Ministry of Justice of Ukraine

National Scientific Center
"Hon. Prof. M. S. Bokarius Forensic Science Institute"

Yaroslav Mudryi National Law University

DOI: https://doi.org/10.32353/khrife.2.2020

THEORY AND PRACTICE OF FORENSIC SCIENCE AND CRIMINALISTICS

Collection of Scientific Papers

Biannual Edition

Founded in 2001

Issue 22

Kharkiv
"Pravo"
2020

DOI: https://doi.org/10.32353/khrife.2.2020 ISSN 1993-0917
УДК 343.98 e-ISSN 2708—5171
Т44

Included in the list of scientific editions of Ukraine where results of PhD and Doctoral dissertations can be published (Order No 886 of the Ministry of Education and Science of Ukraine dated on 02.07.2020)

Founders: National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"; Yaroslav Mudryi National Law University.

Recommended for publication by the Academic Council of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" (Minutes No 10 dated on September 23, 2020)

Т44 **Theory** and Practice of Forensic Science and Criminalistics : Collection of Scientific Papers / Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. — Kharkiv, Pravo, 2020. — Issue 22. — 635, [5] p.

While forming the 22nd issue of collection of scientific papers *Theory and Practice of Forensic Science and Criminalistics* the Editorial Board adhered to traditional headline system. This collection provides the content regarding coverage of contemporary forensic science issues, solving common forensic theory problems, organization and regulation of forensic activities; as well as sections formed from research papers revealing theoretical and practical issues according to separate classes, kinds, species and subspecies of forensic science.

Representatives of forensic institutions participated in the preparation of the articles for the collection, higher education institutions, law enforcement agencies not only in Ukraine but also in foreign countries.

UDC 343.98

The papers were reviewed internally and externally

Editorial Staff address:
National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
8a, Zolochivska St., Kharkiv, Ukraine, 61177
Phone: +38 (057) 372-20-01

© National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", 2020
© Yaroslav Mudryi National Law University, 2020
© Publishing House "Pravo", design, 2020

EDITORIAL BOARD

Editorial Board Chairman

Oleksandr Kliuiev, Director of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Law, Professor, Honored Lawyer of Ukraine.

Editorial Board Co-chairman

Valerii Shepitko, Head of the Department of Criminalistics at Yaroslav Mudryi National Law University, Doctor of Law, Professor, Academician of the National Academy of Legal Sciences of Ukraine, Honored Worker of Science and Technology of Ukraine.

Executive Secretary

Ella Simakova-Yefremian, Deputy Director for Academic Affairs of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Law, Senior Researcher, Honored Worker of Science and Technology of Ukraine.

Editorial Board Members

Ihor Bohdaniuk, Laboratory Head at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", PhD in Law, Senior Researcher.

Patvakan Voskanian, Deputy Director of National Bureau of Expertises of the National Academy of Sciences (Republic of Armenia), PhD in Chemistry, Senior Researcher.

Vitaliy Gargin, Associate Professor at the Department of Pathological Anatomy at Kharkiv National Medical University, Doctor of Medicine, Professor.

Larysa Derecha, Academic Secretary at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", PhD in Biology, Senior Researcher.

Oleksandr Zhytnyi, Head of Criminal and Legal Subjects Department at V. N. Karazin Kharkiv National University, Doctor of Law, Professor.

Volodymyr Zhuravel, Chief Academic Secretary at the National Academy of Legal Sciences of Ukraine, Academician of National Academy of Legal Sciences of Ukraine, Doctor of Law, Professor, Honored Worker of Education of Ukraine.

Aleksandar Ivanović, Director of Forensic Expert Center (Montenegro), Doctor of Law, Professor.

Oksana Kaplina, Head of the Department of Criminal Procedure at Yaroslav Mudryi National Law University, Doctor of Law, Professor, Corresponding Member at the National Academy of Legal Sciences of Ukraine, Honored Worker of Science and Technology of Ukraine.

Olga Cataraga, Director of Centrului Naţional de Expertize Judiciare (Republic of Moldova).

Violetta Konovalova, Doctor of Law, Professor, Academician of the National Academy of Legal Sciences of Ukraine, Honored Worker of Science and Technology of Ukraine.

Ihor Krainov, Principal Researcher at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Technology, Professor, Academician of International Academy of Applied Radio & Electronics, Honored Worker of Science and Technology of Ukraine.

Vidmantas Egidijus Kurapka, Doctor of Law, Professor at Mykolas Romeris University (Republic of Lithuania).

Giedrius Mozuraitis, Director of Forensic Science Centre of Lithuania, Doctor of Law (Republic of Lithuania).

Hendryk Malevski, Doctor of Law, Professor at Mykolas Romeris University (Republic of Lithuania).

Mykhailo Mozhaiev, Department Head at Hon. Prof. M. S. Bokarius Research Institute of Forensic Examinations, PhD in Technology.

Vasyl Olkhovsky, Professor at the Department of Forensic Medicine, Medical Law at Kharkiv National Medical University, Doctor of Medicine, Professor, Corresponding Member of the International Academy of Integrative Anthropology.

Iryna Petrova, Principal Researcher at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Law, Professor.

Evgen Popovich, Principal Researcher at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Law, Professor, Honored Lawyer of Ukraine.

Halyna Rossikhina, Professor at V. N. Karazin Kharkiv National University, Doctor of Law, Professor.

Oleksandr Sviderskyi, Deputy Director for Forensic Examinations of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", PhD in Law, Senior Researcher.

Volodymyr Semynozhenko, Doctor of Mathematics and Physics, Professor, Academician of NASU, Head of North-Eastern Scientific Center of NASU and Ministry of Education and Science of Ukraine, Honored Worker of Science and Technology of Ukraine.

Oleksandr Snigerov, Principal Researcher at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Law, Professor.

Oleh Uhrovetskyi, First Deputy Director of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Law, Professor, Honored Lawyer of Ukraine.

Vadym Khosha, Head of Postgraduate and Doctoral Studies Department at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", PhD in Law, Senior Researcher.

Viktor Shevchyuk, Professor at the Department of Criminalistics of Yaroslav Mudryi National Law University, Doctor of Law, Professor, Honored Lawyer of Ukraine.

Mykhailo Shcherbakovskyi, Head of the Department of Criminal Procedure, Criminalistics and Expertology (Faculty No. 6) at Kharkiv National University of Internal Affairs, Doctor of Law, Professor.

Gabrielė Juodkaitė-Granskienė, Member of the Supreme Court of the Republic of Lithuania, Doctor of Law, Docent.

FROM EDITORIAL BOARD

The next issue of the *Theory and Practice of Forensic Science and Criminalistics* professional edition reflects the latest provisions and developments of domestic and foreign scientists.

The Collection of Scientific Papers contains articles on modern problems of criminalistics, general provisions of forensic science and issues of scientific and methodological support of different classes, kinds, species and subspecies of forensic science.

The authors of the 22nd collection: *Theory and Practice of Forensic Science and Criminalistics* became scientists and practitioners: employees of forensic institutions, universities, law enforcement agencies of Ukraine and abroad. The collection provides information about scientific and communicative activities in which scientists and practitioners in the field of forensic science participated.

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.

DOI: https://doi.org/10.32353/khrife.2.2020.01
UDC 343.98

V. Yu. Shepitko,
Doctor of Law, Professor, Academician of National Academy
of Legal Sciences of Ukraine, Honored Worker of Science and Technology
of Ukraine, Head of the Department of Criminalistics
at the Yaroslav Mudryi National Law University,
Kharkiv, Ukraine,
ORCID: https://0000-0002-0719-2151,
e-mail: shepitko.valery@gmail.com

Formation of criminalistics and forensic didactics in Ukraine

The article is devoted to formation, development and current status of criminalistics as a science and academic discipline in Ukraine. Attention is drawn to some trends in criminalistics in modern conditions. The variability of forensic knowledge is associated with the scientific and technological progress of modern society.

