016_61_31) (date accessed: 22.08.2021).

interdependent signs in eponymous and different written characters and carefully examining handwriting samples of intended performer using handwriting sample development.

Here is an example of establishing the executor of a concise handwritten text while small scope handwriting examination in the Sumy Branch with the use of angular measurements.

The forensic expert determined that in the studied concise handwritten text the inclination of the handwriting is unstable, from left-slanted to right-slanted: the inclination of the letters themselves is from 110° to 60°; elements in italics 85° and 70°; elements in left-handed letters 90° and 110°. In the samples of *II*. handwriting there is a smaller angle of inclination of the letters themselves from 100° to 65°, and of the elements in the letters 75° and 90°, respectively. In addition to the established discrepancy of angular values, forensic expert found a symptom complex of diagnostic signs, existence, nature, severity which location indicated impact on the performer of a concise handwritten text of internal confounding factors that could be unusual caused by alcohol, drugs or other intoxication, a state of natural emotional arousal, excitement. Assessing traditional and unconventional research methods forensic expert came to a categorical positive conclusion regarding implementation of concise manuscript *II*. text.

Thus, we can agree with the opinion of V. V. Zdor and Yu. Yu. Lylova that the content and sequence of the expert's work at the evaluation stage is due to specific forensic situations<sup>11</sup>.

Domestic scientists are actively studying research methods of handwriting objects used in Europe. Among such modern methods are method of analysis of changes (used to identify the signature performer), method of simple lines, method of geometric projection of P. Brosson. The graphical comparative method is popular in Europe.

We consider O. Yu. Savchuk's opinion to be very correct, that states: "*Modern development of technologies allows to improve handwriting research, giving opportunity to use modern software, publicly available or specially created. Such programs allow for more extensive use of measurement and statistical research methods, thus reducing the level of subjectivity in the evaluation of research results*"<sup>12</sup>.

On the basis of the Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine in 2010 a consultative program VESNA was developed to solve integration tasks in a single process for signatures made in unusual conditions (in this case it means resolving signature authenticity and establishing specific conditions for its application). It is quite possible to develop similar expert systems not only for research of signatures, but for solving issues of handwritten texts and records (in particular, concise)<sup>13</sup>.

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11 Здор В. М., Лилова Ю. Ю. Особливості аналізу стійкості ознак при дослідженні мало-об'ємних рукописів. *Вісник Одеського науково-дослідного інституту судових експертиз* : наук.-практ. вид. 2019. Вип. 5. С. 261–263. URL: <http://ondise.gov.ua/wp-content/uploads/2019/06/VisnykONDISE052019.pdf> (date accessed: 22.08.2021).

12 Савчук О. Ю. Про розвиток почеркознавчої науки в історичному та перспективному контексті. *Ibid.* С. 320–324. URL: <http://ondise.minjust.gov.ua/wp-content/uploads/2019/06/VisnykONDISE052019.pdf> (date accessed: 22.08.2021).

13 Бондар М. Є., Ковальчук З. О., Сукманова Т. О. Судово-почеркознавча експертиза: становлення, можливості, перспективи розвитку. *Судова експертиза* : наук.-практ. журн. 2014. № 1. С. 19–29.

Polish forensic community uses the programs *Raygraf* (analyzes the length of strokes, angles of inclination of individual elements, the degree of coherence of handwriting and pressure) and *Kinegraf* (determines the direction of movement, the degree of concavity of the lines and their length). In Poland, such programs as *Liniograf*, *Centrograf*, *Profiloscan*, *Graflog* are also created<sup>14</sup>.

## Conclusions

Nowadays, forensic handwriting analysis is a highly developed subject area of the theory of forensic science and criminalistics. Characteristic is the further active development of theoretical foundations of forensic handwriting analysis, experimental developments, generalizations of practice, improvement of existing methods and creation of new, more effective methods of expert handwriting research. In recent years, software products based on: automatic measurement of segments between the points separated in comparable signatures (USA) have been successfully introduced into the practice of handwriting experts all over the world; recording execution time of individual fragments and comparing obtained data with samples (Switzerland); measuring structural and geometric characteristics of objects, research on density distribution of the dye in order to assess pressure and pace (Russia); principle of block handwriting (Belarus, automatic Manuscript system)<sup>15</sup>.

Development of current forensic handwriting analysis is characterized

by intensive penetration in research on handwriting of mathematical methods, that at this stage can be considered as science mathematization. Penetration of mathematical methods into forensic handwriting is due, on the one hand, to development of its theory within criminalistics (influenced by mathematization) and on the other hand, connection of forensic handwriting analysis with biology.

In our opinion, the main promising area of research in the field of forensic handwriting analysis is to improve identification methods of small handwriting objects by including methods based on modern advances in science and technology and allow forensic expert to obtain additional information while research on these objects.

Software use along with traditional methods of studying concise records gives the expert an objective basis for drawing conclusions, because the correct selection of samples and their correct measurement excludes formation of categorically negative and probably negative conclusions.

The value of research software is that it is possible to analyze such recording signs that are difficult for forensic expert to see and evaluate in a traditional research.

Effective approach to solution of identification tasks of forensic examination of small scope texts is proposed in this article, basic aspects of forensic research of short manuscripts and records are allocated, given examples of application of traditional and unconventional research methods will be useful for use in forensic expert practice in order to optimize the

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14 Савчук О. Ю. Огляд найпопулярніших комп'ютерних програм, що застосовуються у сучасному судовому почеркознавстві // Судова експертиза: проблеми сьогодення та перспективи розвитку : кол. моногр. Львів, 2020. С. 322—327.

15 Кочергов Е. Г., Михайленко С. Г. Система автоматического исследования почерка. *Экспертная практика и новые методы исследования в почерковедении* : информац. сб. 1995. № 2. URL: <http://www.sudexpertiza.by/4835/160/6846> (date accessed: 22.08.2021).

forensic research, taking into account specific expert situation.

**Деякі аспекти експертного дослідження текстів малого обсягу**

**Сергій Науменко, Світлана Брюхань, Ольга Катарага**

Останнім часом на допомогу експертам-почеркознавцям у всьому світі прийшли програмні продукти, дія яких ґрунтується на: автоматичному вимірюванні відрізків між точками, позначеними в порівнюваних підписах; реєструванні часу виконання окремих фрагментів і порівнянні здобутих даних зі зразками; вимірюванні структурно-геометричних характеристик об'єктів, дослідженні розподілу густини барвника з метою оцінити натискання й темп; принципі блокування почерку.

Метою статті є узагальнити й теоретично обґрунтувати експертне дослідження текстів малого обсягу, виокремити ключові аспекти проведення цього дослідження на основі аналізу експертної практики для оптимізації експертного дослідження.

Наведено визначення рукописного тексту малого обсягу та стислого запису, їхні види і характеристики розмежування. Зазначено складові, що зумовлюють брак інформації про почерк у досліджуваних рукописах. Розглянуто класифікацію малообсягових рукописів і проаналізовано причини, що ускладнюють дослідження цих об'єктів. Акцентовано увагу на тому, що належність малообсягових рукописів до малоінформативних почеркових об'єктів не означає взаємозалежності й однозначності цих понять. Наведено чинники, що визначають міру інформативності об'єктів. Виокремлено особливості методики дослідження текстів малого обсягу й викладено основні аспекти експертного дослідження стислих текстів і рукописних записів.

Запропоновано ефективний підхід до вирішення ідентифікаційних завдань експертизи малообсягових об'єктів. Наведено приклади застосування як традиційних, так і нетрадиційних методів для оптимізації експертного дослідження стислих почеркових об'єктів з урахуванням конкретної експертної ситуації.

**Ключові слова:** тексти малого обсягу; інформативність; особливості методики дослідження; традиційні та нетрадиційні методи; експертна практика.

**Некоторые аспекты экспертного исследования текстов малого объёма**

**Сергей Науменко, Светлана Брюхань, Ольга Катарага**

В последнее время на помощь экспертам-почерковедам во всём мире пришли программные продукты, действие которых основано на: автоматическом измерении отрезков между точками, выделенными в сравниваемых подписях; регистрации времени выполнения отдельных фрагментов и сравнении полученных данных с образцами; измерении структурно-геометрических характеристик объектов, исследовании распределения плотности красителя с целью оценить нажим и темп; принципе блочности почерка.

Целью статьи является обобщение и теоретическое обоснование экспертного исследования текстов малого объёма, выделение ключевых аспектов проведения этого исследования на основе анализа экспертной практики для оптимизации экспертного исследования.

Приведены определения рукописного текста малого объёма и краткой записи, их виды и характеристики разграничения. Отмечены составляющие, обуславливающие малый объём информации о почерке в исследуемых рукописах. Рассмотрена классификация малообъёмных рукописей и проанализированы причины,

усложняющие исследование этих объектов. Акцентировано внимание на том, что отнесение малообъёмных рукописей к малоинформативным почерковым объектам не означает взаимозависимости и однозначности этих понятий. Приведены факторы, определяющие степень информативности объектов. Выделены особенности методики исследования текстов малого объёма и изложены основные аспекты экспертного исследования кратких текстов и рукописных записей.

Предложен действенный подход к решению идентификационных задач экспертизы малообъёмных объектов. Приведены примеры применения как традиционных, так и нетрадиционных методов для оптимизации экспертного исследования кратких почерковых объектов с учётом конкретной экспертной ситуации.

**Ключевые слова:** тексты малого объёма; информативность; особенности методики исследования; традиционные и нетрадиционные методы; экспертная практика.

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### Contributors

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The authors declare that they have no conflict of interest.

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## On Forensic Economist Specific Expertise

Alexiy Horlachuk \*

\* PhD in Economics, Ternopil Science Research Forensic Center of the Ministry Inner Affairs of Ukraine, Ternopil, Ukraine, ORCID: <https://orcid.org/0000-0001-8982-2438>, e-mail: [ndekc@gmail.com](mailto:ndekc@gmail.com)

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*Effectiveness level of the practical activities of forensic economists to some extent depends on theoretical validity of specific expertise and their clear regulation by law.*

*This article purpose is to investigate the essence of special economic knowledge, to determine the boundaries of competence of forensic economists. While generalizing scientific content, the main systemic elements that reflect essence of special economic knowledge their forms, structure, characteristic features are considered.*

*With the help of methods of analysis and synthesis, generalization, effectiveness dependence of the use of special economic knowledge and their relevance on the conditions of economic environment has been established. It was found that economic knowledge based on theoretical principles of economic sciences should be of a practical, applied nature, which makes appropriate requirements for organization of the educational procedure while professional training of persons entitled to conduct forensic economic examinations. In turn, the level of personal competence of a forensic economist depends on his practical skills and abilities and improves as more complex expert researches is carried out.*

*It has been established that it is impossible for forensic economists to study issues that go beyond specific expertise scope and have a legal nature (establishing the circle of culpability of persons, interpreting norms of law, legal assessment of the actions of persons, including the establishment of cause-and-effect relationships between targeted*

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*actions and the resulting negative consequences) which deprives the forensic examination of the status of objective economic research.*

*Keywords: specific expertise; special economic knowledge; forensic economics; forensic economist; economic relations.*

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## Research Problem Formulation

Judicial system in modern social and economic conditions in its architecture provides for availability of such an important and necessary element as forensic science, the importance and role of which are undeniable. This is due to the range of specific tasks facing procedural law that require an integrated approach to address them. This fully applies to forensic economics which professionals solve their tasks based on synergy of economic and legal knowledge. Forensic investigators often order forensic economic examinations for complex as well as high-profile economic crimes, which establishment circumstances (meaning their economic side) requires the use of special economic knowledge, because otherwise it is impossible to solve the issues.

For a long time in the center of scientific discussions is the question of the forensic expert competence, the limits of his specific expertise, especially in current complex, contradictory economic and legal conditions of a multifaceted economic

environment, when emergence of new types of economic crimes expertise. This applies to the amount and ratio of applied economic and legal knowledge which together ensure effective functioning of forensic economic examination as a relatively independent subsystem in the hierarchical structure of forensic science. This issue determines relevance of the topic of our research.

## Analysis of Essential Researches and Publications

Theoretical provisions of specific expertise in legal field were studied by a whole constellation of domestic and foreign scientists among which it is worth mentioning: M. M. Vinogradova, D. P. Gurin, L. V. Dikan, O. S. Lekhanov, N. I. Klimenko, N. P. Mykhailyshyn, I. V. Perevozov, I. A. Petrova, O. R. Rossinska, E. B. Simakova-Yefremian, H. O. Spitsyna, H. S. Bidniak, V. V. Fedchyshyn, N. Ye. Filipenko, A. P. Cherednichenko, M. G. Shcherbakovskyi and many other<sup>1</sup>. Given transformational economic and

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1 Виноградова М. М. Спорные вопросы определения пределов компетенции судебных экспертов-экономистов. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2010. Вип. 10. С. 540–547 ; Гуріна Д. П., Калініна І. В. До питання щодо компетенції та компетентності судового експерта у кримінальному провадженні. *Криміналістика і судова експертиза*. 2018. Вип. 63 (1). С. 195–203 ; Дікань Л. В., Понікаров В. Д., Кожушко О. В. Судово-економічна експертиза : навч. посіб. Харків, 2014. С. 278–282 ; Леханова Е. С. Некоторые проблемы применения судебно-экономических знаний в уголовном процессе. *Проблемы в российском законодательстве*. 2009. № 4. С. 234–237 ; Клименко Н. І., Федчишина В. В. Судово-економічна експертиза: сучасний стан і актуальні питання. *Криміналістичний вісник*. 2016. № 1 (25). С. 57–58 ; Михайлишин Н. П., Будник Л. А. Правовий статус судового експерта-економіста, зміст його спеціальних знань і компетенцій. *Облік, оподаткування і контроль: теорія та методологія* : мат-ли міжнар. наук.-практ.

social changes of recent decades, as well as changes and the constant evolution of the judicial system of the country, further development requires forensic economics in terms of determining expert specific expertise, his competence.

### Article Purpose

This article purpose is to investigate specific expertise of forensic expert, the need for which forensic investigators arise quite often while investigating offenses in the economic field.

### Main Content Presentation

While forensic examinations assigned to different types of legal proceedings (criminal, civil, commercial, administrative ones), economic experts

examine various issues related to the correctness of the reflection in the accounting of business transactions, the implementation of tax obligations (including accrual and payment VAT), performance by contractors of agreements (in particular, credit), misuse of enterprises, organizations, institutions of State funds under budget programs, determination of indicators of financial condition of the enterprise, availability of financial opportunities to fulfill its obligations to creditors and many other issues economic relations between the subjects of different ownership forms and organizational and legal management forms. Such researches require appropriate determination of quantitative and qualitative parameters of special economic knowledge in persons involved in forensic examinations of this type.

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One of aspects that determining relevance of the research issue in scientific opinion is the lack of reasonable position on the specific scope of forensic expert in general, as well as the inconsistency of procedural legislation. This type of specific expertise is on the border of economic sciences and legal norms that regulate economic life. This is their “border” position and causes numerous scientific discussions about specific expertise scope of forensic expert as a participant in criminal proceedings while investigation of economic crimes by law enforcement agencies.

Examining this issue, we will consider the main key elements that relate to forensic expert specific expertise. The latter in the form of interconnected and complementary elements is the unique system that reflecting their essence through the specific expertise purpose, as well as their form depending on the accepted classification criterion, relationship between different types of specific expertise which identifies their characteristics and specifics, etc.

According to clause 14 of Part 1 of Article 92 of the Constitution of Ukraine <sup>2</sup>, principles of forensic science are determined exclusively by laws of Ukraine. This indicates that issue of using specific expertise is exclusively in regulatory field. It should be noted that nowadays this concept definition is not enshrined in domestic legislation.

Historical retrospective shows that one of the first to characterize specific expertise were such well-known jurists and scholars as V. D. Spasovich and A. F. Koni. They considered special knowledge as knowledge in the field of science, technology, art or craft <sup>3</sup>. This issue has been the subject of discussion in the scientific world for a long time and has not lost its relevance to this day.

The author of one of the most cited in scientific literature definitions of this economic and legal category is O. O. Eisman: “*Specific expertise is knowledge that is not well-known, not publicly available, is not widespread, in short, it is knowledge that has a limited number of professionals and it is likely that deep knowledge in the field, such as physics, is in this sense specific for biologist, and vice versa*” <sup>4</sup>.

The *Criminalistics* multimedia textbook states that specific expertise is not related to conducting criminal proceedings knowledge, which content goes beyond general and special educational programs used to achieve legal goals in criminal proceedings <sup>5</sup>.

Summarizing the research of criminologists on the essence of specific expertise in general, H. O. Spitsyna and H. S. Bidniak consider the following characteristics <sup>6</sup> : 1) constitute a set of knowledge and skills in various fields; 2) contain a system of information in the field of science, technology and other areas of human activity; 3) used in the

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2 Конституція України прийнята Законом України від 28.06.1996 р. № 254к/96-ВР (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/254%D0%BA/96-%D0%B2%D1%80#Text> (date accessed: 25.09.2021).