Special attention is drawn to the role of criminalistics in scientific support of not only proof procedure, but also of various law enforcement procedures. The use of forensic knowledge is relevant in the practical activities of various lawyers: prosecutor, investigator, detective, judge, lawyer, notary, legal adviser, etc. The relationship between activities optimization of the court and law enforcement agencies with introduction of criminalistics innovations is established.

The approaches to teaching criminalistics for law students in Ukrainian universities are considered. The necessity of teaching criminalistics to law students of various specializations is substantiated. The volume of workload, period of study, forms of education, information transfer methods, methods of mastering practical skills are defined as parameters for teaching criminalistics and criminalistics disciplines.

The role of modernized methods in teaching criminalistics is justified. The following modernized methods are defined: business games, solving non-standard cognitive tasks, quick tests, the use of multimedia tools and electronic data base, technical tools, etc. The possibilities of using the criminalistics training ground and criminalistics museum in the course of practical seminars and laboratory works are demonstrated.

© V. Yu. Shepitko, 2020

Keywords: criminalistics, forensic didactics, forensic knowledge, criminalistics trends, criminalistics training ground, criminalistics science museum.

Formulation of Research Problem. The development of criminalistics is traditionally connected with formation of separate "scientific discipline", "special doctrine"or "accessory science" for forensic investigators, ranks of gendarmerie and police [1]. At one time Gustav Gross emphasized that *Criminal Law is not a science for itself and the most valuable provisions are pretended only to obtain practical implementation. These provisions are devoid of any significance if a judge isl not be able to apply these concepts in real life, if he is not aware of endless provisions the set of which is criminalistics* [2].

Criminalistics is a science, the emergence of which is attributable to implementation of achievements of natural and technical sciences in the practice on combating crime. The forming of scientific knowledge, that promote the coping with crime, is connected with various processes: internal integration of criminology and integration of separate scientific disciplines, namely, Forensic toxicology, forensic pharmacology, Forensic psychology, Forensic Psychiatry, Forensic pathology, Forensic accounting, Forensic science and others.

Analysis of Essential Researches and Publications. In Ukraine Criminalistics as a science and scientific discipline has its own history of origin, formation and development. At the present time, there are certain trends in the development of Criminalistics, which are directly related to the practice of law enforcement. In the literary sources insufficient attention is paid to the history of Criminalistics in Ukraine, such attempts have been made only in some works [3].

The **Article Purpose** is to carry out a short guide and analyze the development, formation and current state of criminalistics and forensic didactics in Ukraine.

Main Content Presentation. Historical preconditions of emergence and development of Criminalistics in Ukraine. Attempts of criminalistics forming within Ukraine related to educational and scientific activity of the Criminalistics founder Gustav Gross, who came to the university in Czernowitz 1898 (Bukovina, Austro-Hungarian Empire; now — Chernivtsi, Ukraine) and there was appointed a Professor ordinarius of Criminal Law and Dean of Faculty of Law. A year earlier (1897) the Congress of the International Union of Forensic Criminologists, which took place in Linz (Austria-Hungary), recommended to

[1] Гросс Г. Руководство для судебных следователей как система криминалистики. Новое изд., перепеч. с изд. 1908 г. Москва, 2002. 1088 p.

[2] Гросс Г. Op. cit. P. VIII—IX.

[3] E.g., Юсупов В. В. Криміналістика в Україні у XX—XXI століттях: монографія. Київ, 2018. 554 p.

include a teaching of special course out of Criminalistics to the training course for future lawyers [1].

The real trying of teaching criminalistics in Ukraine can be considered an implementation of foreign experience with the aim to study this discipline by Professor O. D. Kyselov (Faculty of Law of Kharkiv Imperial University) [2]. Since 1897, O. D. Kyselov was on a foreign business trip during 2 years with financial support from university and the Ministry of Ministry of National Enlightenment, and in 1899 at his own expense visited Alphonse Bertillon in Paris for the purpose of studying an identification method [3]. For the first time in the Russian Empire in 1910, O. D. Kyselov started teaching a course of Criminalistics, that became a component of education program, at the joint request of M. S. Bokarius, a forensic science Professor at Imperial University of Kharkov [4].

Other scientists of that time also expressed their thoughts about the role and significance of criminalistics teaching. On October 13, 1894 on the Faculty of Law and Administration of Lviv University the inaugural lecture on Forensic Medicine was presented by Leon Wachholz (Honored Lecturer of the Jagiellonian University). The main idea of the lecture was about underrating of Criminalistics that hampered the work of Law enforcement agencies and judicial organs [5].

Formation of forensic psychological and tactical directions in Criminalistics can be considered the property of scientific and educational practice — through activities of L. E. Vladimirov at Kharkiv Imperial University [6], who in 1872 was

---

[1] Шепитько В. Ю. Проблемы становления и р азвития криминалистики как университетской дисциплины//*Модели преподавания криминалистики: история и современность:* сб. науч. тр./под ред.: Н. П. Яблокова, В. Ю. Шепитько. Харьков, 2014. P. 63, 64.

[2] Велика українська юридична енциклопедія: у 20 т./НАПрН України, Ін-т держави і права ім. В. М. Корецького НАН України, Нац. юрид. ун-т імені Ярослава Мудрого; ред. кол.: В. Я. Тацій та ін. Т. 20: Криміналістика, судова експертиза, юридична психологія/редкол.: В. Ю. Шепітько (голова) та ін. Харків, 2018. P. 361.

[3] E.g., Шепитько М. В. Портретная галерея сайта Конгресса криминалистов: Киселев Александр Дмитриевич. URL: https://crimcongress.com/tag/kiselev-a-d (date accessed: 01.09.2020).

[4] Энциклопедия криминалистики в лицах/под ред. В. Ю. Шепитько. Харьков, 2014. P. 159—161.

[5] См.: Кендзерска Г. Изучение криминалистики в Польше//*Модели преподавания криминалистики: история и современность:* … . P. 99.

[6] E.g., In the famous work by D. I. Bahalii, M. F. Sumtsov, V. P. Buzeskul: A brief overview of the history of Kharkiv University for the first hundred years of its existence (1805—1905)" (Kharkov, 1906. P. 2), it is stressed that *"From time to time life in Kharkiv was in full swing, there was not only exchange of goods but also exchange of thoughts"*.

designated as Professor of the Department of Criminal Procedure at mentioned above university.

In 1892 L. E. Vladimirov was approved for the title of Honored Professor [1]. His academic interests were enough differently directed: researching of the mechanism of criminal law influence on legal awareness of a person, learning of feature and effectiveness of a jury court, developing of tactic security in criminal cases, studying of psychological features of criminals, etc.[2].

Significant contribution in Forensic psychology was made by an outstanding lawyer, forensic orator, Professor, A. F. Koni. The content of his academic interests, in the field of Forensic psychology, consists of psychology of judicial activity, psychology of testimony of witnesses and victims, psychology of suicides, etc. In view of this, his works acquire special significance: *Moral principles in criminal procedure (general features of judicial ethics) (1895)* [3], *Memory and attention. From the memoirs of a judicial figure (1922)* [4], *Suicide in law and life (1898)* [5], *Anthropology school in criminal law (1898).* Scientific community highly appreciated creative achievements of A. F. Koni: in 1890 he got Juris Doctor Honoris Causa at Kharkiv Imperial University [6], Kharkiv legal community selected his as honored member[7].