3 Климович Л. П. Научные основы современной экономической экспертизы : монография. Москва, 2014. С. 8.

4 Эйсман А. А. Заключение эксперта. Структура и научное обоснование. Москва, 1967. С. 91.

5 Криміналістика : мультимед. підруч. URL: [https://arm.naiu.kiev.ua/books/kriminalist/lections/lection\\_3.24.html](https://arm.naiu.kiev.ua/books/kriminalist/lections/lection_3.24.html) (date accessed: 25.09.2021).

6 Спіцина Г. О., Бідняк Г. С. Ор. cit. С. 241. DOI: 10.32353/khrife.2018.26 (date accessed: 25.09.2021).

pre-trial investigation and while hearing in the case and in the manner prescribed by criminal procedure legislation; 4) they are used in conjunction with scientific and technical means; 5) certain subjects of criminal proceedings implement them in the process of practical activities, special training, taking into account professional experience; they are based on a system of theoretical knowledge in the relevant field; 6) for the most part their implementation requires significant expenditure of time and intellectual effort; 7) contribute to the development of technical means and methods of working with evidence and the establishment of important circumstances that are important for proof.

On the basis of the above systematization Ha. O. Spitsyna and Ha. S. Bidniak offer the following specific expertise definition: it is scientific, technical and other professional knowledge acquired as a result of training, as well as skills acquired in the process of working in certain areas of practice used simultaneously with the use of scientific and technical means in the collection and investigation of traces of crimes in order to obtain evidentiary and indicative information necessary for crime investigation<sup>7</sup>.

In the monographic study L. P. Klymovych gives the following specific expertise definition: it is professional experience of expert witnesses (except for the professional activities of investigators, judges) that belongs to a certain field of knowledge used in criminal proceedings in forms prescribed by law to obtain new information based on the detection of

particularly specific or hidden properties and relationships of objects (phenomena)<sup>8</sup>.

V. M. Kovbasa, based on the research of scientists, identifies the following main objectives of the use of specific expertise: facilitate the full and rapid detection and investigation of crimes; establishing the truth in a criminal case; study of certain objects and phenomena; obtaining necessary information to establish the circumstances relevant to correct reasoned decisions in the case; facilitating identification, recording and seizure of evidence and clarification of special issues that arise while investigative actions; development of tactical and technical means and methods of gathering evidence, etc.<sup>9</sup>

In general, scientific opinion considers the following forms of use of specific expertise: *first form* – specified and regulated by criminal procedure legislation, *second form* – provided but not regulated by criminal procedure legislation (consultative and reference activities of specialists in certain fields of knowledge), *third form* – not provided and is not regulated by law<sup>10</sup>. There are some discussions about, for example: if specific expertise is not provided by law, it does not make sense to examine them due to ambiguity in law. Normative-legal field of Ukraine does not define the forms of specific expertise use. Instead, in the scientific literature, in research, scientists consider their different forms depending on classification criterion.

It should be noted that the forms of applied special knowledge depend entirely

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7 Ibid.

8 Климович Л. П. Оп. cit. С. 20–21.

9 Ковбаса В. М. Криміналістична характеристика спеціальних знань. Науковий вісник Дніпропетровського державного університету внутрішніх справ : зб. наук. пр. 2014. № 2. С. 228.

10 Спіцина Г. О., Бідняк Г. С. Оп. cit. DOI: 10.32353/khrife.2018.26 (date accessed: 25.09.2021). С. 243.

on the qualification of the offense and on the use of sustainable or modern ways of committing them, adapted to new social conditions. The most common form is the appointment of forensic examinations, which should be preferred <sup>11</sup>.

In the process of systematic research Ha. O. Spitsyna and Ha. S. Bidniak come to conclusion that there is no single approach to the forms of specific expertise use, but they are much more widely reflected in legislation. In such circumstances, scientists classify the forms of specific expertise application by type of activity and distinguish the following forms: forensic examination assignment; reference and consulting activities; audits and verification of records; professional involvement while investigation; interrogation of the expert; investigator presence while forensic examination. The success of their use depends entirely on determining their timeliness, optimal sequence and feasibility <sup>12</sup>.

Analyzing this issue, it is important to note the following. Specific expertise in the field of economics can have such basic carriers of this knowledge as forensic experts (specialists who are employees of State specialized institutions, as well as those who are not employees of these institutions), auditors (government agencies, private auditors, audit firms), inspectors.

The common basis that unites these types of special economic knowledge is the economic field, namely the multifaceted nature of modern production, economic and financial activities of economic entities, reflected primarily in relevant accounting documents. The defining and

distinctive feature that distinguishes these types of knowledge is the availability or lack of procedural nature. Accordingly, forensic economics as a specific field of knowledge has a procedural meaning while inspection and audit are types of financial control of economic activity of economic entities.

We agree with N. I. Klimenko's statement that the new economic conditions of management require integrated use of special economic knowledge from various subsectors of the economy for successful detection and investigation of economic offenses <sup>13</sup>.

If we take into account the history of formation and application of special knowledge, which is also important in our study, we can identify the factors influencing this process: the development of general theoretical knowledge; emergence and development on the basis of general theoretical knowledge of forensic, forensic medical and other applied specific expertise; involvement of specialists in the process of investigation of criminal proceedings; use of scientific knowledge while forensic research that is evidence in criminal proceedings <sup>14</sup>.

To this list should be added such an important factor as property relations, dominating economic environment, as forensic economics performs its research in the multifaceted economic field, respectively, change of property relations that is fundamental to a certain type of economic system and socio-economic relations, affects the methodological tools of forensic economics and hence, development of special economic knowledge.

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11 Ibid. C. 243–244.

12 Ibid. C. 247.

13 Клименко Н. І. Оп. cit. С. 57.

14 Романюк Б. В. Участь спеціаліста на стадії досудового слідства : навч. посіб. Київ, 2010. С. 13.

Currently, the issue of using special economic knowledge is the subject of research not only by legal professionals but by economists. For example, N. P. Mykhailyshyn and L. A. Budnyk believe that an expert should have a specific expertise set to the extent necessary to conduct a qualitative research and provide an opinion on the issues raised. Accordingly, on the basis of special economic knowledge, they consider accounting (financial and management), economics and enterprise management, finance and credit, taxes and taxation, banking, labor economics, etc., supplemented by knowledge of criminalistics, economic, civil and criminal proceedings, as well as various branches of law (civil, administrative, financial, land, labor, criminal one, etc.)<sup>15</sup>.

According to V. V. Fedchyshyna, special economic knowledge is the knowledge, skills, abilities and practical experience of expert witnesses in the field of economics on issues that reflect the current level of development of economics, objects, phenomena and processes<sup>16</sup>.

L. P. Klimovich under special economic knowledge understands the professional experience of expert witnesses belonging to the field of economic and forensic economic knowledge used in criminal proceedings in the forms prescribed by law in order to obtain new information by identifying particularly specific or hidden properties and relationships objects (phenomena)<sup>17</sup>.

V. V. Fedchyshyna notes that specific nature of economic knowledge used in the investigation of offenses involves knowledge of economics. According to modern doctrine, in determining specific

expertise content as not well-known knowledge, it is necessary to consider four aspects<sup>18</sup>:

- 1) characteristics of economic knowledge that form the basis of special economic knowledge;
- 2) structure of special economic knowledge;
- 3) ways to obtain special economic knowledge;
- 4) purpose of using special economic knowledge.

Last aspect: purpose of using special economic knowledge has important theoretical and practical significance, as it is the vector that determines development of the methodological basis of this type of forensic examination and the level of efficiency of its use in forensic activities.

Special economic knowledge is a theoretical basis that provides solutions to forensic economic issues and emergence of new theoretical developments, forms the limits of competence and competence of forensic economics<sup>19</sup>.

While considering the issues of special economic knowledge, it is impossible to ignore the relevant categories, such as the *competence* of a forensic expert (regardless of the field of application of his specific expertise). Due to his procedural status, an forensic economist has a certain range of rights and responsibilities that can be collectively represented as his competence. For its part, competence is understood as the skills and abilities that forensic expert has acquired while practical activity and improves as he successfully solves increasingly complex tasks. That is, the improvement of his professional knowledge by an forensic

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15 Михайлишин Н. П., Будник Л. А. *Op. cit.* С. 325.

16 Федчишина В. В. *Op. cit.* С. 217.

17 Климович Л. П. *Op. cit.* С. 30.

18 Федчишина В. В. *Op. cit.* С. 216.

19 *Ibid.* С. 215.

economist leads to an increase in his competence.

In our opinion, special economic knowledge is an organic complex of various applied economic, as well as legal knowledge that forensic economist uses within his competence to solve the procedural tasks. The scope of such knowledge has a steady tendency to expand in connection with development of social production and improvement of its scientific and technological capabilities.

Specifics of forensic science activity make necessary for forensic economists to acquire and apply, in addition to economic knowledge, also legal knowledge in order to conduct a complete, objective and sound research to provide expert opinion in the procedural field. It should be noted that the very economic knowledge based on theoretical principles of economics should be practical, applied. This sets appropriate requirements for organization of educational process while training of persons who will have the right to conduct forensic economics.

The need for the use of special economic knowledge arises mostly in the case when the forensic investigation of circumstances of economic crimes is impossible without forensic economics. V. S. Davydenko notes that forensic accounting examination is appointed if there are doubts about completeness, objectivity, professionalism of the audit and methods used by auditors, as well as if necessary to check the correctness of certain financial and economic transactions<sup>20</sup>. A similar opinion is held by M. T. Bilukha, who notes that liability for damages to businesses and individuals is established by law and function of their detection is entrusted to such forms of

financial control as inspection and audit. In disputed situations, amount of material damage should be confirmed by a forensic accounting examination<sup>21</sup>.

In view of the above, considering multifaceted nature of special economic knowledge of a forensic expert, establishment of the so-called faces, a number of important aspects should be taken into account that allow to achieve this goal:

- procedural nature of appointment and conducting forensic economic examination. In other words, it cannot exist outside procedural field, because its emergence is a need of the legal system which also determines key moments of its development;
- formation of the application purpose of special economic knowledge. This aspect is a logical continuation of the first, as the main purpose of the use of special economic knowledge is to provide forensic authorities with sound and irrefutable evidence in the form of forensic expert conclusion in investigation of recent economic crimes;
- specific expertise ratio of forensic expert economist with inspection and audit, where forensic economics is secondary and conducting audit actions and inspections; primary in establishing material losses in economic environment.

In the context of the above, it is worth paying attention to such important epistemological moments related to our research. Assessing economic relations in the field of material production it is possible

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20 Давиденко В. С. Спеціальні знання в розслідуванні економічних злочинів. *Юридичний часопис Національної академії внутрішніх справ*. 2016. Т. 12. № 2. С. 184.

21 Білуха М. Т. Судово-бухгалтерська експертиза : підручник. Київ, 2004. С. 35.

to identify characteristic dependencies regarding efficiency level of special economic knowledge use, as well as the objective need of forensic investigators in this type of forensic examination:

- use effectiveness of special economic knowledge in the legal system increases as stability of the economic environment regulated by law and vice versa, effective return of forensic science in the judicial system decreases as stability of economic relations and law effectiveness. Such dependence is an objective phenomenon in development of socio-economic relations;
- complexity of economic processes as a result of the intensive development of information technology and communications, as well as algorithms for committing economic crimes causes an increase in the need for forensic economics, i.e. in special economic knowledge. This dependence is characteristic of goods/money production and is inviolable in its development.

Special economic knowledge is inseparable from economic activity, because their basis is a set of economic sciences that explain processes of social production in both tangible and intangible fields. Accordingly, this type of knowledge should be considered simultaneously with the study of economic conditions of management which is due to economic laws.

In the current state of economic relations and intensive implementation and use of information technology, the above is extremely relevant, because special economic knowledge in the most intensive

period of its development (from the beginning of XX century to nowadays) has undergone appropriate transformations affected their quality, and therefore stop on this aspect in more detail. First of all, it should be noted that special economic knowledge (that professional had at the turn of the XIX-XX centuries, in 1950-1970 and with the beginning of intensive informatization, in particular digitalization of economic relations) given traditional unity in unchanging legal nature of its use have characteristic features.

In this regard, it is worth noting the following. As early as the beginning of the XX century, well-known Russian scientist-accountant S. F. Ivanov in his famous paper: *Accounting expertise while hearing* on the qualities of an forensic accountant stated quite clearly and extensively: “*Forensic accountant should have thorough knowledge in accounting (job seniority: professional) and known internal qualities (scientific judge of facts). If in general an accountant is considered to be someone who, absolutely devoted to the science of accounting, still has a number of knowledge in the field of mathematics, law, finance and political economy, then the accountant-expert should be subject to increased requirements*”<sup>22</sup>. This historical retrospective testifies to the level of requirements for the professionalism of expert accountants (expert economists) at the very beginning of the acquisition by accounting expertise of the features of scientifically sound research, which is, of course, relevant for current conditions.

The change in the socio-economic structure of economy after 1917 and transition to a command-and-control system of management greatly influenced development of forensic science. The reason is as follows: property

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22 Иванов С. Ф. Бухгалтерская экспертиза в судебном процессе: пособие для юристов и бухгалтеров-экспертов. Санкт-Петербург, 1913. С. 12.

relations (private, national or collective) always reflect the way of management characterized by its elements of accounting and control and therefore the replacement of private property by the state has led to a completely new socio-economic model of management and judicial system. Under such conditions, special economic knowledge had a single strategic direction of use: assistance to justice in the fight against theft of socialist property by offenders.

Until the first half of the XX century there was autonomy in the development of forms of use of special economic knowledge, due to lack of a single methodological basis for their application. Establishment in 1948 of the Bureau of State Accounting Expertise that had branches in the union republics and was subordinated to the Ministry of Finance of the USSR was a positive moment in the development of forensic economics. And the change in subordination of the expert structure in the 1960s to the Ministry of Justice significantly accelerated the progressive dynamics in development of forensic science activity<sup>23</sup>. It was during this period that the scientific base for the use of accounting information in criminal proceedings was formed.

These positive changes are associated with the name of S. P. Fortinskyi, one of the well-known developers of the methodological framework of forensic accounting who argued that economic knowledge used in legal proceedings, in addition to accounting knowledge should also contain specific expertise of economic analysis, finance and credit which is a scientifically sound approach. In other words, he emphasized the complex aspect of economic knowledge use dictated by the gradual but obvious transformation of the way of managing a planned economy.

This constructive proposal did not find its theoretical and practical application until the end of the 1980s, because, as noted above, special economic knowledge was most often used to determine the size of shortages due to the theft of inventory by materially responsible persons and persons responsible for accounting at enterprises in terms of State ownership.

Fundamental reform of economic system (replacement of planned production by market principles on a national scale), creation of new conditions for economic relations (multifaceted type of economy as a set of subjects of various organizational forms of management and ownership), and transformation of the judicial system contributed to a radically new direction theoretical and methodological basis of forensic economics which was directly related to improvement of special economic knowledge. First of all, expert accountants (expert economists) faced a number of new tasks, which within the existing specific expertise with appropriate methods and techniques of research could not be solved definitively due to lack of methodological tools. For example, economic research in the field of investment activities, corporatization, distribution of land and property shares, privatization of state and communal property, etc. Accordingly, domestic experts turned to the rich experience of forensic activities of developed countries, as well as developed their own theoretical and methodological basis which took into account domestic historical traditions and the specifics of economic relations.

The level of modern requirements for special economic knowledge can be defined by the following important aspects: forensic economist should be highly educated professional in the field of

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23 Коваленко О. В. Розвиток судово-економічної експертизи в Україні. *Криміналістика і судова експертиза* : міжвідом. наук.-метод. зб. 2013. Вып. 58 (2). С. 485.

accounting and tax accounting, economic control and analysis, financial and economic law; he should combine basic scientific training and deep practical skills, continuously replenish his professional knowledge, have high civic qualities<sup>24</sup>.

Intensive development of economic processes under influence of digitalization as a component of information technology requires from forensic economic examination similar changes in the use of special economic knowledge. First of all, it concerns their volume supplemented by new methods and techniques of research. For example, research on documents in electronic format and/or accounting transactions carried out using 1S Accounting, etc.

Currently, special economic knowledge, their structure and forms of application are gradually harmonizing with international standards in this area that is quite expected and logical, as unification of international economic relations due to the impact of intense globalization processes directly affects all national socio-economic processes. However, in this context, it should be noted that such harmonization with international standards (in the European Community there is currently an issue of implementation of international requirements and standards of forensic science<sup>25</sup>, due to inability to unify all requirements at the national level due to the risk of unbalanced judicial system.

established model of the national economy) should be built under the condition of their positive effect for domestic forensic activities.

According to para. 5 of clause of 2.3 of section II of Instruction on appointment and conducting forensic examinations and researches, approved by the order № 53/5 of the Ministry of Justice of Ukraine dated on 08.10.1998 (hereinafter referred to as Instruction), forensic expert is forbidden to “solve issues which go beyond forensic expert specific expertise and clarification of legal issues and provide an assessment of the legality of the procedures regulated by regulations”<sup>26</sup>.

In this context, it is appropriate to cite the experience of forensic expertise in Germany. Thus, according to § 75 sec. VII of the Code of Criminal Procedure of Germany (Strafprozeßordnung (StPO); adopted in 1877, operates to date with numerous changes and additions) appointed by an expert person must comply with the appointment if he provides forensic expert conclusion on the basis of law or professional activity or appointed or authorized by the state to carry out such activities in the field of science, arts or crafts, knowledge of which is a prerequisite for providing an expert opinion<sup>27</sup>. In this regard, German professional legal literature uses the term *Scheuklappen* which means “blinds” and is interpreted as follows: if the court instructs the expert to provide forensic expert

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24 Дікань Л. В., Понікаров В. Д., Кожушко О. В. *Op. cit.* С. 277.

25 Федчишина В. В. Спеціальні економічні знання у правових системах Європи, Австралії та США. *Науковий огляд*. 2018. № 3 (46). С. 126.

26 Інструкція про призначення та проведення судових експертиз та експертних досліджень : затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 15.09.2021).

27 Strafprozeßordnung (StPO): Gesetz von Bundesrepublik Deutschland 12.09.1950. Strafprozeßordnung in der Fassung der Bekanntmachung vom 7. April 1987 (BGBl. I S. 1074, 1319), die zuletzt durch Artikel 4 des Gesetzes vom 5. Oktober 2021 (BGBl. I S. 4607) geändert worden ist. URL: <https://www.gesetze-im-internet.de/stpo/BJNR006290950.html#BJNR006290950-BJNG000802311> (date accessed: 15.09.2021).

conclusion, he should strictly adhere to the answers to the questions asked by the court to which he should provide his conclusion<sup>28</sup>. According to the Code of Criminal Procedure of Germany, choice of experts involved in forensic examination, their number is determined by the court. The court concludes an agreement with them on the terms of providing forensic expert conclusion. If state experts are appointed for certain types of forensic expert conclusions, other persons can be elected only if special circumstances so require<sup>29</sup>.

Appointment and conducting a forensic economic examination is a procedure of interaction between forensic experts and initiators of economic research. The issues raised for examination cover a fairly wide range of production, financial and economic activities.

In accordance with Part 1 of Art. 242 of Criminal Procedural Code of Ukraine is not allowed to conduct forensic examination to clarify the law<sup>30</sup>. In this context, it is incorrect to ask questions for forensic economic examination (for example, establishing the scope of guilt of persons in missing inventory as a result of inventory, interpretation of law, legal assessment and qualification of actions of persons including establishing cause-effect relations between purposeful actions and subsequent negative consequences, etc.) require forensic expert to go beyond his specific expertise.

Resolution of these issues is beyond the competence of forensic experts, because they require interpretation of the law or are aimed at qualifying actions of specific persons that is unacceptable for forensic expert, as it is the prerogative of investigative bodies.

Forensic economists while conducting research should be limited to stating the facts about reflection of certain transactions in accounting. However, it is not their competence to assess reliability and the proof degree of specific circumstances, as evaluation of evidence is the prerogative of the investigative bodies.

Of particular note is the issue of determining the material damage caused to the participant of economic relations (enterprise, institution, organization), which are put to the study by the initiators of forensic economic examinations. In this case, forensic expert has the right to determine the amount of material damage, but only if the results of inspections of control bodies (audit certificates, inspection reports, etc.), as audit activities are beyond the competence of the expert economist. That is, economists take into account only the economic nature of material damage, which belongs to their special knowledge and does not allow to go beyond their competence. In accordance with para. 4-5 clause of 2.3 Chap. II of the Professional Instruction, the expert is prohibited from *“independently collecting materials to be studied, as well as select the source data for*

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28 Der gerichtliche Sachverständige und die ihm verordneten „Scheuklappen“. URL: <https://www.k3s-rechtsanwaelte.de/aktuelles/aktuelle-rechtsprechung/bauundarchitektenrecht/294-der-gerichtliche-sachverstaendige-und-die-ihm-verordneten-„scheuklappen“>.html (date accessed: 15.09.2021).

29 Strafprozeßordnung (StPO) ... . URL: <https://www.gesetze-im-internet.de/stpo/BJNR006290950.html#BJNR006290950BJNG000802311> (date accessed: 15.09.2021).

30 Кримінальний процесуальний кодекс України : затв. Законом України від 13.04.2012 р. № 4651-VI (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 15.09.2021).

*the examination, if they are reflected in the materials provided to him ambiguously”<sup>31</sup>.*

Awareness of forensic investigators with procedural possibilities of forensic economics, its research topic, as well as competence of economists significantly affects correctness of the questions to be investigated by forensic economists and thus, completeness of economic research, quality and deadline carrying out.

## Conclusions

In order to conduct a complete, sound and objective forensic economic research, which in procedural field is carried out by forensic economists, the latter must have a comprehensive multifaceted special economic knowledge (accounting; finance and credit; taxation; banking; labor economics, industry, rural economy), to be acquainted with the main software products of accounting in enterprises of all forms of ownership and management, as well as to have knowledge of various branches of law (land, labor, etc.), which is an important point of effective cooperation of economic professionals and forensic authorities in investigation of recent economic crimes. One of the important aspects is a clear legal regulation of the specific expertise use in various types of proceedings, consistency of the basic knowledge of economists with other fields of knowledge.

Further development and improvement of application of special economic knowledge is possible only if a detailed study of theoretical provisions of the complex of economic sciences, which have a practical, applied nature and explain essence of economic procedures in a dynamic economic environment for different economic activities.

## До питання про спеціальні знання судового експерта-економіста Олексій Горлачук

*Рівень ефективності практичної діяльності судових експертів-економістів певною мірою залежить від теоретичної обґрунтованості спеціальних знань і чіткого їх регламентування нормативно-правовим законодавством.*

*Мета статті — дослідити суть спеціальних економічних знань, визначити межі компетенції експертів-економістів. У процесі узагальнення наукового матеріалу розглянуто основні системні елементи, що відбивають суть спеціальних економічних знань,— їхні форми, структуру, характерні ознаки.*

*За допомогою методів аналізу, синтезу й узагальнення встановлено залежність ефективності використання спеціальних економічних знань і їхньої застосуваності від умов економічного середовища. З'ясовано, що економічні знання, які ґрунтуються на теоретичних положеннях економічних наук, повинні мати практичний, прикладний характер, що висуває відповідні вимоги до організації освітнього процесу під час професійної підготовки осіб, які мають право проводити судові економічні експертизи. Зі свого боку, рівень особистої компетентності судового експерта-економіста залежить від його практичних умінь і навичок та вдосконалюється в міру проведення складніших експертних досліджень.*

*Установлено неможливість дослідження експертами-економістами питань, які виходять за межі спеціальних знань і мають правовий характер (визначення кола винності осіб, інтерпретування норм права, юридичне оцінювання дій осіб, зокрема встановлення причиново-наслідкових зв'язків між цілеспрямованими*

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31 Про затвердження Інструкції про призначення та проведення судових експертиз ... URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 15.09.2021).

діями й негативними наслідками), що по-збавляє судову експертизу статусу об'єктивного економічного дослідження.

**Ключові слова:** спеціальні знання; спеціальні економічні знання; судова економічна експертиза; експерт-економіст; економічні відносини.

### **К вопросу о специальных знаниях судебного эксперта-экономиста**

**Алексей Горлачук**

Уровень эффективности практической деятельности судебных экспертов-экономистов в известной степени зависит от теоретической обоснованности специальных знаний и четкого их регламентирования нормативно-правовым законодательством.

Цель статьи — исследовать суть специальных экономических знаний, определить границы компетенции экспертов-экономистов. В процессе обобщения научного материала рассмотрены основные системные элементы, отражающие сущность специальных экономических знаний — их формы, структуру и характерные особенности.

С помощью методов анализа, синтеза и обобщения установлена зависимость эффективности использования специальных экономических знаний и их востребованности от условий экономической среды. Выяснено, что экономические знания, основанные на теоретических положениях экономических наук, должны иметь практический, прикладной характер, что предъявляет соответствующие требования к организации образовательного процесса при профессиональной подготовке лиц, имеющих право проводить судебные экономические экспертизы. В свою очередь, уровень личной компетентности судебного эксперта-экономиста зависит от его практических умений и навыков и совершенствуется по мере проведения более сложных экспертных исследований.

Установлена невозможность исследования экспертами-экономистами вопросов, которые выходят за пределы специальных знаний и имеют правовой характер (установление круга виновности лиц, интерпретация норм права, юридическая оценка действий лиц, в том числе установление причинно-следственных связей между целенаправленными действиями и наступившими негативными последствиями), что лишает судебную экспертизу статуса объективного экономического исследования.

**Ключевые слова:** специальные знания; специальные экономические знания; судебная экономическая экспертиза; эксперт-экономист; экономические отношения.

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The author declares that he has no conflict of interest.

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## Problematic aspects of using forensic expert conclusion on results of the forensic examination of electric shock accidents

Oleh Mieshkov \*

\* National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0002-3046-6018>, e-mail: [meshkov@hniise.gov.ua](mailto:meshkov@hniise.gov.ua)

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*The article is devoted to topical and at the same time debatable topic of using forensic expert conclusion based on forensic examination results of electric shock accidents.*

*Evaluation and verification of forensic expert conclusion, as one of the sources of evidence obtained on the basis of scientific knowledge is a prerequisite for impartiality, objectivity and comprehensiveness of the investigation in criminal proceedings and court proceedings. Conclusion assessment and verification consists of the solution of two general groups of issues: 1) compliance with procedural rules and requirements while appointment, forensic examination and conclusion submission: procedural assessment; 2) correctness, scientific validity and reliability of research and the conclusion is a meaningful assessment.*

*Difficulty of correctly assessing and verifying reliability and scientific validity of forensic expert conclusion by investigative bodies or the court is due to the fact that conclusion is an expert's deduction made on the basis of specific expertise in a particular field of science and technology. Certainly, investigator or the court does not have such knowledge. Sometimes they cannot objectively assess and verify the conclusion content for correct choice of methodology, methods used and methods of problem solving. It is emphasized that solution of such issue by investigation or the court is especially difficult in default of proven methods, or when applying new types of examinations.*

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*The article presents some aspects of verification of the facts established in the conclusion, their consistency with other circumstances and evidence in the case. Emphasis is placed on the fact that it is often difficult to verify the facts established in while investigation of electric shock accidents, consistency of these facts with other evidence in the case, if forensic examination establishes such facts, or when examination establishes certain crime elements.*

*The ways of solving some complex aspects of the substantive assessment of forensic expert conclusion by investigation or the court are identified; it is proposed to make certain changes in procedural legislation regarding the independent review of forensic expert conclusion.*

*Keywords: forensic engineering examination, forensic electrical examination, life safety examination, electric shock accidents, examination as a source of evidence.*

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## Formulation of Research Problem

The Criminal Procedural Code of Ukraine stipulates forensic expert conclusion among sources of evidence, which is based on scientific, technical or other specific expertise and provides an opportunity to establish circumstances related to the fact in proof and other legally important circumstances <sup>1</sup> for a criminal proceeding. As practice shows, a successful investigation and trial of a considerable number of cases are impossible without the use of knowledge in the form of forensic expert conclusion.

Forensic engineering examination of electric shock accidents associated with electrical injuries has an integrative nature of using different specific expertise, in particular in the field of life safety and electrical engineering. While performing such researches, typical expert tasks are usually solved which generally coincide with typical tasks of life safety examination. However, a distinguishing feature of the examinations of electric shock

accidents is simultaneous combination and indivisibility of two tasks: diagnostic (determining technical condition of electrical equipment that has become the source of a hazardous factor of electrical nature) and situational (establishing the mechanism and conditions of injury, the cause of an accident and the range of cause-effect relations) <sup>2</sup>.

Forensic examination of electric shock accidents mainly relates to solving a situational task, in the course of which a forensic expert relies on source data which largely result from subjectivity of the source of information (testimony of witnesses and a victim, other persons involved in an event, etc.). Perception of certain information depends on many circumstances, in particular mental state, age, sex, education, intelligence. For the most part, certain inaccuracies, mistakes, discrepancies with real course of the event are not excluded. Oftentimes, there is an attempt to deliberately distort facts, mislead, driven by a desire to avoid responsibility.

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- 1 Кримінальний процесуальний кодекс України : Закон України від 13.04.2012 р. № 4651-VI (зі змін. та допов.) URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 17.08.2021).
  - 2 Мешков О. О., Шинкаренко И. Р. К вопросу о теоретической сущности судебной экспертизы случаев электротравмирования. *LEGEA ŞI VIATA*. 2019. № 4/1. С. 57—59.

The use of forensic expert conclusion based on the results of the study of electric shock accidents is impossible without its overall assessment, verification through analysis and comparison with other evidence collected while criminal proceeding.

At the current stage of the development of forensic science, the issue of assessing forensic expert conclusion is still debatable, its relevance is not undermined, though a substantial amount of researches have been conducted and many distinguished scholars outlined this problem in their works. Since forensic expert conclusion is based on specific expertise in the field of science and technology, which possess a limited number of people, it results in different (sometimes opposite) views of procedural scientists on the content and procedure for assessing a conclusion.

An individual serious problem in assessing forensic expert conclusion is the emergence of new types of expert researches due to the needs of investigative practice and the development of science and technology. Oftentimes, new types of forensic examinations are not provided with validated methods for conducting such

researches. It complicates a meaningful assessment of a conclusion.

The research is the result of the author's deduction based on his own experience in forensic science and analysis of scientific and regulatory sources, study of expert, investigative and judicial practice of conducting forensic examinations of electric shock accidents and the use of forensic expert conclusion.

### Analysis of Essential Researches and Publications

Theoretical and practical problems of the process of proof in criminal proceedings have been studied by famous scientists of both this and last century, in particular, L. Iu. Arotsker, T. Ie. Balynian, Yu. M. Hroshevyi, O. Iu. Hrosheva, L. M. Derecha, R. Katszor, Yu. K. Orlov, O. S. Panievin, D. V. Puchko, E. B. Simakova-Yefremian, S. M. Stakhivskyi, M. H. Shcherbakovskyi and others<sup>3</sup>. They focused on the nature and criteria of the fact in proof, its boundaries and subjects, discussed in detail theoretical and applied issues of the assessment of forensic expert conclusion on certain

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3 E.g.; Ароцкер Л. Е. Сущность криминалистической экспертизы. *Криминалист. экспертиза*. 1966. Вып. 1. С. 51–54 ; Сімакова-Єфремян Е. Б., Балинян Т. Є., Дереча Л. М. Про критерії оцінювання методик проведення судових експертиз в Україні. *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. 2010. Вип. 10. С. 159 ; Грошевий Ю. М., Стахівський С. М. Докази і доказування у кримінальному процесі : наук.-практ. посіб. Київ, 2006. С. 45 ; Грошева О. Ю. До питання про оцінку судом комплексних судових біолого-трасологічних експертиз. *Legal Practice in EU Countries and Ukraine at the Modern Stage* : International scientific and practical conference (Arad, Romania, January 25–26, 2019). Vasile Goldis Western University of Arad: Romania, 2019. P. 496–499 ; Kaczor R. Etapy i kryteria oceny opinii biegłego w postępowaniu karnym. *Prokurator*. 2010. 1–2 (41–42). С. 41–55 ; Орлов Ю. К. Заключение эксперта и его оценка (по уголовным делам) : учеб. пособ. Москва, 1995. 64 с ; Паневін О. С., Сухова Г. Є. Судова експертиза в кримінальних справах // Коментар судової практики в кримінальних та адміністративних справах. Постанови Пленуму Верховного Суду України (1995–1997) ; відп. ред. В. Т. Маляренко. Київ, 1998. С. 131–145 ; Пучко Д. В. К вопросу об оценке заключения эксперта как источника доказательств. *Армянский журнал судебной экспертизы и криминалистики*. 2020. № 4. С. 123–133 ; Щербаківський М. Г. Проведення та використання судових експертиз у кримінальному провадженні : монографія. Харків, 2015. 560 с.

types of examinations and methodologies of performing a forensic examination, as well as the problem of using forensic expert conclusion as evidence in criminal proceedings.

However, today in the scientific community of processualists, experts and practitioners, there is no consensus in understanding the issue of assessing forensic expert conclusion: in particular, its content, exhaustiveness, validity and correctness. Existing daunting issues in this area condition the relevance of this research.

### Article Purpose

Outline available problematic issues concerning the assessment and use by investigator or the court of forensic expert (forensic experts) conclusion based on the results of research on electric shock accidents and determine ways for their solution.

### Main Content Presentation

The current Criminal Procedural Code of Ukraine specifies tasks of criminal proceedings, which are to defend persons, society and the state from criminal offenses, protect rights, freedoms and legitimate concerns of criminal proceeding participants, as well as ensure prompt, exhaustive and impartial investigation and trial, so that everyone who committed a crime has been prosecuted to the measure of his guilt, and no innocent person is incriminated and/or convicted,

that no person is subjected to unreasonable procedural coercion<sup>4</sup>. All these tasks are implemented by proving which permeates all stages of the criminal process and is the foundation for making all procedural decisions.