The development of criminalistics is inextricably connected with the name of Honored Professor M. S. Bokarius. His fundamental works laid a foundation of forming and teaching Criminalistics as a subject in Ukraine. Mykola Serhiiovych not only had a penchant for teaching and the ability to organize the educational process, but also was a talented teacher [8].

M.S. Bokarius taught forensic medicine on the faculty of Law at Kharkiv Imperial University (since 1905), as well as *a Course of microscopic and microchemical researches of forensic evidence* (for students of the 4th course;

[1] E.g., Професори Національної юридичної академії України імені Ярослава Мудрого/ред. кол.: В. Я. Тацій (голова), В. В. Сташис, В. В. Комаров та ін. Харків, 2004. P. 32 ; Ibid. 2009. 144 p.

[2] E.g., Энциклопедия криминалистики в лицах … . P. 67, 68.

[3] E.g., наприклад: Кони А. Ф. Нравственные начала в уголовном процессе (общие черты судебной этики)//*Избранные произведения. Статьи и заметки. Судебные речи. Воспоминания.* Москва, 1956. 888 p.

[4] E.g., Кони А. Ф. Нравственные начала в уголовном процессе (общие черты судебной этики)//*Избранные произведения. Статьи и заметки. Судебные речи. Воспоминания.* Москва, 1956. 888 p.

[5] Idem. Самоубийство в законе и жизни/под ред. А. М. Винавера и др. Москва, 1923. 26 p.

[6] Юридична енциклопедія: в 6 т. Т. 3: К — М./редкол.: Ю. С. Шемшученко (голова) та ін. Київ, 2001. P. 262.

[7] Кони А. Ф. Избранные произведения: в 2-х т. Т. 1: Воспоминания. 2-е изд., доп./сост. Л. Б. Амелин. Москва, 1959. P. 12.

[8] Бокариус Н. Н. Жизнь и д еятельность заслуженного профессора Николая Сергеевича Бокариуса//*Криміналіст першодрукований.* Харків, 2013. № 6. P. 170.

1909-1916), *Practical course of technique of forensic autopsies (for students of the 4th and 5th courses*; 1907—1909) [1].

Since then, Criminalistics as a discipline at university was successfully developed. Since 1920 (from the time of foundation of the National Economy Institute, later the Kharkiv Law Institute, now Yaroslav Mudryi National Law University) Criminalistics as a subject is taught within the disciplines of forensic medicine and criminal (forensic) techniques.

In this period, M. S. Bokarius, medical examiner, well-known Professor taught the course of *Crimes investigative techniques.* His follower and son M. M. Bokarius noted that M. S. [Bokarius Mykola Serhiiovych — Author's notes] quite reasonable could be considered as a founder of the forensic field in forensic medicine, which in the following years has become quite widespread in both scientific and practical work of forensic examiners. This direction is a common thread in the works of M. S. Bokarius and has always been present in his practical activities [2]. And it is no accident that the public organization *Society of Forensic examiners and Criminologists* had been working for a long time in Ukraine that became a reflection of the development of criminalistic direction in forensic medicine. During the meetings, members of Society were discussing the issues regarding to forensic traumatology, mechanical asphyxia, examination of physical evidence, as well as the theory of forensic examination and identification of forensic examination objects [3].

Further formation and development of Criminalistics in Ukraine is inextricably connected with establishment of Forensic Science Institutions.

On 10 July, 1923 the Council of People's Commissars of the Ukrainian SSR adopted regulations to found regional offices of scientific and forensic examination in Kharkiv, Kyiv and Odessa and approved the regulations on them. The first line of the regulations refered to offices that were established *for conducting various scientific and technical experiments in legal proceedings.* To conduct mentioned examinations 4 sections were comprised in the office: 1) forensic chemistry and physico-chemical research; 2) forensic macro- and microscopic examinations; 3) Forensic photography; 4) Person Identification [4].

Participation of Ukrainian criminalists in various professional non-government organizations contributed to the formation of forensic science

[1] Ibid. P. 170, 171.

[2] Бокариус Н. Н. Op. cit.//*Ibid.* № 7. P. 144, 145.

[3] Козаченко І. М. До 60-річчя Харківського товариства судових медиків і криміналістів ім. проф. М. М. Бокаріуса//*Теорія та практика судової експертизи і криміналістики.* Харків, 2009. Вип. 9. P. 589.

[4] Бокариус Н. Н. 25 лет работы Харьковского научно-исследовательского института судебной экспертизы им. Засл. проф. Н. С. Бокариуса//*Проблемы криминалистики и судебной экспертизы:* сб. науч. работ, посвящ. 25-летнему юбилею Ин-та/под общ. ред. Д. Х. Панасюка; редкол.: Н. Н. Бокариус, В. П. Колмаков, И. А. Сапожников. Харьков, 1948. P. 10, 11.

schools and the beginning of teaching of Criminalistics at legal educational institutions of Ukraine. First attempts to teach criminal justice discipline and forensic disciplines were done on the Faculty of Law *Department of Moral and Political Science* at Kharkiv Imperial University [1] and linked to the activity of outstanding scientists and practitioners.

It is important to mention, that since 1897 in International Association of Forensic Criminologists there were representatives from Ukrainian terrytories, which then belonged to the Russian Empire (V.P. Danevskyi, Professor of Kharkiv Imperial University)

Later (12.01.1900), a well-known criminalist, founder of psychological direction in Criminal Law, Professor of Criminal Law at Kharkiv Imperial University, L. Y. Volodymyrov joined to the work of the International Association of Forensic Criminologists, later (since 01.01.1901) A. A. Levenstym and M. Y. Kuplevaskyi [2].

At the present time, Society of Criminologists also function successfully in the European area, actively developing Criminalistics and Forensic Science, promoting advanced achievements of Forensic Science: Criminalists Association of Lithuania, Polish Forensic Science Society, Slovak Criminalists' Society, International Criminalists Congress and others.

Tendencies of Criminalistics in current conditions in Ukraine. In Ukraine the development of Criminalistics takes place according to 3 main directions: 1) advancement of university-based science (science at education institutions); 2) advancement of academic science (within the activities of research institutions); 3) development within the departmental subordination (within the research units within the structure of the Ministry of Internal Affairs of Ukraine, forensic science institutions in the system of the Ministry of Justice of Ukraine, the Ministry of Health, etc.).

The development of university-based science is carried out mainly through the research of specialized Departments of law faculties, institutions or universities (Department of Criminalistics, Department of Criminalistics and Forensic medicine and Department of Criminalistics and Forensic Expertology etc.) and creation of forensic research topics in the research sectors of higher legal education institutions.

In academic science criminalistics researches are carried out by structural subdivisions of the National Academy of Law Sciences of Ukraine (hereafter — NALS of Ukraine); within its forensic science institutions (e.g., Laboratory of the use of modern achievements of science and technology in combating crime of Academician Stashis Scientific Research Institute for the

[1] Національна юридична академія України імені Ярослава Мудрого. 1804—2009 … . 464 p.

[2] Шепітько М. В. Українська група Міжнародного Криміналістичного Союзу: шлях від Відня до Парижа//*Криміналіст першодрукований.* Харків, 2019. № 18. P. 43—61.