As source of evidence according to the Criminal Procedural Code of Ukraine, forensic expert conclusion provided on the grounds of specific expertise enables to determine circumstances belonging to the fact in proof and other circumstances of significant importance for a proceeding. Successful investigation and solution of criminal proceedings are impossible without the use of this evidence in the majority of cases. Thus, during 2018, 2019–2020, Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations of the Ministry of Justice of Ukraine (currently, *National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»*) conducted respectively 29,943; 36,147 and 37,215 forensic examinations and expert researches<sup>5</sup>. Therefore, there is a tendency to increase the number of forensic examinations and expert researches.

The quintessence, result of any expert research within the framework of conducted examination is forensic expert conclusion. The use of expert findings while preliminary investigation and trial of a criminal proceeding is of particular importance. Indeed, the procedure for appointing, conducting researches and compiling the forensic expert conclusion is worthless if for various reasons forensic expert conclusion cannot be used in the

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4 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 17.08.2021).

5 Звіт про роботу інституту за 2018 рік [Рукопис] : щорічний звіт / ХНДІСЕ. 2018. С. 148–150 ; Звіт про роботу інституту за 2019 рік [Рукопис] : щорічний звіт / ХНДІСЕ. 2019. С. 162–164 ; Звіт про роботу Національного наукового центру «Інститут судових експертиз ім. Засл. проф. М. С. Бокаріуса» за 2020 рік [Рукопис] : щорічний звіт / ННЦ «ІСЕ ім. Засл. проф. М. С. Бокаріуса», Харків, 2020. С. 157–159.

proof process: if it is rejected or ignored by the authorized person, body.

Guiding principles for evaluation of evidence are the same at all stages of a criminal proceeding and stipulated by Art. 94 of the Criminal Procedural Code of Ukraine:

*“1. Investigator, public prosecutor, investigating judge, court evaluates evidence based on his own moral certainty grounded in comprehensive, complete, and impartial examination of all circumstances in criminal proceedings being guided by law, evaluates any evidence from the point of view of adequacy, admissibility, and in respect of the aggregate of collected evidence, sufficiency and correlation, in order to take a proper procedural decision.*

*2. No evidence shall have any predetermined probative value”<sup>6</sup>.*

Inner conviction of the investigator, prosecutor, judge is a strong confidence conditioned by them regarding the correctness of the assessment of all evidence, information and facts established while proceedings, accuracy of drawn conclusions on all issues that occurred during investigation.

Undoubtedly, inner conviction has dual nature, since it is, on the one hand, characterized by a certain subjectivity, because it is confidence of a particular person: criminal proceeding subject. On the other hand, it has an objective basis. This basis is evidence, its reliability and accuracy of drawn conclusions, which is the result of analysis and careful assessment of the whole set of factual data and

circumstances that have legal significance for adjudication of a case.

Similar to any other piece of evidence, forensic expert conclusion must be assessed in terms of adequacy, admissibility and credibility.

Conclusion adequacy means the possibility of its use in a proceeding to identify factual data and circumstances to be proved. As noted in the specialized literature, the adequacy of evidence is such an internal feature of it, through which this evidence is capable of determining circumstances needed for an exhaustive and proper resolution of a proceeding<sup>7</sup>.

Article 85 of the Criminal Procedural Code of Ukraine stipulates: *“Evidence is adequate if it directly or indirectly confirms the presence or absence of circumstances to be proved in criminal proceedings and other circumstances which are important for the criminal proceedings, as well as credibility or non-credibility, possibility or impossibility of using other evidence”<sup>8</sup>.*

The admissibility of forensic expert conclusion is one of its features which is characterized by compliance with the procedural order for appointment and conduct of the examination. It should also be emphasized that only those objects and source data that were obtained in accordance with procedural law may be subjected to research and application within the framework of forensic examination. In case of admissibility of using certain research objects, forensic expert conclusion is also recognized as inadmissible evidence and it loses its

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6 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 17.08.2021).

7 Грошевий Ю. М., Мірошніченко Т. М., Хоматов Ю. В., Альперт С. А., Сибільова Н. В. Кримінальний процес України : підруч. для студ. юрид. спец. вищих закл. освіти ; ред. Ю. М. Грошевий, В. М. Хотенець // НЮА України ім. Ярослава Мудрого, АПН України. Харків, 2000. 296 с.

8 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 17.08.2021).

provability. The conclusion must also be duly formalized, providing it with all required details stipulated by procedural law and other legal acts<sup>9</sup>.

In our opinion, the most successful formulation of evidence credibility is the following: “*evidence credibility is a feature of factual data that constitute the evidence content, to establish the presence or absence of circumstances essential for a criminal proceeding, based on the inner conviction of the subject of proof rested upon a comprehensive, exhaustive and impartial investigation of all circumstances of a criminal proceeding*”<sup>10</sup>.

As of today, there is no consensus in scientific communities about the possibility of a full and objective verification and assessment of forensic expert conclusion by investigator, prosecutor or the court. However, it should be stressed that the necessity of such assessment, its significance and role in further consideration of a case are supported and highlighted by scientists and law enforcement practitioners.

According to Yu. K. Orlov, forensic expert conclusion includes certain difficulties regarding its assessment for persons who do not possess specific expertise. He stresses that it leads to over-reliance on forensic expert conclusion, overestimation of its evidentiary value<sup>11</sup>.

A distinguished procedural scientist L. Ye. Vladymyrov supports the concept under which forensic expert conclusions are not subject to assessment by the court, since they are provided on the basis of specific scientific knowledge, for which

understanding profound knowledge in this area is required. He notes that since judges are free to choose an expert, they undoubtedly must view their conclusions as reliable and correct<sup>12</sup>.

A. R. Bielkin also does not agree on the fact that a person who does not possess specific expertise in a particular field of science (investigator, prosecutor, judge) can thoroughly and comprehensively assess forensic expert conclusion. The scientist notes that in specialized literature and guidelines for investigators and judges it is recommended to assess a conclusion on the basis of the expert’s competence, current level of applicable methods of investigation, logical and scientific validity of a conclusion, its exhaustiveness<sup>13</sup>.

The Plenum of the Supreme Court of Ukraine (hereinafter referred to as *the SC of Ukraine*) obliges courts to refer to the following assessment criteria when reviewing and assessing forensic expert conclusion:

- whether the requirements of legislation were met while appointment and conduct of an examination;
- whether there were circumstances that excluded participation of an expert in a case;
- the expert’s competence and whether he exceeded his authority;
- sufficiency of research objects submitted to the expert;
- exhaustiveness of answers to raised questions and their compliance with other factual data;

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9 Інструкція про призначення та проведення судових експертиз та експертних досліджень : затв. наказом Мін’юсту України від 08.10.1998 р. № 53/5 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 10.08.2021).

10 Сергеева Д. Б. Поняття та сутність достовірності доказу як його властивості. *Юрист України*. № 1 (26), 2014. С. 91.

11 Орлов Ю. К. *Op. cit.*

12 Владимиров Л. Е. *Учение об уголовных доказательствах*. Тула, 2000.

13 Белкин А. Р. *Теория доказывания : науч.-метод. пособ.* Москва, 1999. 429 с.

- consistency between the research part and the final conclusion of the examination;
- validity of forensic expert conclusion and its consistency with other case files <sup>14</sup>.

The analysis of the indicated above criteria regarding the assessment of forensic expert conclusion gives reasons to group them according to two directions: 1) criteria for assessing general procedural rules for appointment, conduct of an examination and compilation of forensic expert conclusion; 2) assessment criteria directly of forensic expert conclusion: its meaningful assessment.

A similar approach to the assessment of forensic expert conclusion also extends to legislation of other countries.

For example, the Supreme Court of the Republic of Poland referring to the assessment of forensic expert conclusion stresses that they are reliable findings. However, the court is obliged to analyze and assess a conclusion from the viewpoint of logical thinking principles, thoroughness of a research, thoroughness of materials submitted for research, accuracy and suitability of application of research methods in a specific case <sup>15</sup>.

In the light of the position of the Supreme Court of Poland, the scientist Robert Kaizer proposed to assess forensic expert conclusion under the following scheme. First, it seems necessary to determine whether a conclusion corresponds to its template, as well as its compliance with

rules of criminal procedure legislation. The next stage is analysis of a conclusion according to the criteria of thoroughness as well as additional criteria: ambiguity of forensic expert conclusions, existence of contradictions in a conclusion itself and other forensic expert conclusions. In case of non-compliance with a certain criterion, it is required to interrogate the expert, appoint additional examination or assign a research to another expert <sup>16</sup>.

There is no doubt that when examining and assessing a conclusion by investigator, prosecutor or the court, the most difficult part is a meaningful assessment of a conclusion, its scientific validity, compliance with forensic methods, as well as sufficiency of source data for conclusions, efficiency of methods and ways of research applied by the expert, compliance of conclusions with performed research <sup>17</sup>.

The use of reliable, time-tested and practiced forensic methods when checking and assessing forensic expert conclusion as a source of evidence: “*Validity of forensic expert conclusions and reliability of results depend on the reliability of applied methodologies*” <sup>18</sup>.

In 1993, the Supreme Court of the USA adopted rules (*Daubert ruling*) for judges regarding forensic examination conclusions. In particular, these rules stipulate that any forensic methodology should have a clearly defined risk of error. After that, the USA began to implement activities to ensure correspondence of

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14 Про судову експертизу в кримінальних і цивільних справах : Постанова Пленуму ВС України від 30.05.1997 р. № 8 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/v0008700-97#Text> (date accessed: 10.08.2021).

15 Kaczor R. Op. cit.

16 Ibid.

17 Головченко Л. Н. Некоторые вопросы оценки заключения криминалистической экспертизы следователем и судом. *Актуальные проблемы судебной экспертизы и криминалистики*. 1993. С. 49–52.

18 Сімакова-Єфремян Е. Б., Балинян Т. Є., Дереча Л. М. Op. cit.

methodological support of examinations with *Daubert ruling*<sup>19</sup>.

In 2009, following the conducted researches, the National Academy of Sciences of the USA published a report criticizing expert methodologies applied in criminal proceedings, identifying numerous mistakes made by forensic experts which resulted in illegal sentences. At the same, It was stressed that one of the reasons for passing such sentences is an uncritical attitude to assessing the scientific validity and objectivity of forensic experts<sup>20</sup> conclusions.

As M. H. Shcherbakovskyi notes, it is important to ensure conformity of the expert's conclusions to other evidence obtained while criminal proceedings. If there are no contradictions between final conclusions of the expert (experts) and materials of criminal proceedings, then a conclusion is used in proof. The existence of contradictions requires verification of a conclusion. Contradictions can be conditioned both by mistakes made by experts while expert research and by a bad quality of other evidence<sup>21</sup>.

However, verification for coherence and relevance of forensic expert conclusions with other evidence, facts and circumstances recorded in a criminal proceeding can result in significant difficulties and very often becomes a real issue for investigator and the court.

Expert research may identify new factual circumstances that have legal

significance for a case. That is, the expert can identify new evidence that is not in the case file, new signs of a criminal offense. The expert task may involve establishing factual data required for a proper classification of the offense. For example, the expert's definition of the category of work (high risk or not) in the course of which an accident happened, gives the investigator grounds to aptly classify a crime on the grounds of Art. 271 or 272 of the Criminal Code of Ukraine.

While performing investigation of electric shock accidents, the expert technically establishes the existence of cause-effect relation between actions/inaction of a particular official and the event. This fact established by an expert will form a basis for putting a person to justice.

An individual defining feature of forensic engineering examination of life safety is solution of prognostic tasks, when non-compliance with certain rules and regulatory requirements threatens death or injury or other severe consequences<sup>22</sup>. In this case, while research, the expert establishes certain elements of objective and subjective aspects of a crime from a technical point of view, which gives the investigator grounds to make corresponding procedural decisions.

As demonstrates the above, verification and assessment of forensic expert conclusion on relevance and consistency with other evidence in the case in such

19 Смирнова С. А., Усов А. И. . Повышение научной обоснованности методического обеспечения судебной экспертизы — один из важных международных трендов. *Теория и практика судебной экспертизы*. 2017. № 12 (2). С. 11–17.

20 Хазиев Ш. Н., Усов А. И. О докладе Национальной академии наук США «Об укреплении судебно-экспертной науки в США» и его значении для международного судебно-экспертного сообщества. *Ibid.* 2010. № 2 (18). С. 196–202.

21 Щербаковський М. Г. *Op. cit.* С. 368.

22 Мешков О. О. Об'єкт, предмет і завдання судової інженерно-технічної експертизи нещасних випадків, пов'язаних з електротравмуванням. *Теорія та практика судової експертизи і криміналістики*. 2019. Вип. 19. С. 367–378. DOI: 10.32353/khrife.1.2019.28 (date accessed: 10.08.2021).

cases will pose challenges for investigator or the court.

As of today, the procedural legislation stipulates separate mechanisms for solving such an indisputably complex, responsible and significant task as integrated assessment and verification of evidence for adequacy, admissibility and credibility. Such mechanisms include, in particular, questioning of the expert to obtain his clarifications as to a conclusion, appointment of a re-examination, etc.

The procedural aspect of interrogation of an expert in the court is stipulated by Part 3 of Article 356 of the Criminal Procedural Code of Ukraine, also this rule specifies that “*expert may be asked questions regarding his possession of special knowledge and qualification in the field of examination (education, working experience, scientific degree etc.), relevant to the subject of his expert examination; methods used, and theoretical developments; sufficiency of information based on which findings were prepared; scientific basis and methods used to arrive at the conclusion; applicability and correctness of application of principles and methods to facts of the criminal proceedings; and other questions relating to the reliability of findings*”<sup>23</sup>. Also, two or more experts may be interrogated in the court at the same time in certain conditions.

In accordance with para. 11 of the Resolution of the Plenum of the Supreme Court of Ukraine No. 8 dated on 30.05.1997:

“*Re-examination is appointed when there are doubts as to correctness of forensic expert conclusion, related to its lack of validity or contradiction with other case files <...>*

<...>

*The decree on re-examination appointment shall indicate circumstances raising doubts regarding correctness of previous conclusion of an expert.*

*Re-examination may be entrusted only to another expert”<sup>24</sup>.*

As we have seen, there are quite efficient mechanisms for assessing and verifying forensic expert conclusion aimed at seeking the objective truth in a case and are a guarantee of conclusion<sup>25</sup> correctness.

However, there are cases when interrogation of an expert does not allow for the elimination of certain inaccuracies and contradictions, does not convince the court in correctness of chosen methodology or methods of solving a task, and re-examination appointment delays consideration of this case or for some reason is impossible or impractical (for example, the lack of other forensic experts in this specialization). The court faces a difficult issue to verify conclusion correctness, especially when a research ultimately establishes elements of a crime and/or when there are no tested methodologies of such researches.

In practice, individual experts use peer review to verify and assess forensic expert conclusion.

The word *review* comes from the German *rezension*, Latin *recension*, English *review*, which means *examination, evaluation*. Generally speaking, a *review* is an analysis, study, a certain critical evaluation of a publication, work or product.

The procedure for reviewing forensic expert conclusions is regulated by the Procedure for reviewing forensic expert

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23 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 17.08.2021).

24 Про судову експертизу в кримінальних і цивільних справах ... . URL: <https://zakon.rada.gov.ua/laws/show/v0008700-97#Text> (date accessed: 10.08.2021).

25 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12> (date accessed: 03.08.2021).

conclusions approved by the order of the Ministry of Justice of Ukraine No. 335/5 dated on 03.02.2020 (hereinafter: *the Review Procedure*)<sup>26</sup>. According to this procedure, the purpose of reviewing forensic expert conclusion “*is to improve professional skills of experts, enhance quality and validity of their conclusions. Reviewing is not performed in order to refute or confirm conclusions [Emphasis added.— Author.]*”. Also, the Review Procedure stipulates that review should contain “*a detailed description of a conclusion concerning its compliance with the requirements of regulations on forensic activities and methodologies of forensic examinations*”<sup>27</sup>.

Therefore, reviewing forensic expert conclusion is not a tool through which forensic expert conclusion can be considered unreliable, inadmissible evidence and/or inaccurate.

The reviewer cannot refute or confirm a conclusion, and the Review Procedure does not provide for a review for consideration by the court or investigation.

Article 71 of the Criminal Procedural Code of Ukraine stipulates that “*specialist in criminal proceedings shall be a person who has specific expertise and skills necessary to use technical or other devices and who is able to consult during pre-trial investigation and trial on issues which require special knowledge and skills*”<sup>28</sup>. It is a specialist, as a person who possesses specific expertise in a particular field of science, can provide information about the technical feasibility, suitability of applying certain techniques to solve specific problems, to

report on modern methods and ways for their solution.

It is also essential that the specialist cannot assess forensic expert conclusion in terms of applied methods and ways to solve the expert task, since “*determining a method to perform an examination (choice of certain methodologies (research methods)) is the expert’s competence*”<sup>29</sup>.

Such advisory opinion provided by a specialist will serve as an additional, indirect tool for the authorized person or body to assess forensic expert conclusion in an integrated and meaningful way. Based on a comprehensive assessment of forensic expert conclusion, it is possible to make a certain procedural decision.

It is proposed to supplement Part 2 of Article 71 of the Criminal Procedural Code of Ukraine with provisions that a specialist may be involved to “*provide advisory opinion on technical feasibility and expediency of applying certain methodologies (methods, techniques) to solve specific tasks*”.

## Conclusions

Forensic expert conclusion which is a source of evidence stipulated by the Criminal Procedural Code of Ukraine, provided on the basis of certain specific expertise enables to identify circumstances related to fact in proof, as well as other circumstances that will be significant for court proceedings. Forensic expert conclusion as the most suitable form of specific expertise application, in most cases is a decisive means of evidence while pre-trial investigation or trial. However,

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26 Порядок проведення рецензування висновків судових експертів : затв. наказом Мін’юсту України від 03.02.2020 р. № 335/5. URL: <https://zakon.rada.gov.ua/laws/show/z0131-20#Text> (date accessed: 10.03.2021).

27 Ibid.

28 Кримінальний процесуальний кодекс України ... . URL: <https://zakon.rada.gov.ua/laws/show/4651-17#Text> (date accessed: 17.08.2021).

29 Інструкція про призначення та проведення судових експертиз та експертних досліджень ... . URL: <https://zakon.rada.gov.ua/laws/show/z0705-98#Text> (date accessed: 10.08.2021).

forensic expert conclusion, like any other evidence, does not have a predetermined value, so it should be examined on the basis of the principle of integrated evaluation of evidence based on the inner conviction of criminal proceeding participants. Verifying and assessing the validity of forensic expert conclusion should prevent the possibility of using poor quality research results.

It is proven that the analysis of forensic expert conclusion and its assessment pose significant challenges for people who do not possess specific expertise. Determining credibility of forensic conclusion results is the result of complex cognitive activities which are primarily associated with verifying validity and correctness of conclusions. In our opinion, effective tools for verifying forensic expert conclusion are the interrogation of an expert and the appointment of a re-examination or additional examination.

It is suggested to supplement Part 2 of Article 71 of the Criminal Procedural Code of Ukraine with provisions that a specialist may be involved to *“provide advisory opinion on technical feasibility and expediency of applying certain methodologies (methods, techniques) to solve specific tasks”*.

**Проблемні аспекти використання висновку експерта за результатами судової експертизи нещасних випадків електротравмування**  
*Олег Мешков*

*Розглянуто актуальну та водночас дискусійну тему використання висновку експерта за результатами судової експертизи нещасних випадків електротравмування.*

*Метою статті є аналіз проблемних питань, що виникають під час оцінки висновку експерта за результатами досліджень випадків електротравмування, і розроблення пропозицій щодо їх вирішення.*

*Оцінка та перевірка висновку експерта (як одного із джерел доказів) є неодмінною умовою неупередженості, об'єктивності й усебічності*

*проведення розслідування в межах кримінального провадження та судового розгляду справи. Оцінка та перевірка висновку складаються з вирішення двох загальних груп питань: 1) процесуальна оцінка; 2) змістовна оцінка.*

*Складність правильної змістовної оцінки висновку експерта з боку слідчих органів чи суду зумовлена тим, що вони не мають спеціальних знань у певній галузі науки й техніки. Зауважено, що вирішення такого питання особливо ускладнено через відсутність апробованих методик або під час застосування нових видів експертиз.*

*Визначено шляхи вирішення окремих складних аспектів змістовної оцінки висновку експерта з боку слідства чи суду, запропоновано внести певні зміни до процесуального законодавства щодо незалежного рецензування висновку експерта.*

**Ключові слова:** *судова інженерно-технічна експертиза; електротехнічна експертиза; експертиза з безпеки життєдіяльності; нещасні випадки, пов'язані з електротравмуванням; експертиза як джерело доказів.*

**Проблемные аспекты использования заключения эксперта по результатам судебной экспертизы несчастных случаев электротравмирования**  
*Олег Мешков*

*Рассмотрена актуальная и дискуссионная тема использования заключения эксперта по результатам судебной экспертизы несчастных случаев электротравмирования.*

*Оценка и проверка заключения эксперта как одного из видов доказательств, полученных на основании научных знаний, — непременное условие непредвзятого, объективного и всестороннего расследования в рамках уголовного производства и судебного рассмотрения дела. Оценка и проверка заключения состоят из решения двух общих групп вопросов: 1) оценка и проверка соблюдения процессуальных норм и требований при назначении и проведении судебной экспертизы, а также предоставление заключения эксперта — процессуальная оценка; 2) оценка и проверка правильности, научной обоснованности и достоверности проведенного исследования и сделанного заключения — оценка содержания.*

Сложность правильной оценки, а также проверки достоверности и научной обоснованности заключения эксперта со стороны следствия и суда обусловлена тем, что заключение — это умозаключение эксперта, сделанное на основании специальных знаний в определённой области науки и техники. Такими знаниями следователь и/или суд не обладают. Зачастую они не могут объективно оценить и проверить содержание заключения на предмет правильного применения методики, использованных способов и методов решения задания. Подчёркивается, что решение такого вопроса следствием или судом представляет особую сложность в отсутствие апробированных методик или же при проведении новых видов экспертиз.

В статье приведены отдельные аспекты проверки установленных в заключении фактических обстоятельств на согласованность их с иными обстоятельствами и доказательствами по делу. Акцентировано внимание, что проверить факты, установленные в процессе исследования несчастных случаев, связанных с электротравмированием, на согласованность с другими доказательствами по делу часто невозможно, особенно если экспертиза устанавливает такие фактические обстоятельства, которые иным образом установить невозможно, либо когда экспертиза устанавливает определённые элементы состава преступления.

Определены пути решения отдельных сложных аспектов оценки содержания заключения эксперта со стороны следствия или суда, предложено внести определённые изменения в процессуальное законодательство.

**Ключевые слова:** судебная инженерно-техническая экспертиза; электротехническая экспертиза; экспертиза безопасности жизнедеятельности; несчастные случаи, связанные с электротравмированием; экспертиза как источник доказательств.

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The author declares that he has no conflict of interest.

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## Features of postmortem interval evaluation for crime investigation

Edgar Grygorian \*<sup>a</sup>, Anzhela Stashchak \*\*<sup>b</sup>, Nima Rezaei \*\*\*<sup>c</sup>

\* PhD student, Kharkiv National Medical University, Kharkiv, Ukraine,  
ORCID: <https://orcid.org/0000-0001-5634-015X>

\*\* Associate Professor, Kharkiv National Medical University, Kharkiv, Ukraine,  
ORCID: <https://orcid.org/0000-0003-2854-4520>, e-mail: [ay.stashchak@knmu.edu.ua](mailto:ay.stashchak@knmu.edu.ua)

\*\*\* Professor, Tehran University of Medical Sciences, Tehran, Iran,  
ORCID: <https://orcid.org/0000-0002-3836-1827>

<sup>a</sup> Writing – original draft.

<sup>b</sup> Methodology, Conceptualization.

<sup>c</sup> Project administration, Supervision.

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*The work of police investigators includes investigation of violent deaths, which sometimes are of scarce evidence. The examination of corpse is essential in most of violent deaths cases; thus, there is a need to correctly evaluate signs on the corpse as soon as they could help investigators obtain important information about a murder. There could be various questions to be answered by forensic medical examiners; one of which is determination of time since death.*

*The study is aimed to present guidelines on choosing the method of evaluation of postmortem changes based on forensic medical data, in accordance with condition of the body, features of surroundings and other factors that have to be noted at the place of corpse finding. Guidelines are composed in accordance with current legal procedures on forensic medical examinations.*

**Keywords:** *forensic examination of corpses, forensic thanatology, time since death, postmortem interval evaluation.*

## Formulation of Research Problem

Forensic examination of corpses is mainly based on Order № 6 of Ministry of Health of Ukraine: *On the development and improvement of the forensic service of Ukraine*<sup>1</sup>. During the external examination, the presence of injuries and some features of the corpse should be outlined. The time of death is usually evaluated in accordance with recommendations<sup>2</sup>, using livor mortis dynamometry and rectal temperature measurement. However, the results of time interval evaluation using abovementioned methods could be affected by various external factors and some individual features of the corpse. Also, there are some limitations for time intervals for those methods. Therefore, there is a need to use specific methods for each case of corpse examination at the place

of corpse finding, depending on different features, such as surroundings, corpse, presence and development of putrid changes.

## Analysis of Essential Researches and Publications

The analysis of different methods of postmortem interval (PMI) evaluation had been performed by M. S. Bokarius<sup>3</sup>, R. Shrestha, T. Kanchan, K. Krishan<sup>4</sup>; entomology-based methods of PMI determination were studied by M. Harvey, N. Gasz, S. Voss<sup>5</sup>, R. Sharma, R. K. Garg, J. R. Gaur<sup>6</sup>; histochemical methods of PMI assessment were studied by C. Guerrero-Urbina, M. del Sol, G. M. Fonseca<sup>7</sup>, R. Elgawish et al.<sup>8</sup>, H. F. A. Salam et al. studied thanatochemical methods of PMI evaluation<sup>9</sup>.

- 1 Про розвиток та вдосконалення судово-медичної служби України : наказ Міністерства охорони здоров'я України від 17.01.1995 р. № 6. URL: <https://zakon.rada.gov.ua/laws/show/z0248-95#Text> (date accessed: 29.09.2021).
- 2 Гуров О. М., Кондратенко В. Л., Бурчинський В. Г., Гладких Д. В. Сучасний алгоритм судово-медичної діагностики давності настання смерті у ранній постмортальний період : метод. рек. Київ : [б. в.], 2017. 36 с.
- 3 Бокариус Н. С. Сведения к практическим работам, необходимые при выполнении и сдаче их студентами медицинского факультета Харьковского университета на производимых ими практических занятиях по судебной медицине. Вып. 13. Сведения к составлению протокола судебно-медицинского вскрытия. Харьков, 1918. 16 с. ; Его же. Первоначальный наружный осмотр трупа при милицейском и розыском дознании. Харьков, 1925. 542 с.
- 4 Shrestha R., Kanchan T., Krishan K. Methods of Estimation of Time Since Death. *StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing*. 2021. URL: <https://www.ncbi.nlm.nih.gov/books/NBK549867> (date accessed: 29.09.2021).
- 5 Harvey M., Gasz N., Voss S. Entomology-based methods for estimation of postmortem interval. *Research and Reports in Forensic Medical Science*. 2016. Vol. 6. Pp. 1–9. DOI: 10.2147/RRFMS.S68867 (date accessed: 29.09.2021).
- 6 Sharma R., Garg R. K., Gaur J. R. Various methods for the estimation of the post mortem interval from Calliphoridae: A review. *Egyptian Journal of Forensic Sciences*. 2015. Vol. 5. Is. 1. Pp. 1–12. DOI: 10.1016/j.ejfs.2013.04.002 (date accessed: 29.09.2021).
- 7 Guerrero-Urbina C., Sol M. del, Fonseca G. M. Histochemical and Immunohistochemical Methods for the Postmortem Interval Estimation in Human Tissues: A Review. *International Journal of Morphology*. 2020. Vol. 38. No. 2 Pp. 241–246. DOI: 10.4067/S0717-95022020000200241 (date accessed: 29.09.2021).
- 8 Elgawish R., Abdelrazek H. M., Desouky A., Mohamed R. M. Determination of postmortem interval through histopathological alterations and collagen evaluation in the prostate of Wistar albino rats. *Zagazig Journal of Forensic Medicine and Toxicology*. 2021. Vol. 19. Is. 2. Pp. 1–12. DOI: 10.21608/ZJFM.2021.63677.1071 (date accessed: 29.09.2021).
- 9 Salam H. F. A., Shaat E. A., Abdel Aziz M. H., MoneimSheta A. A., Mohammed Hussein H. A. S.

## Article Purpose

To present guidelines on choosing the method of evaluation of postmortem changes based on forensic medical data, in accordance with condition of the body, features of surroundings and other factors that have to be noted at the place of corpse finding, in compliance with current legislation on forensic examination of the corpse.

## Main Content Presentation

According to Order № 6 of Ministry of Health of Ukraine, forensic examination of the corpse should be recorded in the protocol, including circumstances of a case, summarized information related to examination, information from medical and other documents.

The usage of livor mortis dynamometry for PMI evaluation could be not sufficiently precise after 12 hours after the death. Angi M. Christensen et al. noted that livor mortis typically manifests itself around thirty minutes to four hours after death, and is most pronounced approximately twelve hours after death<sup>10</sup>. Stephanie R. Dillon in her course titled: *Chemistry for Liberal Studies – Forensic Academy* denotes that “livor mortis does not have very precise measurement of the time of death after 12 hours; so, it is also less helpful on bodies found days or weeks after the death”. In one of the last studies

in this field, Yosuke Usumoto et al., using spectrophotometric blood-color values, determined accuracy of postmortem interval:  $\pm 8.84$  hours, without considering the age of the deceased<sup>11</sup>. To conclude, the study of livor mortis is showing that the degree of postmortem interval preciseness calculated based on livor mortis could not satisfy the needs of crime investigators in some cases.

When it comes to PMI measurement using temperature drop, algor mortis, the study made by Henssge et al. showed the need to collect additional information about body weight, thickness and quantity of clothing layers on the corpse, bedding of the corpse – the place the corpse laid on, dry or wet air, still or flowing air; thus, the effect of these factors on the corpse's temperature drop could be taken into account while calculating the time since death<sup>12</sup>. Surely, in order to retrieve such information, there is a need for additional instruments to measure all those parameters precisely enough to obtain the correct postmortem interval, which requires providing forensic examiners with all necessary equipment to make such evaluations.

Methods of postmortem interval evaluation, which are based on histological, biochemical and immunohistochemical changes in the corpse, show the possibility of their application in late postmortem interval, when most of currently used methods

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Estimation of postmortem interval using thanatochemistry and postmortem changes. *Alexandria Journal of Medicine*. 2012. Vol. 48. Is. 4. Pp. 335–344. DOI: 10.1016/j.ajme.2012.05.004 (date accessed: 29.09.2021).

- 10 Christensen A. M., Passalacqua N. V., Bartelink E. J. *Forensic Anthropology: Current Methods and Practice*. Amazon.com Services LLC, 2014.
- 11 Usumoto Y., Kudo K., Tsuji A., Ihama Y., Ikeda N. Predictive equation to estimate post-mortem interval using spectrophotometric blood-colour values. *Medicine, Science and the Law*. 2019. Vol. 59. Is. 1. Pp. 36–41. DOI: 10.1177/0025802418819611 (date accessed: 29.09.2021).
- 12 Henssge C., Madea B. Estimation of the time since death in the early post-mortem period. *Forensic Science International*. 2004. Vol. 144. Is. 2–3. Pp. 167–175. DOI: 10.1016/j.forsciint.2004.04.051 (date accessed: 29.09.2021).

couldn't be used<sup>13</sup>. Scientists marked the possibility to determine PMI up to 6 days after the death, evaluating the morphological changes in some internal organs.

Usage of computer programs for evaluating histological slides is perspective, and artificial intelligence programs which are already effectively used, for example, in oncology, could be implemented in work of forensic histologists as well.

Usage of computer programs allowing a forensic examiner to combine several methods to get more accurate results was described in modern publications on PMI topic. For example, Cristina Cordeiro et al. have developed a computer program which calculates time since death by estimating biochemistry of the vitreous humor, temperature and body weight<sup>14</sup>. José I. Muñoz-Barús et al. developed program which measures the concentrations of potassium, hypoxanthine and urea in the vitreous humor<sup>15</sup>.

## Conclusions

The work of forensic examiners while evaluating corpse time of death must involve various factors which should be noted for each case. In order to obtain precise results, several methods should be used. The usage of computer programs or mobile applications for this purpose could facilitate and faster its implementation for forensic examiners.