Study of Crime Problems National Academy of Law Sciences of Ukraine). Coordinates researches for this area of the Department of Criminal Law of the National Academy of Law Sciences of Ukraine, in the structure of which the Bureau of Criminalistics, Forensics Science, Investigation and Legal Psychology functions. Among other things, the result of scientific researches of the academic science is preparation of fundamental works "Ukrainian legal doctrine" in 5 volumes (5th volume devoted to status, problems and ways of improving legal sciences in Ukraine); the Great Ukrainian Legal Encyclopedia in 20 volumes (20th volume covers issues in Criminalistics, Forensic Science and Legal Psychology), etc.[1].

Criminalistics development in Ukraine connected to formation of certain forensic science theories, research of problems of forensic techniques, tactics and methods of investigation of specific types of crimes. At the present time, individual scientists and scientific groups create and implement science and technology-based means, methods and technologies in the practice of combating criminal activity. Confirmation of that fact is defence of the significant number of thesis researches regarding to various issues in Criminalistics, published monographs and scientific works, participation in the International Congresses, symposiums and conferences.

Criminalistics belongs to sciences of the criminal law cycle, which are developing dynamically. It was pointed out in literary sources that modern Criminalistics as a science (as a certain reality) can be quite difficult described even within a single scientific school. Strong flow of new knowledge requires a reviewing of the subject and boundaries of Criminalistics as a science, especially in view of the processes of globalization, integration and differentiation of knowledge [2].

Nowadays, in Ukraine, law enforcement agencies and the court are being reformed, legislation is changing significantly, and electronic resources are being actively implemented in practice. Criminalistics is influenced by changes in the legal field, a certain revision of traditional institutions of criminal law and process.

Therefore, significant changes are taking place in the criminal legislation of modern Ukraine. In particular, in 2020, criminal offenses are divided into crimes and misdemeanors. Concerning misdemeanors, it is assumed about simplified pretrial investigation. In this regard Criminalistics should provide an algorithm of actions for law enforcement, offer forensic methods of investigating misdemeanors.

---

[1] Правова доктрина України: у 5 т. Т. 5: Кримінально-правові науки в Україні: стан, проблеми та шляхи розвитку/за заг. ред. В. Я. Тація, В. І. Борисова. Харків, 2013. 1240 р. ; Велика українська юридична енциклопедія: у 20 т. Т. 20 … . 952 р.

[2] Малевски Г. В поисках собственной модели обучения — метаморфозы криминалистической дидактики в Литве//*Модели преподавания криминалистики: история и современность:* … . P. 57.

The problem becomes more relevant in connection with the need to harmonize the domestic criminal procedure mechanism with European standards, to ensure the proper balance of public and private interests [1], so proposals were made on the need for forensic support of prosecutors, judges and lawyers.

Important question arises, who should Criminalistics serve for in the new conditions? The usage of forensic sciences provides implementation of cognitive activities by different subjects in the area of justice. Focus of subjects of this activity should be related to the restoration of justice, achievement of the truth. Therefore, in the general criminal process, the subject of the use of forensic knowledge may be not only the investigator, but also the parties to the criminal proceedings, other entities with appropriate powers (eg, procedural manager, detective, investigating judge), as well as the court.

Teaching Criminalistics in Ukraine and issues of forensic didactics. In Ukraine special attention should be paid to issues of forensic didactics. For today, the topical questions, asked at the beginning of the XX century, are relevant again: "Who should teach Criminalistics?", "Who should learn it?", When and how should I teach it?" [2].

In modern conditions there are different approaches to the role of Criminalistics in legal education during training of law students. Scientific discussions are also taking place in this direction[3].

In our view, Criminalistics as an academic discipline should be taught all law students. Meanwhile, Criminalistics should be normative discipline on the Faculties of Law and at the universities independent of specialization of future lawyers (prosecutor, detective, solicitor, notary, legal adviser, judge and others).

Another matter is that various lawyers are needed different amount of forensic data [4], a certain teaching load for different programs. Studying of law students on the subject *Criminalistics* provides them with creative thinking, formation of skills for practical activity, making the right decisions [5].

---

[1] Шепитько В. Ю. Криминалистика в с истеме юридических наук и ее роль в глобальном мире//*Криміналістика та судова експертиза: наука, навчання, практика:* зб. наук. пр.: у 2 т. Харків, 2014. Т. 1. Р. 149.

[2] Маннс Г. Ю. Криминалистика, как прикладная дисциплина и предмет преподавания//*Криминалист первопечатный*. Харьков. 2011. № 3. Р. 92—97.

[3] E.g.,: VII Polish Forensic Science Society Simposium "Criminalistics — Education First…"//*A First Printed Criminalist.* Kharkiv, 2018. № 16. P. 124, 125.

[4] Шепитько В. Ю. Криминалистика XXI века: предмет познания, задачи и тенденции в новых условиях//*Современное состояние и развитие криминалистики:* сб. науч. тр. Харьков, 2012. Р. 53.

[5] Idem. Проблемы становления и развития криминалистики как университетской дисциплины в Украине//*Модели преподавания криминалистики: история и современность:* … . Р. 73.

Undoubtedly that standard studying should be modernized in some way. New methodical developments such as blitz test, business games, setting problem and situational tasks should be used more intensively. Nowadays, usual lectures for previous generations, practical training and seminars are impossible without demonstration of episodes of films, multimedia presentations, usage other creative computer-based training products [1], as well as laboratory works on Criminalistics without applying modern equipment, devices and science and technology-based means.

Trainings on Criminalistics are usually connected with creation of schemes, the need to simulate situations. If students work in small groups, at least a few schemes should be prepared. To be sure, advantage of case method of learning is considered more interesting tasks, that motivate to obtaining theoretical knowledge [2].

Museum of Criminalistics and forensic training ground should play the important role in conducting seminars and performing laboratory works on Criminalistics.

Forensic training ground is a specially equipped territory or building for conducting such trainings in the field. Forensic training ground should be equipped for conducting certain tasks by students of higher education law institutions: staging rooms, furniture, models, mannequins, templates, analogues etc. In addition, forensic equipment, simulators, appliances, tools, supplies will be also necessary on the forensic training ground.

On the forensic training ground, it is expedient to hold training on such topics as: forensic photography, trasology, forensic ballistics, tactics of inspection of the scene, tactics of investigative experiment, as well as investigation of murders, railway accidents, criminal explosions, fires and arsons, road traffic accidents, plane crashes [3].

Conclusions. On the basis of historical data, the formation and development of Criminalistics in various directions are traced (technical, tactical-psychological, forensic criminological etc.). It is emphasized the role of individual in the development of science, determined the contribution in Criminalistics formation by outstanding scientists, medical examiners, forensic examiners, lawyers (L. Ye. Vladymyrov, O. D. Kyselov, A. F. Koni, M. S. Bokarius and others), who worked and carried out their scientific activities at Kharkiv Imperial University.

---

[1] E.g.,: Idem. Про розробку та впровадження в навчальний процес новітніх технологій навчання//*Проблеми вищої юридичної освіти*: тези доп. та наук. повідомл. наук.-метод. конф. (Харків, 18—19.12.2001)/за ред. В. В. Комарова. Харків, 2002. P. 79—81.

[2] E.g.,: Кендзерска Г. Op. cit. P. 111, 112.

[3] Велика українська юридична енциклопедія: у 20 т. Т. 20 … . P. 622, 623.

In modern realities, the development of criminology is due to scientific and technological progress. An important trend in criminalistics is the integration of knowledge, offering new, innovative developments in science aimed at solving the problem of combating crime. Informatization of the social environment has contributed to a certain technology of criminalistics, development and implementation in its information, digital, telecommunications and other technologies. For the present time, the task of digitalization of the most important spheres of life has been created at the state level.