### Особливості оцінювання посмертного інтервалу для розслідування злочинів

Едгар Григорян, Анжела Стаццак,  
Німа Резаї

*Поміж інших, до обов'язків слідчих поліції належить розслідування насильницьких смертей, коли бракує інформації про особливості настання смерті. Огляд трупа необхідний у більшості випадків настання насильницької смерті, саме тому існує потреба у правильному оцінюванні різноманітних ознак на трупі, оскільки це може допомогти слідчим — надати важливу інформацію про вбивство, якщо таке сталося. До судово-медичних експертів можуть виникнути різні запитання, одним з яких є визначення давності настання смерті.*

- 13 Григорян Е. К., Мирошниченко М. С. Особливості післясмертних морфологічних змін матки. *Morphologia*. 2020. Т. 14. № 4. С. 90—94 ; Elgawish R., Abdelrazek H. M., Desouky A., Mohamed R. M. *Ibid*. DOI: 10.21608/ZJFM.2021.63677.1071 (date accessed: 29.09.2021) ; Salam H. F. A., Shaat E. A., Abdel Aziz M. H., Moneim Sheta A. A., Mohammed Hussein H. A. S. *Ibid*. DOI: 10.1016/j.ajme.2012.05.004 (date accessed: 29.09.2021) ; Olkhovsky V., Grygorian E., Myroshnychenko M., Kozlov S., Suloiev K., Polianskyi A., Kaplunovsky P., Fedulenkova Yu., Borzenkova I. Morphological features of the uterus in women at different time intervals of the postmortem period as diagnostic criteria for establishing the postmortem interval. *Wiadomości Lekarskie*. 2021. Vol. 74. Is. 4. Pp. 821—827 ; Коновал Н. С. Закономірності постмортальних структурно-біохімічних змін м'язової тканини діафрагми: значення для судово-медичної діагностики давності настання смерті. *Актуальні проблеми сучасної медицини: Вісник Української медичної стоматологічної академії*. 2019. Т. 19. № 1 (65). С. 71—77. DOI: 10.31718/2077-1096.19.1.71 (date accessed: 29.09.2021).
- 14 Cordeiro C., Ordóñez-Mayán L., Lendoiro E., Febrero-Bande M., Vieira D. N., Muñoz-Barús J. I. A reliable method for estimating the postmortem interval from the biochemistry of the vitreous humor, temperature and body weight. *Forensic Science International*. 2019. Vol. 295. Pp. 157—168. DOI: 10.1016/j.forsciint.2018.12.007 (date accessed: 29.09.2021).
- 15 Muñoz-Barús J. I., Rodríguez-Calvo M. S., Suarez-Peñaranda J. M., Vieira D. N., Cadarso-Suárez C., Febrero-Bande M. PMICALC: an R code-based software for estimating post-mortem interval (PMI) compatible with Windows, Mac and Linux operating systems. *Ibid*. 2009. Vol. 194. Pp. 49—52. DOI: 10.1016/j.forsciint.2009.10.006 (date accessed: 29.09.2021).

Метою цього дослідження є надання рекомендацій щодо використання методів оцінювання посмертних змін за даними судово-медичної експертизи відповідно до стану тіла, особливостей навколишнього середовища місця події й решти чинників, які необхідно зафіксувати на місці знаходження трупа. Методичні рекомендації, уміщені у цьому матеріалі, складено відповідно до вимог чинного законодавства, яке визначає правила й порядок проведення судово-медичних експертиз.

**Ключові слова:** судово-медична експертиза трупів; судово-медична танатологія; давність настання смерті; оцінювання посмертного інтервалу.

**Особенности оценивания давности наступления смерти для расследования преступлений  
Эдгар Григорян, Анжела Стащак,  
Нима Резаи**

Помимо прочего в обязанности следователей полиции входит расследование насильственных смертей, когда недостаточно информации об особенностях наступления смерти. Осмотр трупа необходим в большинстве случаев наступления насильственной смерти, именно поэтому существует необходимость в правильном оценивании различных признаков на трупе, поскольку это может помочь следователям предоставить важную информацию об убийстве, если таковое имело место. К судебно-медицинским экспертам могут возникнуть разные вопросы, одним из которых является определение давности наступления смерти.

Целью настоящего исследования является предоставление рекомендаций по использованию методов оценивания посмертных изменений по данным судебно-медицинской экспертизы в соответствии с состоянием тела, особенностями окружающей среды места происшествия и другими факторами, которые необходимо зафиксировать на месте нахождения трупа. Методические рекомендации, содержащиеся в этом материале, составлены в соответствии с действующим законодательством, определяющим правила и порядок проведения судебно-медицинских экспертиз.

**Ключевые слова:** судебно-медицинская экспертиза трупов; судебно-медицинская танатология; давность наступления смерти; оценивание посмертного интервала.

тология; давность наступления смерти; оценивание посмертного интервала.

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### Contributors

The authors contributed solely to the intellectual discussion underlying this paper, case-law exploration, writing and editing, and accept responsibility for the content and interpretation.

### Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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# Effective administrative and legal regulation of forensic activities in the context of European integration

Inessa Ovsiannykova \*

\* PhD Student, National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Kharkiv, Ukraine, ORCID: <https://orcid.org/0000-0002-3351-7781>, e-mail: [hniise@hniise.gov.ua](mailto:hniise@hniise.gov.ua)

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*Effective administrative and legal regulation of forensic activity depends on the goals and objectives. Ukrainian society began to radically restructure its national system of law, enshrining the principle of the rule of law in the Constitution in 1996 and ratifying in 1997 the Convention for the Protection of Human Rights and Fundamental Freedoms.*

*This article purpose is to define the main goals and objectives of the state to ensure effective forensic activities in the context of European integration.*

*Ukrainian obligations to European community to build a developed and sustainable democracy and market economy require it, first of all, to focus the entire national system of law on such European values as democracy, respect for people and fundamental rights and freedoms, the rule of law, etc. For our state, the principle of the rule of law is related to the practice of the European Union, therefore, the main strategic direction is European integration.*

*Within the framework of European cooperation, the field of justice in general and law enforcement and judicial authorities in particular are acquiring particular importance. Effective implementation of judicial reform and the fight against corruption are currently the priority areas of our state on the way to European integration.*

*An important part of implementation of this goal is creation of a modern system of forensic science support of justice that should function effectively through the timely and proper implementation of the goals and objectives set before the subjects of forensic science.*

This article is translation of the original Ukrainian content, which source is available at the link: <https://khrife-journal.org/index.php/journal> (translation by Andriy Bublikov). The author acknowledges translation as corresponding to the original.

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**Keywords:** efficiency; administrative and legal regulation; forensic science activity; goals; tasks; European integration.

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## Research Problem Formulation

Recently, the main and constant foreign policy priority of Ukraine is European integration. Prospect of Ukrainian membership in the European Union (hereinafter referred to as EU) sets the vector for strategic transformation in the country aimed at the European model of socio-economic and political development. Following the course of the EU membership enshrined in the Constitution, Ukraine is directing its legislative path in accordance with European requirements. Modern democracies in many European countries adhere to the basic principles of a liberal political system: constitutionalism, separation of powers, individual freedom, human rights, minority autonomy, etc.<sup>1</sup> Bringing the legislation of our country in line with the *acquis communautaire* (achieving European integration in political, legal and economic field based on European common values) is a necessary condition for full European integration and a basis for the growth of national economy and living standards of Ukrainians.

Reforming and adapting national legislation to European standards raises the issue of effectiveness of administrative and legal regulation of forensic science consisting

in correctness of defining the cornerstones, functions and tasks of regulation depending on the main State policies in this area. achievements in due time.

## Analysis of Essential Researches and Publications

Development of a modern democratic state governed by the rule of law is directly related to a comprehensive judicial reform requiring certain steps to be taken to increase efficiency of forensic science activity. Currently the justice system in Ukraine is in the process of reform, primarily due to the crisis of legitimacy. Given that this system is a determining element of the national mechanism of legal protection, the level of its legality is an indicator of the effectiveness of judiciary through the prism of Art. 3 of the Constitution of Ukraine, according to the establishment and protection of human rights and freedoms is the main duty of the State. According to <sup>2</sup>O. I. Zharebko, the reform of the judicial system, approximation of Ukrainian legislation to international standards involves not only changes in all areas of legislation, but improvement of legislation regulating forensic activities <sup>3</sup>.

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- 1 Plakhotniuk N., Koruts U., Doroshenko E. Constitutional Restriction on Human Rights and Freedoms in the Development of Liberal Democracy in Europe. *Access to Justice in Eastern Europe*. 2021. Vol. 3. № 11. P. 131. DOI: 10.33327/AJEE-18-4.3-n000075 (date accessed: 29.09.2021).
  - 2 Stefanchuk M., Hladun O., Stefanchuk R. Establishing Trust in the Court in Ukraine as a Strategic Task for Judicial Reform. *Access to Justice in Eastern Europe*. 2021. Vol. 3. № 11. P. 102. DOI: 10.33327/AJEE-18-4.3-n000073 (date accessed: 29.09.2021).
  - 3 Жеребко О. І. Сутність й зміст судово-експертної діяльності: вітчизняний досвід. *Теорія та практика судово-експертної діяльності* : зб. мат-лів VIII міжвідом. наук.-практ. конф. (Київ, 27.11.2019). Київ, 2019. С. 152. URL: [http://elar.naiu.kiev.ua/bitstream/123456789/15401/1/zbirnyk\\_27\\_11\\_19.pdf](http://elar.naiu.kiev.ua/bitstream/123456789/15401/1/zbirnyk_27_11_19.pdf) (date accessed: 04.03.2021).

T. O. Kolomojets and P. A. Baranchyk note that the problem of the rule of law (in modern world trends of globalization) goes beyond state borders. Scholars note that significant prospects in modern Ukraine are possible in a combination of external and internal dimensions of awareness of the rule of law and focus on its theoretical and practical aspects in the state, in particular on its implementation in public administration<sup>4</sup>. Other scholars believe that international cooperation between forensic institutions is important for the implementation of the rule of law, which will improve judicial activity and the quality of forensic science as one of the main forms of using specific knowledge in modern justice<sup>5</sup>. E. B. Simakova-Yefremian has a similar opinion, arguing that globalization increases the interdependence of the countries of the world and turns them into a single global organism. Without avoiding development of law and jurisprudence, the processes of globalization have their own specifics in various fields including in the field of forensic science. The processes of globalization in this area should be implemented according to the scientist, primarily through the adaptation of national legislation governing forensic activities to European and through unification of all

forensic institutions of Ukraine methods of expert researches by accrediting in accordance with international quality standards<sup>6</sup>.

N. I. Klimenko and O. A. Kuprievich also note the impossibility of the existence of forensic examination within a separate state. They emphasize compliance of forensic activities of states not only with national principles, but with international legal and professional standards. Emphasize that forensic expert conclusion of one State should have probative value for foreign courts<sup>7</sup>.

According to Professor O. M. Kliuiev, one of the means of creating a system of human rights and freedoms is the effective introduction of traditional and new types of forensic examinations with active use of international legal instruments of the Council of Europe on justice that is impossible without comprehensive research based on systematic analysis of forensic activities<sup>8</sup>.

Analysis of scientific opinions demonstrates that most scholars consider forensic activity to be extremely important in every democratic state for the effective and high-quality protection of human and civil rights and freedoms without their violation<sup>9</sup>. Introduction of European

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- 4 Коломоець Т. О., Баранчик П. О. Принципи адміністративного права : монографія. Запоріжжя, 2012. С. 69.
  - 5 Filipenko N., Spitsyna H., Shynkarenko I., Tsybalytyi V. Implementation of Preventive Activity; Foreign Experience in Criminological Work of Forensic Science Institutions. *Electronic Scientific Journal Socrates*. 2021. Vol. 1. № 19. P. 35. DOI: 10.25143/socr.19.2020.1.032-038 (date accessed: 29.09.2021).
  - 6 Сімакова-Єфреміан Е. Б. До питання про взаємозалежність європейських інтеграційних процесів і тенденцій інтеграції спеціальних знань в Україні. *Теорія та практика судової експертизи і криміналістики*. 2017. Вип. 17. С. 152–158.
  - 7 Клименко Н. І., Купрієвич О. А. Міжнародне співробітництво судово-експертних установ. *Вісник кримінального судочинства*. 2015. № 4. С. 131.
  - 8 Ключев О. М. Удосконалення експертного забезпечення правосуддя: теоретичні, правові та організаційні аспекти. *Теорія та практика судової експертизи і криміналістики*. 2019. Вип. 19. С. 102–117. DOI: 10.32353/khrife.1.2019.08 (date accessed: 29.09.2021).
  - 9 Див., напр.: Олійник О. О. Зарубіжний досвід адміністративно-правового регулювання судово-експертної діяльності. *Митна справа*. 2013. № 4 (88). С. 270 ; Русецький А. А. Про

standards for the protection of human rights and freedoms should direct the views of the scientific community to a more careful study of issues related to the development of theoretical foundations of forensic expertise, methods of conducting certain types of forensic examinations, administrative and legal support of forensic activities.

### Article Purpose

Identify the main goals and objectives of the state to ensure effective forensic activities in the context of European integration.

### Main Content Presentation

One of requirements for completing Ukrainian transition to an efficient market economy is the gradual integration of its administrative and legal norms into EU legislation. Accordingly, Ukrainian strategic goal is European integration and membership in the European Union, as this is the best way to realize national interests and build an economically developed and democratic state, as well as strengthen its position in the world system of international relations <sup>10</sup>. In order to speed up Ukraine European integration, citizens can vote for political

forces that clearly declare their support for European integration, actively express their position demanding that Verkhovna Rada of Ukraine adopt the necessary laws and the rest of the authorities (including local ones) their implementation. Analysis of statistical data shows that the majority of Ukrainians support the State strategy aimed at European integration (national level of support ranges from 60 to 70 %) <sup>11</sup>.

For achieving this goal (Ukrainian accession to the EU), our State as a candidate should go through several stages:

- fulfillment by a certain term of the terms of the Association Agreement between Ukraine, on the one hand, and European Union, European Atomic Energy Community and their Member States, on the other hand;
- achieving compliance with the conditions of EU membership (the so-called Copenhagen criteria), namely: ensuring the stability of democracy in the country, the rule of law, respect for human rights and protection of minority rights. It is also important to share the EU global policy and economic goals, in particular: adhere to the market economy principles

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організацію судово-експертної діяльності: міжнародний аспект. *Теорія та практика судової експертизи і криміналістики*. 2017. Вип. 17. С. 160 ; Олійник О. О., Галунько В. В., Єщук О. М. Адміністративно-правове регулювання судово-експертної діяльності : монографія. Херсон, 2015. С. 10 ; Скорик А. Л., Бірюков М. А. *Теорія і практика судової експертизи і криміналістики* : мат-ли III Всеукр. наук.-практ. конф. (Київ, 27.02.2020). Київ ; Маріуполь, 2020. С. 269.

10 Корнеев С. М. Сучасні проблеми розвитку судової експертизи в аспекті євроінтеграції України. *Судово-експертна діяльність: сучасний стан та перспективи розвитку* : зб. мат-лів круглого столу (Київ, 23.04.2015). Київ, 2015. С. 180–183. URL: <https://www.naiu.kiev.ua/news/sudovo-ekspertna-diyalnist-suchasnij-stand-ta-perspektivi-rozvitku.html> (date accessed: 04.03.2021).

11 Суспільно-політичні орієнтації населення України (за даними Київського міжнародного інституту соціології за квітень 2020 р.). URL: [https://www.kiis.com.ua/materials/pr/20200406\\_pressconf/politics\\_april%202020.pdf](https://www.kiis.com.ua/materials/pr/20200406_pressconf/politics_april%202020.pdf) (date accessed: 10.03.2021).

with a significant share of small business, to have a developed infrastructure, quality education and science<sup>12</sup>.

Important feature of European integration is also a clear definition of goals and a sequence of stages of convergence of political, legal and social and economic systems of member states<sup>13</sup>.

Following the bilateral summit of Ukraine and the EU, held on October 6, 2020 in Brussels (Belgium), the European Union recognized the significant progress of our country towards this goal and agreed on the need to further accelerate efforts to achieve European integration goals and further reforms. At the same time, the text of the *Joint Statement following the 22nd EU-Ukraine Summit* states: “providing strong and independent anti-corruption institutions”<sup>14</sup>. This position indicates the insufficiency of Ukraine efforts to achieve its goals and objectives related to judicial reform and the fight against corruption and the priority of this area. That is why one of the priorities in the relations between Ukraine and the EU is cooperation in the field of justice.

Currently, a comprehensive reform of justice continues in Ukraine. Legal cooperation between Ukraine and the

EU in this area is aimed at building trust in the Ukrainian judicial system within the country and among international partners. The aim of such cooperation is to expand the pan-European area of justice and security which would guarantee sustainable development of interpersonal relations and business relations between the citizens of Ukraine and the EU<sup>15</sup>.

One of the main international legal instruments aimed at establishing and developing international cooperation between Ukraine and the EU is the Association Agreement between Ukraine, on the one hand, and the European Union, the European Atomic Energy Community and their Member States, on the other hand, in its preamble states that the political association and economic integration of our country with the EU will depend on Ukraine’s achievements in ensuring respect for common values and progress in approaching the EU in the political, economic and legal spheres, in particular in the field of justice<sup>16</sup>. The agreement also stipulates that cooperation in the field of justice will be based on the principles of fundamental freedoms and respect for human rights and within the framework of cooperation in the field of justice will be of particular importance strengthening the

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12 Коли Україна стане членом Європейського Союзу? (за даними Урядової кампанії ЕУКРАїна). URL: [https://association4u.in.ua/?utm\\_source=search&utm\\_medium=cpc&utm\\_campaign=association4u\\_search\\_mpb&utm\\_term=21.12.20&gclid=Cj0KCQiA1pyCBhCtARIsAHaY\\_5eATqpxz-0LNxnsKcLWlrPbqFS4f3imPdqqDRnD\\_a5ksTzBzEJ0SPwAaAhLHEALw\\_wcB#european\\_integration](https://association4u.in.ua/?utm_source=search&utm_medium=cpc&utm_campaign=association4u_search_mpb&utm_term=21.12.20&gclid=Cj0KCQiA1pyCBhCtARIsAHaY_5eATqpxz-0LNxnsKcLWlrPbqFS4f3imPdqqDRnD_a5ksTzBzEJ0SPwAaAhLHEALw_wcB#european_integration) (date accessed: 10.03.2021).

13 Яковюк І. В. Правові основи європейської інтеграції та її вплив на державно-правовий розвиток України : дис. ... д-ра юрид. наук. Харків, 2014. С. 44.

14 Проект плану дій між Україною та ЄС у сфері юстиції та внутрішніх справ: практичний результат до 2025 року. URL: <https://minjust.gov.ua/m/proekt-planu-diy-mij-ukrainouyta-es-u-sferi-yustitsii-ta-vnutrishnih-sprav-praktichniy-rezultat-do-2025-roku> (date accessed: 12.03.2021).

15 Ibid.

16 Угода про асоціацію між Україною, з однієї сторони, та Європейським Союзом, Європейським співтовариством з атомної енергії і їхніми державами-членами, з іншої сторони : ратифіковано із заявою Законом України від 16.09.2014 р. № 1678-VII (зі змін. та допов.). URL: [https://zakon.rada.gov.ua/laws/show/984\\_011#Text](https://zakon.rada.gov.ua/laws/show/984_011#Text) (date accessed: 12.03.2021).

rule of law and strengthening institutions 14, section III) which corresponds to the constitutional principles of Ukraine. Reflecting the subordination of the state and its institutions (public authorities, officials and officials) to the law and its rule over, these principles become a priority in the rule of law.

At the same time, establishment of the rule of law and the strengthening of institutions at all levels in the field of governance in general and law enforcement and judicial bodies in particular is impossible without cooperation in the field of forensic science<sup>17</sup>.

The central executive body that implements the state legal policy on expert support of justice in Ukraine is the Ministry of Justice of Ukraine (hereinafter referred to as *Minjust*)<sup>18</sup>, according to the strategic plan of which one of its strategic goals is to create a modern system of expert justice. Effective solution of this strategic goal requires the following main tasks:

- ensuring the principle of independence of forensic activity while forensic examinations in criminal proceedings, cases of administrative offenses, as well as civil and commercial cases;
- application of uniform methodological approaches to forensic examinations<sup>19</sup>;

- comprehensive updating of the regulatory framework governing the implementation of forensic activities;
- equalization of powers of private and state forensic experts and increasing the level of competition between;
- implementation of international standards in forensic examinations (in particular, due to the provision of forensic research institutions with modern forensic equipment)<sup>20</sup>.

Identifier of achievements of the strategic program is the effectiveness of forensic science activity confirmed by the degree of achievement by the subjects of the set goals and objectives.

In accordance with current legislation governing forensic activities in the State, such activities are carried out by specialized state institutions of Ukraine and their territorial branches, forensic science institutions of communal ownership. Such activities can be carried out by forensic experts who are not employees of State forensic science institutions and other professionals (forensic experts) in the relevant fields of knowledge on the terms and in manner specified in Part 1 of Art. 7 of the Law of Ukraine: *On Judicial Examination*<sup>21</sup>. At the same time, this Law emphasizes the importance of conducting

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17 Овсянникова І. М. Судово-експертна діяльність як об'єкт адміністративно-правового регулювання. *Теорія та практика судової експертизи і криміналістики*. 2020. Вип. 21. С. 274. DOI: 10.32353/khrife.1.2020.017 (date accessed: 12.03.2021).

18 Положення про Міністерство юстиції України : Постанова КМУ від 02.07.2014 р. № 228 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/228-2014-%D0%BF>. (date accessed: 12.03.2021).

19 Стратегічний план діяльності Міністерства юстиції України на 2019—2022 роки (за даними Міністерства юстиції України). URL: [https://minjust.gov.ua/objectives\\_of\\_public\\_policy](https://minjust.gov.ua/objectives_of_public_policy) (date accessed: 12.03.2021).

20 План діяльності Міністерства юстиції України на 2021—2023 роки (за даними Міністерства юстиції України). URL: [https://minjust.gov.ua/objectives\\_of\\_public\\_policy](https://minjust.gov.ua/objectives_of_public_policy) (date accessed: 12.03.2021).

21 Про судову експертизу : Закон України від 25.02.1994 р. № 4038-XII (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/4038-12#Text> (date accessed: 04.03.2021).

only forensic, forensic medical and forensic psychiatric examinations by state specialized institutions, which makes these institutions the main subjects of forensic activity.

Accordingly, Part 2 of Art. 7 of the mentioned Law, state specialized institutions include: research institutions of forensic examinations of the Ministry of Justice of Ukraine; research institutions of forensic examinations, forensic medical and forensic psychiatric institutions of the Ministry of Healthcare of Ukraine; expert services of the Ministry of Internal Affairs of Ukraine (hereinafter referred to as *MIA of Ukraine*), Ministry of Defense of Ukraine, Security Service of Ukraine (hereinafter referred to as *SBU*) and the State Border Guard Service of Ukraine<sup>22</sup>.

Analysis of the current legislation of Ukraine indicates that purpose and objectives of state specialized institutions are determined by their statutes and/or regulations on , they should be consistent with the following core values administered by Minjust: rule of law; ensuring respect for human and civil rights and freedoms; legality; openness and transparency; responsibility and accountability; professionalism and continuous improvement<sup>23</sup>.

For example, the purpose of the National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute»(hereinafter referred to as *NSC «Hon. Prof. M. S. Bokarius FSI»*) of the Ministry of Justice of Ukraine (according to its statute) is to meet the needs of pre-trial investigation bodies, judicial bodies, other

state bodies, as well as legal entities and individuals in ensuring their independent, qualified and effective expertise focused on the maximum use of the achievements of science and technology<sup>24</sup>. For achieving this goal, NSC «Hon. Prof. M. S. Bokarius FSI» carries out activities aimed at improving the effectiveness of research in the field of theory and practice of forensics and criminology, development and improvement of methodology and methods of forensic science to maximize its capabilities while pre-trial investigation and trial in criminal proceedings , hearing civil, commercial, administrative cases and cases of administrative offenses, enforcement proceedings, as well as in resolving issues that require the application of specific expertise outside legal proceedings<sup>25</sup>.

The main tasks of NSC «Hon. Prof. M. S. Bokarius FSI» include:

- 1) direct forensic examinations (in particular, related to the assessment of property rights and property, as well as the study of narcotic drugs and psychotropic substances, their analogues and precursors), appointed in criminal proceedings, commercial, civil, administrative cases, cases of administrative offenses and while enforcement proceedings;
- 2) conducting forensic researches (which results are formalized as forensic research conclusions) with the use of means and methods of forensic science, carried out at request of individuals or legal entities (in particular, assessment of property and property rights);

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22 Ibid.

23 Бачення, місія, цінності (за даними Міністерства юстиції України). URL: <https://minjust.gov.ua/pages/mission> (date accessed: 12.03.2021).

24 Статут Національного наукового центру «Інститут судових експертиз ім. Засл. проф. М. С. Бокаріуса» (за даними ННЦ «ІСЕ ім. Засл. проф. М. С. Бокаріуса»). URL: <https://www.hniise.gov.ua/14136-statut.html> (date accessed: 10.03.2021).

25 Ibid.

- 3) researches in the field of forensic science, criminalistics and practical implementation of obtained results in expert, investigative and legal proceedings;
- 4) ensuring functioning of the Ministry of Justice of Ukraine and other state bodies in the manner prescribed by law;
- 5) training of highly qualified staff in the field of forensic science, criminalistics and law;
- 6) training of professionals in the field of forensic science in order to assign (confirm) forensic expert qualification;
- 7) carrying out scientific and methodical and informational activities in the field of forensic science, law and criminalistics;
- 8) implementation of measures for international cooperation in the field of forensic science and criminalistics in accordance with the current legislation of Ukraine;
- 9) metrological support of research and forensic expert activities;
- 10) advanced training of forensic expert staff, in particular in the field of law, according to educational program on theoretical, organizational, procedural issues of forensic science <sup>26</sup>.

Similar are the tasks of the Scientific Research for Forensic on Intellectual Property in Kyiv (belonging to the Ministry of Justice of Ukraine) which purpose is to meet the needs of courts and pre-trial

investigation bodies, other state bodies, as well as legal and individuals in providing them with proper, qualified and objective expertise, forensic expert researches and evaluation using modern research in science and technology <sup>27</sup>.

Objectives of the Strategy for the Development of the System of the Ministry of Internal Affairs of Ukraine until 2020 (hereinafter referred to as *Strategy*) are to create a safe environment for free society, ensure high efficiency of the Ministry of Internal Affairs, strengthen public confidence in <sup>28</sup>. The Strategy states that the implementation of sustainable functioning, manageability and efficiency of the Ministry of Internal Affairs should be based on optimal solutions, taking into account the positive experience and best practices of leading countries. At the same time, higher education institutions with specific training conditions, health care institutions, enterprises, research forensic centers and research institutions belonging to the sphere of management of the Ministry of Internal Affairs provide adequate staffing of the Ministry of Internal Affairs.

The State Scientific Research Forensic Center (SSRFC) of the Ministry of Internal Affairs of Ukraine (hereinafter referred to as *SSRFC*) and its territorial subdivisions (researchexpertforensiccenters, hereinafter referred to as the *SRFC*) constitute Expert Service of the Ministry of Internal Affairs <sup>29</sup>. According to the Regulations on the Expert Service of the Ministry of Internal Affairs of

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26 Ibid.

27 Буклет Центру 2021 р. (за даними Науково-дослідного центру судової експертизи з питань інтелектуальної власності Міністерства юстиції України). URL: [https://intellect.org.ua/wp-content/uploads/2020/12/buklet\\_czentru-2021.pdf](https://intellect.org.ua/wp-content/uploads/2020/12/buklet_czentru-2021.pdf) (date accessed: 12.03.2021).

28 Стратегія розвитку органів системи Міністерства внутрішніх справ на період до 2020 року : розпорядження КМУ від 15.11.2017 р. № 1023-р. URL: <https://zakon.rada.gov.ua/laws/show/1023-2017-%D1%80#Text> (date accessed: 12.03.2021).

29 Положення про документальне забезпечення записів у бухгалтерському обліку : затв. наказом МІА України від 24.05.1995 р. № 1343 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z1390-15#Text> (Date accessed: 25.06.2020).

Ukraine, the main tasks of the Expert Service of Ministry of Internal Affairs include: direct implementation of forensic activities; ensuring the involvement of employees of the Expert Service of the Ministry of Internal Affairs in the pre-trial investigation and trial; conducting certification and other tests, as well as conformity assessment of products, processes and services, performance of other works (within its competence); conducting forensic research on a contractual basis (within the competence) on issues of interest to legal entities and individuals, taking into account the restrictions provided by applicable law; conducting property appraisal, property rights and carrying out professional appraisal activities in accordance with the current legislation; ensuring the functioning of information retrieval systems, personal data processing, ensuring access to information (within the powers defined by law); ensuring functioning of the accounting of instruments of criminal offenses and other objects; carrying out special explosive works to search for and neutralize explosive objects, devices used for terrorist purposes; training, retraining and advanced training of employees of the Expert Service of the Ministry of Internal Affairs as forensic experts, explosives professionals and forensic experts<sup>30</sup>.

In order to improve forensic support, the order of the Central Department of the Security Service of Ukraine № 371 dated on 29.05.2015 approved the Instruction on appointment and conducting forensic examinations and researches in Security

Service of Ukraine, according to this Instruction the SBU forensic expert units include:

- Ukrainian Research Institute of Special Equipment and Forensic Science of the Security Service of Ukraine (*SBU FSISE*);
- separate forensic subdivisions (forensic departments and regional forensic departments) of SBU FSISE in regional bodies of SBU (*SBU FSISE SFS*)<sup>31</sup>.

SBU FSISE is a state specialized expert research institution that carries out forensic, scientific, organizational, and technical activities and performs the functions of the expert service of the SBU, provides the manufacture of specific technical means of covert information (hereinafter referred to as *STM*) and special equipment and participates in their implementation.

The main tasks of SBU FSISE: creation, manufacture and participation in the implementation of special equipment and STZ for the needs of units and bodies of the SBU, other entities of the security and defense sector of Ukraine; forensic support of the SBU units and bodies, other law enforcement agencies and the court; preliminary identification of goods in the field of state expert control; tests, special (thematic) researches, scientific and technical examination of STM and special equipment, assessment of conformity of technical means to the sphere of accreditation of ISTE SBU; implementation of technical regulation measures in the field of special technical means<sup>32</sup>.

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30 Ibid.

31 Інструкція про призначення та проведення судових експертиз та експертних досліджень в системі Служби безпеки України: затв. наказом Центр. упр. СБ України від 29.05.2015 р. № 371 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0738-15#Text> (date accessed: 12.03.2021).

32 Український науково-дослідний інститут спеціальної техніки та судових експертиз СБУ (за даними Служби безпеки України). URL: <https://ssu.gov.ua/naukovo-doslidnytskyi-institut> (date accessed: 12.03.2021).

In order to ensure forensic support of the State Border Guard Service of Ukraine, other law enforcement agencies to prevent, detect and investigate criminal and other offenses in the field of state border protection, the order of the State Border Guard Service of Ukraine dated 11.08.2010 № 617 approved the Regulations on the Main center of criminal expertise of the SBGS of Ukraine, according to which the Main Forensic Center of the State Border Guard Service of Ukraine (hereinafter referred to as *SBGS MFC*) is a state specialized institution that (according to Part 2 of Article 7 of Law of Ukraine: *On Judicial Examination*) is an expert service of the State Border Guard Service of Ukraine, which purpose of is to conduct forensic examination and forensic researches of passport documents that are used in accordance with the law when crossing the state border of Ukraine.

The main tasks of SBGS MFC are: direct forensic examination and expert research of passport documents for the State Border Guard Service of Ukraine, other law enforcement agencies to identify, prevent and investigate criminal and other offenses in the field of state border protection, as well as other work within the Center's competence; organization of scientific-methodical and information support of the activity of the bodies of the State Border Guard Service of Ukraine in the field of state border protection; implementation of methodical and organizational-legal management of the activity of expert subdivisions of SBGS MFC; forensic accounting; conducting exploratory research in the field of forensic support;

implementation of operational-technical and metrological support of technical-criminological means of the State Border Guard Service of Ukraine; experimental operation of technical means used during forensic examination and expert research and ensuring their use in practice<sup>33</sup>.

According to current legislation, the system of forensic medical service of Ukraine includes: State Specialized Institution Main Legal Medical Agency of the Ministry of Health of Ukraine (SSI MLMA MH Of Ukraine); Republican Bureau of Forensic Medical Examinations (Autonomous Republic of Crimea); Bureau of Forensic Medical Examinations of Healthcare Departments of Regional Executive Committees<sup>34</sup>.

The tasks of the Bureau of Forensic Medical Examination and the Republican Bureau (Autonomous Republic of Crimea) are: provide and conduct forensic medical examinations of corpses in case of suspicion of violence or violent death, as well as in other circumstances that necessitate examination to resolve questions asked by the person conducting inquiry, investigator, prosecutor, judge or court; providing and conducting forensic medical examination of victims, accused and other persons to determine the nature and severity of bodily injuries, sexual crimes, as well as to address other issues raised by the person conducting the inquiry, investigator, prosecutor, judge or court; providing and conducting forensic medical examination of physical evidence; providing and conducting forensic medical examination on the materials of criminal and civil cases; ensuring participation of

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33 Положення про документальне забезпечення записів у бухгалтерському обліку : затв. наказом Адміністр. Держприкордонслужби України України від 24.05.1995 р. № 617 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0770-10#Text> (date accessed: 25.06.2020).

34 Інструкція про проведення судово-медичної експертизи : затв. наказом МОЗ України від 17.01.1995 р. № 6. URL: <https://zakon.rada.gov.ua/laws/show/z0254-95#Text> (date accessed: 12.03.2021).

forensic experts as specialists in the field of forensic medicine during urgent and other investigative actions, as well as in court hearings; improving the quality of examination through the introduction into forensic practice of new research methods approved by the Ministry of Health of Ukraine and continuous improvement of forensic experts; ensuring the conduct of examinations in a timely manner; systematic informing of the heads of health care institutions about all defects and shortcomings in the provision of medical care to the population, identified during forensic examinations; ensuring the participation of forensic experts in clinical and clinical anatomical conferences; urgent notification of the relevant health services regarding the detected cases of acute infectious (in particular, especially dangerous) diseases; generalization and analysis of forensic material for health authorities to take measures to prevent industrial, street and domestic injuries, alcoholism, poisoning, drug addiction, substance abuse, sudden death and other issues that may contribute to improving medical care; Carrying out of actions for improvement of professional skill and specialization of forensic medical experts by means of periodic training in institutes of improvement of doctors and other corresponding establishments of public health services; systematic work

to improve business skills of bureau employees<sup>35</sup>.