Attention to the issues of forensic didactics is drawn. Arguments on the need to study Criminalistics as a subject by future lawyers are formulated. The modernized approaches to Criminalistics studying are generalized, the role in such studying of multimedia means, forensic training ground and museum of Criminalistics is defined.

References

Bagalei, D. I., Sumtcov, N. F., Buzeskul V. P. (2017). *Kratkii ocherk istorii Kharkovskogo universiteta za pervye sto let ego sushchestvovaniia (1805—1905).* Moscow [in Russian].

Bokarius, N. N. (1948). 25 let raboty Kharkovskogo nauchno-issledovatelskogo instituta sudebnoi ekspertizy im. Zasl. prof. N. S. Bokariusa. *Problemy kriminalistiki i sudebnoi ekspertizy:* sb. nauch. rabot, posviashch. 25-letnemu iubileiu Ed: D. Kh. Panasiuka; Eds: N. N. Bokarius, V. P. Kolmakov, I. A. Sapozhnikov. Kharkiv [in Russian].

Bokarius, N. N. (2013). Zhizn i deiatelnost zasluzhennogo professora Nikolaia Sergeevicha Bokariusa. *Kriminalist pershodrukovanii*. Kharkiv, № 6 [in Russian].

Entciklopediia kriminalistiki v litcakh. (2014). V. Iu. Shepitko. (Ed). Kharkiv [in Russian].

Gross, G. (2002). *Rukovodstvo dlia sudebnykh sledovatelei kak sistema kriminalistiki.* Novoe izd., perepech. s izd. 1908 g. Moscow [in Russian].

Kendzerska, G. (2014). Izuchenie kriminalistiki v Polshe. *Modeli prepodavaniia kriminalistiki: istoriia i sovremennost:* sb. nauch. Trudov. Eds: N. P. Iablokova, V. Iu. Shepitko. Kharkiv [in Russian].

Koni, A. F. (1922). *Pamiat i vnimanie. Iz vospominanii sudebnogo deiatelia*. Petersburg [in Russian].

Koni, A. F. (1923). *Samoubiistvo v zakone i zhizni.* Eds.: A. M. Vinavera i dr. Moscow [in Russian].

Koni, A. F. (1956). Nravstvennye nachala v ugolovnom protcesse (obshchie cherty sudebnoi etiki). *Izbrannye proizvedeniia. Stati i zametki. Sudebnye rechi. Vospominaniia.* Moscow [in Russian].

Koni, A. F. (1959). *Izbrannye proizvedeniia:* v 2-kh t. T. 1: Vospominaniia. 2-e izd., dop. sost. L. B. Amelin. Moscow [in Russian].

Kozachenko, I. M. (2009). Do 60-richchia Kharkivskoho tovarystva sudovykh medykiv i kryminalistiv im. prof. M. M. Bokariusa. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky.* Kharkiv. Vyp. 9 [in Ukrainian].

Malevski, G. (2014). V poiskakh sobstvennoi modeli obucheniia — metamorfozy kriminalisticheskoi didaktiki v Litve. *Modeli prepodavaniia kriminalistiki: istoriia i sovremennost:* sb. nauch. trudov. Eds: N. P. Iablokova, V. Iu. Shepitko. Kharkiv [in Russian].

Manns, G. (2011). Kriminalistika, kak prikladnaia distciplina i predmet prepodavaniia. *Kriminalist pervopechatnyi.* Kharkiv. № 3 [in Russian].

Natsionalna yurydychna akademiia Ukrainy imeni Yaroslava Mudroho. 1804—2009 (2009). Eds: V. Ya. Tatsii (holova), V. V. Stashys, A. P. Hetman ta in. Kharkiv [in Ukrainian].

Pravova doktryna Ukrainy (2013): u 5 t. T. 5: Kryminalno-pravovi nauky v Ukraini: stan, problemy ta shliakhy rozvytku. Eds.: V. Ya. Tatsiia, V. I. Borysova. Kharkiv [in Ukrainian].

Profesory Natsionalnoi yurydychnoi akademii Ukrainy imeni Yaroslava Mudroho. (2004). Eds.: V. Ya. Tatsii (holova), V. V. Stashys, V. V. Komarov ta in. Kharkiv [in Ukrainian].

Shepitko, M. V. (2019). Ukrainska hrupa Mizhnarodnoho Kryminalistychnoho Soiuzu: shliakh vid Vidnia do Paryzha. *Kryminalist pershodrukovanyi.* Kharkiv, № 18 [in Ukrainian].

Shepitko, M. V. *Portretnaia galereia saita Kongressa kriminalistov: Kiselev Aleksandr Dmitrievich.* URL: https://crimcongress.com/tag/kiselev-a-d (data zvernennia: 01.09.2020) [in Russian].

Shepitko, V. Iu. (2012). Kriminalistika XXI veka: predmet poznaniia, zadachi i tendentcii v novykh usloviiakh. *Sovremennoe sostoianie i razvitie kriminalistiki:* sb. nauch. tr. Kharkov [in Russian].

Shepitko, V. Iu. (2014). Kriminalistika v sisteme iuridicheskikh nauk i ee rol v globalnom mire. *Kriminalistika ta sudova ekspertiza: nauka, navchannia, praktika:* zb. nauk. pr.: u 2 t. Kharkiv [in Russian].

Shepitko, V. Iu. (2014). Problemy stanovleniia i razvitiia kriminalistiki kak universitetskoi distcipliny. *Modeli prepodavaniia kriminalistiki: istoriia i sovremennost:* sb. nauch. tr. Eds.: N. P. Iablokova, V. Iu. Shepitko. Kharkiv [in Russian].

Shepytko, V. Yu. (2002). Pro rozrobku ta vprovadzhennia v navchalnyi protses novitnikh tekhnolohii navchannia. *Problemy vyshchoi yurydychnoi osvity:* tezy dop. ta nauk. povidoml. nauk.-metod. konf. (Kharkiv, 18—19.12.2001). V. V. Komarov (Ed.). Kharkiv [in Ukrainian].

Velyka ukrainska yurydychna entsyklopediia (2018): u 20 t. NAPrN Ukrainy, In-t derzhavy i prava im. V. M. Koretskoho NAN Ukrainy, Nats. yuryd. un-t imeni Yaroslava Mudroho; Eds.: V. Ya. Tatsii ta in. T. 20: Kryminalistyka, sudova ekspertyza, yurydychna psykholohiia. Eds: V. Yu. Shepitko ta in. Kharkiv [in Ukrainian].

VII Polish Forensic Science Society Simposium "Criminalistics — Education First…". *A First Printed Criminalist.* Kharkiv, 2018. № 16.

Yurydychna entsyklopediia (2001): v 6 t. T. 3: K — M. Eds: Yu. S. Shemshuchenko (holova) ta in. Kyiv [in Ukrainian].

Yusupov, V. V. (2018). *Kryminalistyka v Ukraini u XX—XXI stolittiakh*: monohrafiia. Kyiv [in Ukrainian].

В. Ю. Шепітько

ФОРМУВАННЯ КРИМІНАЛІСТИКИ ТА КРИМІНАЛІСТИЧНОЇ ДИДАКТИКИ В УКРАЇНІ

Розглянуто становлення та сучасний стан криміналістики як науки й навчальної дисципліни в Україні. Звернено увагу на деякі тенденції криміналістики в сучасних умовах. Акцентовано увагу на ролі криміналістики в науковому забезпеченні не лише процесу доказування, а й різних процедур правозастосування. Визначено зв'язок оптимізації діяльності суду й органів правопорядку із впровадженням інновацій у криміналістику.

Досліджено підходи до викладання криміналістики студентам-юристам університетів України. Визначено параметри вивчення криміналістики та предметів криміналістичної спрямованості. Продемонстровано можливості використання криміналістичного полігону й музею криміналістики під час проведення практичних занять і виконання лабораторних робіт.

Ключові слова: криміналістика, криміналістична дидактика, криміналістичні знання, тенденції криміналістики, криміналістичний полігон, музей криміналістики.

В. Ю. Шепитько

ФОРМИРОВАНИЕ КРИМИНАЛИСТИКИ И КРИМИНАЛИСТИЧЕСКОЙ ДИДАКТИКИ В УКРАИНЕ

Рассмотрено становление, развитие и современное состояние криминалистики как науки и учебной дисциплины в Украине. Обращено внимание на некоторые тенденции криминалистики в современных условиях, а именно на связь изменений в криминалистических знаниях с научно-техническим прогрессом современного общества.

Акцентировано внимание на роли криминалистики в научном обеспечении не только процесса доказывания, но и различных процедур правоприменения. Использование криминалистических знаний актуально для практической деятельности различных юристов: прокурора, следователя, детектива, судьи, адвоката, нотариуса, юрисконсульта и др. Установлена взаимосвязь оптимизации деятельности суда и органов правопорядка с внедрением инноваций в криминалистику.

Рассмотрены подходы к преподаванию криминалистики студентам-юристам в вузах Украины. Обоснована необходимость обучения

криминалистике студентов-юристов различных специализаций. Определены параметры обучения криминалистике и предметам криминалистической направленности: объём учебной нагрузки, временной период обучения, формы обучения, способы передачи информации, методы усвоения практических навыков и др.

Аргументирована роль модернизированных способов в обучении криминалистике: деловых игр, решения нестандартных мыслительных задач, экспресс-тестов, мультимедийных средств и электронных баз знаний, технического инструментария. Продемонстрированы возможности использования криминалистического полигона и музея криминалистики при проведении практических занятий и лабораторных работ.

Ключевые слова: криминалистика, криминалистическая дидактика, криминалистические знания, тенденции криминалистики, криминалистический полигон, музей криминалистики.

Received by Editorial Board: 02.10.2020

Shepitko V. Yu. Formation of criminalistics and forensic didactics in Ukraine//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/ Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 7—19. DOI: https://doi.org/10.32353/khrife.2.2020.01.

DOI: https://doi.org/10.32353/khrife.2.2020.02
UDC 343.98

V. M. Shevchyuk,
Doctor of Law, Professor, Professor at the Department of Criminalistics
of Yaroslav Mudryi National Law University, Honored Lawyer of Ukraine,
Kharkiv, Ukraine,
ORCID: http://orcid.org/0000-0001-8058-3071,
e-mail: Shevchuk_viktor@ukr.net

Forensic innovation: concepts, functions, tasks and research prospects

The article is devoted to topical problems of formation of forensic innovation as a new scientific direction in criminalistics. Theoretical and methodological bases for development and formation of forensic innovation, its functions, tasks and prospects of introduction of its provisions in law enforcement practice are investigated, perspective directions for research of the considered scientific concept are outlined.

It's substantiated that in present-day realities attention should be drawn to research on forensic innovation on the basis of general theoretical approaches which ensure explanation and substantiation of such fundamental principles of any separate scientific theory as its genesis, essence, fact, hypothesis and theoretical construction. It's noted that the level of formation and validity of any scientific theory, including forensic innovation, is determined by the degree and level of development of its theoretical and methodological foundations. It's stressed that the process of constructing forensic innovation as a weighty forensic theory cannot yet be completed due to the large number of uncoordinated, undeveloped and debatable issues. Therefore, today the concept of forensic innovation has not yet reached the level of a separate forensic theory and is still in the process of forming. Accordingly, it is important to study and reveal patterns of functioning at the theoretical level, all stages of the life cycle of innovations in criminalistics, starting with creation, proposal, implementation, and ending with their application in practice. It's noted that issues of determining the place of this theory in criminalistics taxonomy, its structure and functions are significant. It's argued that currently scientific preconditions for the development and formation of forensic innovation are created and such research in modern conditions is a promising innovative direction in the development of criminalistics, which requires further research.

The methodological basis for the development and implementation of forensic innovations in law enforcement are activity, system-structural and technological approaches, the use of which is promising for the formation of a separate forensic theory: forensic innovation. An integrated approach to the development and formation of forensic innovation is the methodological foundation for further research on this issue. New scientific approaches to the solution of researched

© V. M. Shevchyuk, 2020

debatable questions are substantiated and promising directions for research on the specified problems are defined.

Keywords: innovations in criminalistics, forensic innovation, innovative directions of criminalistics development, tasks and functions of forensic innovation, forensic innovation.

Formulation of Research Problem. The current stage of the development of Criminalistics, its prospects are characterized by active researches and the usage of innovative products and technologies in all its constituents: general theory of Criminalistics, Criminalistic techniques and tactics and method of Criminalistics. Innovative directions of development of Criminalistics are closely related to solving its tasks in the conditions of globalization and computerization of digital society and wide introduction of Innovative Information Technologies [1]. The task of Criminalistics is determined by its social function to prevent criminal phenomena by its techniques, methods and means. In this regard, the main tasks of Criminalistics are to assist law enforcement agencies in combating crime, timely and complete technical and forensic support, their judicial proceedings. return and timely forensic support and support of criminal offenses investigation, their judicial review. This task can be realized under condition of full use of modern science and technology achievements[2].

In the current conditions the formation of knowledge in Criminalistics, as noted by V. Yu. Shepitko, depends on the development of scientific and technological progress. In addition, the development of Criminalistics, its trends are due to the influence of global information flows, the integration of knowledge about possibilities of combating crime through scientific and technological achievements of modern times. The informatization of the social environment in fact facilitates the "technologicalization" of Criminalistics, the development

[1] 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, 12.12.2019). Харків, 2019. P. 147—150 ; Shevchuk V. M. Innovations in criminalistic and practice of their implementation in law enforcement activity//*Modern science: problems and innovations*. The 2nd International Scientific and Practical Conference (Stockholm, 03—05.05.2020). Stockholm, 2020. P. 903—913 ; та ін.

[2] Ієрусалімов І. Є. Забезпечення використання науково-технічних досягнень у слідчій діяльності. Київ, 2000. P. 20—40 ; Шепітько В. Ю., Журавель В. А., Авдєєва Г. К. та ін. Інноваційні засади техніко-криміналістичного забезпечення діяльності органів кримінальної юстиції: монографія/за ред. В. Ю. Шепітька, В. А. Журавля. Харків, 2017. P. 3—46 ; Шевчук В. М. Інновації у криміналістичній техніці: сучасні можливості та проблеми застосування//*Науковий вісник Міжнародного гуманітарного університету.* Серія «Юриспруденція». Одеса, 2020. № 43. P. 146—151. URL: https://doi.org/10.32841/2307-1745.2020.43.32 (date accessed: 12.11.2020) ; Шепітько В. Ю., Авдєєва Г. К. Використання сучасних досягнень науки і техніки у боротьбі зі злочинністю: здобутки та перспективи діяльності//*Вісник Національної академії правових наук України.* Харків, 2013. № 2 (73). P. 308—314 ; та ін.

and implementation of information, digital, telecommunications and other technologies. Given the above, radical changes are taking place and innovative approaches are being introduced in Criminalistics support of law enforcement [1]. Thus, creation and implementation of innovative criminalistic products in modern conditions are one of priorities of Criminalistics and an urgent need for practice.