Forensic mental state examination (hereinafter referred to as FMSE) are conducted by state specialized forensic psychiatric institutions of the Ministry of Healthcare of Ukraine in order to provide answers to questions posed by the person or body that (involved) the expert, or the investigating judge or court that commissioned the examination<sup>36</sup>.

In order to carry out scientific and scientific-pedagogical activities in the field of forensic psychiatric examination, a state research institution Ukrainian Research Institute of Social Psychiatry and Drug Abuse of Ministry of Healthcare of Ukraine was established, which main tasks (relating to forensic examination) include: mental state examination; participation in creation and implementation of innovative projects and programs in the field of forensic psychiatric examination; determination of directions of scientific activity in the field of forensic psychiatric examination (in particular, organization and participation in work of scientific and practical conferences, meetings, congresses, symposiums on the specified profile); publication of professional journals, methodical recommendations, information letters, textbooks, monographs, etc.<sup>37</sup>.

Regarding the activity of forensic services of the Ministry of Defense, we

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35 Положення про бюро судово-медичної експертизи управлінь охорони здоров'я обласних виконавчих комітетів та республіканське бюро (Автономної Республіки Крим) : затв. наказом МОЗ України від 17.01.1995 р. № 6. URL: <https://zakon.rada.gov.ua/laws/show/z0258-95#Text> (date accessed: 12.03.2021).

36 Порядок проведення судово-психіатричної експертизи : затв. наказом МОЗ України від 08.05.2018 р. № 865. URL: <https://zakon.rada.gov.ua/laws/show/z0719-18#Text> (date accessed: 12.03.2021).

37 Про зміну найменування та затвердження Статуту Державної установи «Науково-дослідний інститут психіатрії Міністерства охорони здоров'я України» (нова редакція) : затв. наказом МОЗ України від 07.08.2018 р. № 1462. URL: <https://moz.gov.ua/article/ministry-mandates/nakaz-moz-ukraini-vid-07082018--1462-pro-zminu-najmenuvannja-ta-zatverdzhennja-statutu-derzhavnoi-ustanovi-naukovo-doslidnij-institut-psihiatrii-ministerstva-ohoroni-zdorovja-ukraini-nova-redakcija> (date accessed: 12.03.2021).

should note that at this stage of Ukraine's European integration direction, these services are being reformed. If earlier the expert service of the Ministry of Defense of Ukraine included the Center of Forensic Examinations of the Ministry of Defense of Ukraine (main institution performing scientific and methodological functions) and forensic laboratories under the operational command of the Armed Forces of Ukraine, since 2013 the Center of Forensic Examinations of the Ministry of Defense of Ukraine and all research for forensic investigators is directed to civilian expert institutions of the Ministry of Health of Ukraine. Although the current List of Health Care Institutions in the system of the Ministry of Defense of Ukraine retains the definition of such forensic services as the Center for Forensic Examinations and Forensic Laboratories (all names)<sup>38</sup>, neither the Regulations on the Ministry of Defense of Ukraine nor the Regulations on the General Staff of the Armed Forces of Ukraine are not currently envisaged to carry out forensic activities<sup>39</sup>.

## Conclusions

In view of the above, European integration is the main strategic direction of Ukraine on its way to strengthening democratic principles based on the rule of law, legality and subordination to human interests, protection of human rights and fundamental freedoms. Realization of this goal largely depends on the creation of a modern system of expert support of justice and the effective role of forensic

science in it. At the same time, the definition of ways to increase such efficiency is seen in clarifying the content and features of its main actors, especially forensic institutions that should function effectively through the timely and proper performance of their tasks.

### **Ефективне адміністративно-правове регулювання судово-експертної діяльності в умовах євроінтеграції**

*Інеса Овсянникова*

*Ефективне адміністративно-правове регулювання судово-експертної діяльності залежить від поставлених мети та завдань. Українське суспільство почало докорінно перебудовувати свою національну правову систему, закріпивши 1996 року в Конституції принцип верховенства права та ратифікувавши 1997 року Конвенцію про захист прав людини і основоположних свобод.*

*Мета статті полягає у визначенні основних цілей і завдань держави для забезпечення ефективної судово-експертної діяльності в умовах євроінтеграції.*

*Зобов'язання України перед європейською спільнотою розбудувати розвинуту та сталу демократію й ринкову економіку вимагають від неї передусім спрямування усієї національної системи права на такі європейські цінності, як демократія, повага до людини та її основоположних прав і свобод, верховенство права та ін. Для нашої держави принцип верховенства права пов'язаний із практикою Європейського Союзу, тому основним стратегічним напрямом є євроінтеграція.*

38 Про затвердження Переліку закладів охорони здоров'я в системі Міністерства оборони України : затв. наказом Міноборони України від 23.03.2017 р. № 168 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/z0511-17#Text> (date accessed: 12.03.2021).

39 Положення про Міністерство оборони України : затв. Постановою КМУ від 26.11.2014 р. № 671 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/671-2014-%D0%BF#Text> (date accessed: 12.03.2021) ; Положення про Генеральний штаб Збройних Сил України : затв. Указом Президента України від 30.01.2019 р. № 23/2019 (зі змін. та допов.). URL: <https://zakon.rada.gov.ua/laws/show/23/2019#Text> (date accessed: 12.03.2021).

У межах європейського співробітництва особливого значення набувають сфера юстиції загалом і правоохоронні й судові органи зокрема. Ефективне проведення судової реформи й боротьба з корупцією сьогодні є пріоритетними напрямками розвитку нашої держави на шляху до євроінтеграції.

Важливою складовою реалізації поставленої мети є створення сучасної системи експертного забезпечення правосуддя, яка повинна ефективно функціювати завдяки вчасному та правильному виконанню поставлених суб'єктами судово-експертної діяльності цілей і завдань.

**Ключові слова:** ефективність; адміністративно-правове регулювання; судово-експертна діяльність; цілі; завдання; євроінтеграція.

**Эффективное  
административно-правовое  
регулирование судебно-экспертной  
деятельности в условиях  
евроинтеграции**

**Инееса Овсянникова**

Эффективное административно-правовое регулирование судебно-экспертной деятельности зависит от поставленных целей и задач. Украинское общество начало кардинально перестраивать свою национальную систему права, закрепив в 1996 году в Конституции принцип верховенства права и ратифицировав в 1997 году Конвенцию о защите прав человека и основополагающих свобод.

Цель статьи заключается в определении основных целей и задач государства для обеспечения эффективной судебно-экспертной деятельности в условиях евроинтеграции.

Обязательства Украины перед европейским сообществом выстраивать развитую и устойчивую демократию и рыночную экономику требуют от неё

прежде всего нацеленности всей национальной системы права на такие европейские ценности, как демократия, уважение к человеку и основополагающим правам и свободам, верховенство права и др. Для нашего государства принцип верховенства права связан с практикой Европейского Союза, поэтому основным стратегическим направлением является евроинтеграция.

В рамках европейского сотрудничества особое значение приобретают сфера юстиции в целом и правоохранительные и судебные органы в частности. Эффективное внедрение судебной реформы и борьба с коррупцией в настоящее время являются приоритетными направлениями нашего государства на пути к евроинтеграции.

Важной частью реализации поставленной цели является создание современной системы экспертного обеспечения правосудия, которая должна эффективно функционировать благодаря своевременному и правильному выполнению поставленных перед субъектами судебно-экспертной деятельности целей и задач.

**Ключевые слова:** эффективность; административно-правовое регулирование; судебно-экспертная деятельность; цели; задачи; евроинтеграция.

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The author declares that she has no conflict of interest.

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## Participation of employees of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» in CEPOL exchange program



CEPOL is an extensive network of specialized institutions in EU member States that provide training for law enforcement agencies, provide information exchange and interagency cooperation. Within CEPOL activities there is a special exchange program: CEPOL Exchange Program that has been operating since 2007. This program purpose is to exchange experience and knowledge between law enforcement officers from different EU member States through a rich one-week internship. The

program fulfills one of the main tasks of CEPOL: development of European law enforcement culture. In particular, CEPOL work aims to strengthen cooperation in the fight against crime through training and gives participants opportunity to learn about working methods of other countries, helping to build trust and cooperation between law enforcement agencies across Europe and beyond.

In 2021, employees of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» took part in the CEPOL exchange program in Georgia (*Olena Agapova*, Department Head; *Igor Sych*, Department Head; *Armen Kazarov*, Senior Researcher; *Mykhailo Mozhaiev*, Department Head) and Armenia (*Anastasiia Sinitsyna*, Forensic Expert; *Viktoria Bulavina*, Department Head).

The exchange was carried out as follows: during 30.08-03.09.2021; the delegation of Forensic-Criminalistics Department of the Ministry of Internal Affairs of Georgia consisting of *Davyd Hradiashvili*, *Petre Tsynskaldze*, *Iraklii Kvantachiani* and *Heorhii Tvalavadze* got acquainted with the methods of computer research on narcotic substances, fingerprint identification, road accident analysis, etc. in NSC «Hon. Prof. M. S. Bokarius FSI».



In particular, *Iraklii Kvantachiani* while his internship at NSC «Hon. Prof. M. S. Bokarius FSI» enriched his professional experience with practical skills of detecting fingerprints of papillary patterns of human hands with chemical reagents. He got acquainted with the methods of preparation of fingerprints and features of comparative studies of fingerprints, as well as studies of papillary patterns of the nail phalanx of human fingers and palms, studies of human footprints (in shoes, socks, bare feet) and studies of material traces (gloves) etc. It is worth noting that *Olena*



*Agapova* undertook an internship at Forensic-Criminalistics Department of the Ministry of Internal Affairs of Georgia under the relevant training program, while this internship she learned experience of foreign colleagues.

*Davyd Hrtiashvili* at NSC «Hon. Prof. M. S. Bokarius FSI», and *Mykhailo Mozhaiev* at the Forensic-Criminalistics Department of the Ministry of Internal Affairs of Georgia studied research on information carriers on hard magnetic disks, methods of information retrieval by key sequence. The internship program provided an opportunity to get acquainted with the methods of recovering deleted information, research on flash USB flash drives and SSD drives, determination of technical characteristics of drives. Forensic experts improved their skills in research on mobile devices (smartphones, tablets) etc.

While internship, *Petre Tsynskaladze* got acquainted with the legal regulation of the circulation of narcotic drugs, psychoactive substances and precursors in Ukraine. As the laws of Ukraine and Georgia have some differences in this matter, their knowledge is an important aspect of expert training. Accordingly, *Igor Sych* at

Forensic-Criminalistics Department of the Ministry of Internal Affairs of Georgia studied the legislative features of Georgia regarding the circulation of such substances. The experts got acquainted with the methods of detection and prevention of drug trafficking, sampling and research of psychoactive substances, in particular, not previously registered. Thus, a significant place in the program of mutual internship was given to peculiarities of research on new psychoactive substances.





In the direction of road accident analysis *Heorhii Tvalavadze* studied peculiarities of using software packages to establish the speed of vehicles, undertook an internship at NSC «Hon. Prof. M. S. Bokarius FSI». Relevant as for Ukraine as for Georgia is research on collisions of vehicles with pedestrians at pedestrian crossings, determining collision scene, calculating the angle between the longitudinal axes of vehicles

at the time of initial contact. *Armen Kazarov* at the Forensic-Criminalistics Department of the Ministry of Internal Affairs of Georgia studied relevant topical issues.

As part of the further internship of fellow experts (according to forensic expert specialization) on August 31, 2021 in the premises of the Kharkiv Diplomatic Club was a meeting dedicated to implementation of the European exchange program CEPOL. The event was attended by *Oleksandr Kliuiev*, Director of National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute», Doctor of Law, Professor, Honored Lawyer of Ukraine, *Emin Nadzhaftli*, President of the Diplomatic Club, Honorary Consul of the Republic of Kazakhstan, *Oleksandra Chykhladze*, Honorary Consul of Georgia in Kharkiv, Honorary *Serhii Chernov* President of the Kharkiv Diplomatic Club, the *Alona Stryzhak* head of the patrol police of the Kharkiv region, forensic experts of Forensic-Criminalistics Department of the Ministry of Internal Affairs of Georgia and employees of NSC «Hon. Prof. M. S. Bokarius FSI» participants of the CEPOL exchange program.

The purpose of the meeting was to discuss issues of forensic science activity and compare methods of training experts in Ukraine and Georgia, exchange experience, establish Ukrainian-Georgian cooperation in the field of justice.

On September 13, 2021 within the framework of CEPOL exchange program National Scientific Center «Hon. Prof. M. S. Bokarius Forensic Science Institute» received experts from the 'National Bureau of Expertises' State Non-Profit Organization of the National Academy of Sciences of the Republic of Armenia (hereinafter referred to as NBE – SNPO of the Republic of Armenia).

The delegation of the NBE – SNPO of the Republic of Armenia consisting of *Ary Halstian* and *Harnyk Hambarian* got acquainted with the work of the Center forensic experts. Further internships of fellow experts from Armenia under the exchange program lasted from September 12 to 17,

2021 (according to forensic expert specialization of each of the guests).

According to the internship plan of the exchange program *Ary Halstian* using the technical equipment of NSC «Hon. Prof. M. S. Bokarius FSI» acquired practical skills in chromatographic research methods (gas chromatography, liquid chromatography); spectral research methods (molecular spectroscopy, atomic spectroscopy), as well as other special instrumental types of research. Accordingly, *Anastasiia Sinitsyna* forensic expert of NSC «Hon. Prof. M. S. Bokarius FSI» during her internship at NBE – SNPO of the Republic of Armenia improved her skills in relevant areas thanks to experience gained by Armenian colleagues.

The internship program in research on material imprints on different surfaces, methodology of chromatographic research on dyes of fibrous materials and evaluation of the results, etc., respectively, mastered: *Harnyk Hambarian* at NSC «Hon. Prof. M. S. Bokarius FSI», *Viktoria Bulavina* at NBE – SNPO of the Republic of Armenia. Ukrainian and Armenian colleagues did not overlook the technique of fingerprint preparation and comparative research on fingerprints.

On September 14, 2021, the participants of exchange program were welcomed at the Kharkiv Diplomatic Club. The event was attended by: *Oleksandr Kliuiev*, Director of NSC «Hon. Prof. M. S. Bokarius FSI», Doctor of Law, Professor, Honored Lawyer of Ukraine, *Argam Ovsepyan*, Director of NBE – SNPO of the Republic of Armenia, PhD in Medicine, Docent (online), *Armen Aslanian*, Honorary Consul of the Honorary Consulate of the Republic of Armenia in Kharkiv and Sumy regions, *Hamlet Ohanesian*, Honorary Consul of Georgia in Kharkiv *Oleksandra Chykhladze*, *Serhii Chernov*, Honorary President of Kharkiv Diplomatic Club, participants of the CEPOL exchange program, forensic experts NSC NBE – SNPO of the Republic of Armenia and employees of NSC «Hon. Prof. M. S. Bokarius FSI».

While the meeting discussed the stages of implementation of European exchange program CEPOL were discussed within its framework while working week forensic experts from Armenia and Ukraine will share experience, methods and techniques of expert research that will certainly further strengthen cooperation between our institutions, experts from Ukraine and Armenia.

*Information was prepared by Kateryna Sylenok,  
Researcher at NSC «Hon. Prof. M. S. Bokarius FSI»*



## Requirements for Research Paper

### Requirements for content

According to the Edition subject matter, content regarding coverage of criminalistic current issues, relevant issues of performing various types of forensic examinations and specific expertise application in legal proceedings is published on the pages of the Scientific Edition.

Based on research, presentational, evaluative and communicative functions of the Scientific Edition, **research papers** (where an author outlines main work outcomes); **research and methodological papers** (where an author analyses methods, processes, tools helping to achieve certain scientific results); **research and theoretical papers** (texts where an author presents results of theoretical ways for problem solution); **research and practical** (articles where an author describes his personal practical experience and performed scientific experiments), **review research papers** (dedicated to evaluation, conclusions, overview, analysis of earlier published information). The Editorial Board is also interested in **debatable articles, research ideas or short reports**: results of an experiment, personal experience, etc. Scientific style of the content presentation (accuracy, logic, conciseness, clarity, connectivity, integrity, completeness) and its high scientific level.

Article structural elements should include:

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- formulation of research problem, its connection with scientific and practical interests (it is necessary to reveal essence and state of the scientific problem, theoretical and practical significance of a research, connection with scientific and practical tasks, substantiation of the research relevance) (*Introduction*);
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- analysis of essential researches and publications on the selected article topic, outlining the problematic field of the research that article is devoted; with obligatory reference to authors and their scientific papers;
- main content presentation with obtained results (to reveal important theoretical positions and research results, analyze scientific facts, ideas, thoughts, regularities, concepts, as well as trends of further topic development, emphasizing personal contribution of the research author(s)) (*Results and Discussions*);
- conclusions (main research results in a clear, consistent, logically presented form in compliance with set goal) (*Conclusions*);
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