It is clear that the creation of the given problematic is quite relevant and significant, both in theoretical and practical sense. In criminalistic doctrine and practice of combating crime, the problems of creating, implementing and applying innovations in the practice of criminal-justice bodies have always been and remain the most important tasks [2]. At the same time, in modern realities in this field of knowledge there are a number of controversial issues regarding the innovation research in criminolistics and the problems of their introduction into the practice of investigative, judicial and expert activities. Special in-depth study, critical analysis and further scientific development require methodological problems of developing and forming the scientific foundations of criminalistic innovation, as one of the relatively new scientific directions in emerging Criminalistics.

Analysis of Essential Researches and Publications. The scientific basis of the research contains works of forensic scientists devoted to the development of innovative areas of Criminalistic science and consideration of its some controversial issues, connected with current issues of forming a scientific concept of innovation in Criminalistics and identifying priority areas for such developments: G. K. Avdeeva, V. L. Grigorovich, N. I. Dolzhenko, M. V. Zhizhina, V. A. Zhuravl, V.O. Konovalova, I. I. Kohutych, M. V. Saltevskyi, D. K. Tarianyk, N. B. Nechaieva, H. V. Fedorova, Yu. V. Chornous, V. Yu. Shepitko and others [3].

[1] Шепітько В. Ю. Проблеми оптимізації науково-технічного забезпечення слідчої діяльності в умовах змагального кримінального провадження: мат-ли наук. конф. за рез-ми роботи фахівців НДІ вивчення проблем злочинності ім. акад. В. В. Сташиса за фундамент. темами у 2018 р. (Харків, 26.03.2019). Харків, 2019. P. 144.

[2] Берназ П. В. Інновації — основа криміналістичного забезпечення діяльності з розслідування злочинів//*Південноукраїнський правничий часопис*. 2015. № 4. P. 50 ; Шевчук В. М. Криміналістика: традиції, новації, перспективи: добірка наук. пр./упоряд. Н. А. Чмутова. Харків, 2020. 1280 р. ; Шепітько В. Ю. Завдання криміналістики в умовах глобальних загроз та еволюційних перетворень злочинності//*Криминалистика и судебная экспертиза: наука, обучение, практика:* мат-ли наук.-практ. конф. Міжнар. конгресу криміналістів (Одеса, 13—15.09.2018): у 2 т. Одеса, 2018. Т. 1. P. 14—26 ; та ін.

[3] Долженко Н. И., Таряник Д. К. Инновации в криминалистическом обеспечении раскрытия и расследования преступлений: некоторые проблемы внедрения и пути их решения//*Научный альманах.* Тамбов. 2017. № 5-1 (31). P. 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. P. 22—27 ; Журавель В. А. Окремі вчення в структурі загальної теорії криміналістики//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2018. Вип. 18. P. 9—21. URL: https://doi.org/10.32353/khrife.2018.02 (date accessed: 12.11.2020) ; Шепітько В. Ю.,

Simultaneously, a number of issues, determining for the development of Criminalistic innovation problems as a new scientific direction in Criminalistics are still understudied, including the problem of developing and forming theoretical and methodological foundations of Criminalistic innovation, its functions, tasks and prospects for implementing this concepts in law enforcement practice.

Verification and analysis of criminalistic literature point to the fact that for today in Criminalistics there is a lack of specific research of problems of development and formulation of Criminalistic innovation as a separate criminal theory. It's necessary to note that about the need to research some provisions of Criminalistic innovation, innovations in forensics and problems of their implementation in law enforcement practice are mentioned only in some works of scientists, and only as a problem statement (O. Kh. Volynskyi, M. V. Zhizhina, V. Yu. Sokol and others) [1]. Furthermore, trends of significant lag of theoretical developments from the practice of Criminalistic innovations in law enforcement activities of criminal justice authorities are observed. Mentioned circumstances are needed an integrated approach to the study of considered problematics and required significant intensification of further scientific development in this area of knowledge.

The **Article Purpose** is the study of theoretical and methodological bases of Criminalistic innovation as a new scientific direction in Criminalistics, definition of its concept, functions, tasks, description of perspective researches

Журавель В. А., Авдєєва Г. К. та ін. Op.cit P. 15 ; Когутич І. І. Тенденції пристосування криміналістичних знань у здійсненні судочинства//*Вісник Львівського університету.* Серія юридична. 2013. Вип. № 57. P. 338 ; Нечаева Н. Б. Инновации в криминалистике//*Ленинградский юридический журнал*. 2013. № 2 (32). P. 158 ; Сокол В. Ю. Инновационная деятельность как объект криминалистических исследований//*Пробелы в российском законодательстве*: юрид. журн. 2008. № 1. P. 378—379 ; Шевчук В. М. Методологічні проблеми формування понятійного апарату криміналістичної інноватики//*Вісник Національної академії правових наук України.* 2020. Т. 2. P. 170—183. URL: https://doi.org/10.37635/jnalsu.27(2).2020.170-183 (date accessed: 12.11.2020) ; Idem. Інноваційні напрямки розвитку криміналістики//*Інноваційні методи та цифрові технології в криміналістиці, судовій експертизі та юридичній практиці:* мат-ли Міжнар. «круглого столу» (Харків, 12.12.2019). Харків, 2019. P. 142—147 ; Шепітько В. Ю., Журавель В. А., Авдєєва Г. К. Інновації в криміналістиці та їх впровадження в діяльність органів досудового слідства//*Питання боротьби зі злочинністю:* зб. наук. пр./редкол.: В. І. Борисов та ін. Харків, 2011. Вип. 21. P. 44—45 ; Федоров Г. В., Григорович В. Л. Инновационные направления развития криминалистики: монография/под ред. Г. В. Федорова. Москва, 2012. 272 p.

[1] Волынский А. Ф. Инновационная сущность криминалистического обеспечения расследования преступлений//*Вестник криминалистики*. Москва, 2011. Вып. 3 (39). P. 26—29 ; Жижина М. В . Инновационный путь развития криминалистики на современном этапе//*Ibid.* 2012. Вып. 1 (41). P. 18—24 ; Сокол В. Ю. Науковедческие проблемы криминалистики//*Общество и право.* 2008. № 1 (19). P. 218—220 ; Idem. Инновационная деятельность как объект … . P. 378—379.

and providing with introduction of its provisions in law enforcement practice. The study was intended to formulate its concepts, functions and tasks, determine the priority areas of studies of mentioned problematics.

Main Content Presentation. Recently, in the criminalistic literature, a certain tendency to high the level of interest by forensic scientists in specific problems of the scientific principles of criminalistics is observed, nonetheless, such interest is still limited to research, mainly related to the study of objects and subjects of Criminalistics, functioning, tasks, organization principles and laws of Criminalistics. At the same time, there is a great lack of scientific studies on the problems of transforming forensic knowledge into practice, mechanism for the implementation of forensic theory in practice, problems of adoption of forensic innovations in practical activities of law enforcement agencies, defining the role of forensic innovation processes to increase the efficiency of crime investigation, trial, etc., issues related to the problems of forensic support of the practical activities of law enforcement agencies, which significantly enhance *the practical orientation of Criminalistic innovations and their implementation in practice.*

Analysis of forensic literature and investigative and judicial practice shows that now there is a paradoxical situation in which modern Criminalistics, developing its recommendations, including Criminalistic innovations focused on optimizing criminal proceedings, does not purposefully explore issues devoted to their implementation in practice[1]. At the same time. It is obvious that problems of implementation of Criminalistic innovations in practice are fundamentally important, insofar as, firstly, it is related to the applied functions of Criminalistics, and secondly, recent decades are characterized by the fact that a large number of criminalistic innovations have not yet been implemented in practice. The reasons for the latest one are various: they can be both objective and subjective (in particular, due to the obvious impracticality or contrivedness of such criminalistic recommendations and innovations, as well as the impossibility of their use in practice or their unclaimed, and so on). The reasons of such non-establishment and unclaimed of Criminalistic innovations according to our opinion, should be the subject of separate criminalistic research.

In addition, the generalization and analysis of investigative practice indicate an obviously low level of use of innovations in the pre-trial investigation. Thus, on the result of survey of investigators of the Prosecutor's Office of Ukraine, the reason for such conditions are an absence of innovative developments, appropriate for implementation in investigative activities (it was noted by

[1] Жижина М. В. Op.cit. ; Шевчук В. М. Актуальні проблеми криміналістики у сучасних умовах//*Korszerű műszerek és algoritmusa tapasztalati és elméleti tudományos kutatási:* tudományos művek gyűjteménye a nemzetközi tudományos-gyakorlati konferencia anyagaival (Budapest, 18.09.2020). Budapest, 2020. H. 3. P. 90—96. URL: https://doi.org/10.36074/18.09.2020.v3.33 (date accessed: 12.11.2020) ; Idem. Сучасний стан та тенденції розвитку криміналістики: актуальні проблеми сьогодення// *Проблеми законності*. 2019. Вип. 146. P. 234—246 ; та ін.

52,4 % of respondents), scientific and practical recommendations from their use (4,1 %) and skills for using these innovations by investigators (2,7 %), as well as imperfection of existing tools (9,6 %), insufficient compactness of new forensic tools (3,1 %) etc. Only 39,3 % of responders use the latest technologies for gathering, processing and use of significant forensic information during conducting the pre-trial investigation, namely: information databases (36,5 %); base of the legislation of Ukraine (38,3 %); forensic registrations (20,0 %); automated workplace of an investigator (12,1 %); electronic handbooks (21,7 %). Among reasons for inhibition of innovative developments in Criminalistics and implementation them into investigative practice are the lack of knowledge of investigators in this area and lack of opportunity to obtain it, professional deformation or improper attitude to creative people and everything new, advanced etc. [1]

So, mentioned above material once again confirms the relevance and necessity of separation (as an independent task of Criminalistics) of scientific support for implementation in practical activity innovative products, methods, techniques and means developed by Criminalistics. We believe that the separation and formulation of such a task, its study will significantly influence on the production of innovative products, effectual criminalistic recommendations of practical orientation, determine the content and directions of innovative development of Criminalistics.

In our opinion, named circumstances are caused by methodological failures in Criminalistics that prevent to differ Criminalistic novation, novelty and innovation, as well as to divide the innovative Criminalistic activity into an independent object of study. Herein lies the need to strengthen the practical component of modern forensic research and a proper understanding of innovations in Criminalistics. We consider that Criminalistic innovations should be understood as developed, implemented and applied in practice the latest technical, tactical, methodological and forensic means, which are the result of research and development used as a new product (production), technology, services, solutions which are used by high-qualified special subjects in practical activity and aimed at effective solving of criminalistic tasks and ensuring optimization, improving the quality and effectiveness of law enforcement practice.

In view of the above, the solution of the problem on *implementation of criminalistic innovations developed by Criminalistics* involves the distinction and comprehensive study in the subject of Criminalistics on an independent, homogeneous group of regularities that characterize the use in practice of developed by Criminalistics methods, techniques and means of optimization of pre-trial investigation and trial: regularities of action for development of Criminalistic innovations and their implementation in the practice of counteracting modern challenges of crime. Therefore, in our opinion, in Criminalistics there should be a system of scientific provisions, combined

[1] Шепітько В. Ю., Журавель В. А., Авдєєва Г. К. Op.cit. P. 41.

into Criminalistic theory, ensuring the transition from the system of scientific knowledge and their implementation in practical activities in order to optimize the process of implementation of criminalistic recommendations. We believe that such a theory could be called *Criminalistic innovation. Criminalistic innovation* is a separate branch of scientific knowledge, connected with innovation theory (social and legal innovation). So, there is a great need of creation and forming criminalistic innovation as a separate criminalistic theory.

For today, the vast majority of issue that are dicisive in the formation of criminalistic innovation are discussed, in particular about the meaning and essence of criminalistic innovations, their features, functions, principles of forming and realization , classification, stages of their life cycle, determining the place in the system of Criminalistics, distinguishing of determinants that condition the development and implementation of criminalistic innovations in practice, efficiency and effectiveness of such innovations. These and many other questions should be efficiently answered, it is this that cause the necessity to develop of the theory and methodology of scientific concept of criminalistic innovations.

In this regard, the studies of Criminalistic innovation on the basis of general theoretical approaches, providing explanations and justification for such fundamental principles of any particular scientific theory as its genesis, essence, fact, hypothesis and theoretical construction are noteworthy[1]. It is very important at the theoretical level to learn and uncover regularities of functioning of all stages of innovation life cycle in Criminalistics: starting from creation, proposal, implementation and ending with applying, constant use of innovations in practical activity and their distribution. Full development of a particular theory in Criminalistics must be justified by the subject and object of its study, as well as the methods used. Questions of the determining the place of this theory in Criminalistic systematization, its structure and functions are also significant.

Given the above, in our opinion, the process of constructing such a criminalistic theory cannot yet be considered completed due to the considerable number of inconsistent and debatable issues that we have already mentioned. Consequently, we consider that to date, the conception of Criminalistic innovation has not till now reached the level of a separate Criminalistic theory and is still in the process of formation.

In determining the level of formation of a particular criminalistic theory, it is necessary to proceed from general philosophical approaches to solving this problem. In particular, P. V. Kopnin noted that knowledge, in order to become

[1] Журавель В. А. Op.cit. ; Shevchuk V. Modern problems of formation and prospects for researching the concept of criminalistic innovation//*Tendances scientifiques de la recherche fondamentale et appliquée:* collection de papiers scientifiques «ΛΌΓΟΣ» avec des matériaux de la conférence scientifique et pratique internationale (Strasbourg, 30.10.2020). Strasbourg, 2020. Vol. 2. P. 67—72. URL: https://doi.org/10.36074/30.10.2020.v2.20 (date accessed: 12.11.2020).

a theory, should reach a certain maturity in its development. The theory should include not only a description of a known set of facts, but also their explanations, highlighting the regularities to which they are subordinated. There is no explanation - there is no theory [1]. Guided by the above provisions, R. S. Belkin noted that a separate criminalistic theory cannot be any set of individual theoretical provisions, even very significant and those that relate entirely to the subject area of criminalistic science. Separate theoretical constructions can be combined into an individual criminalistic theory only when they belong to a clearly defined set of phenomena moreover, organically connected to each other. Within the limits of separate theoretical provisions, cognition can reach knowledge of separate reguliarities of a subject; the objective connection of these regularities, i.e. knowledge of regularities of a deeper essence is already the level of a separate criminalistic theory [2].

Mentioned provisions should be considered fundamental, starting to further study the problems of criminalistic innovations within the formation of a separate Criminalistic theory, which primarily raises questions about the subject, object and method of this theory[3].

Note that the subject of Criminalistic theory are certain regularities of objective reality among those studied by Criminalistics in general. The subject of criminalistic innovation is the regularities of creation of criminalistic innovations, implementation, providing and application them in legal practice and their reflection in the sources of information. Considering the subject of criminalistic innovation, we consider it possible to support the position of V. Yu. Sokol and attribute to the subject of Criminalistic innovation theory three groups of regularities:

1) regularities of creation of Criminalistic innovations, among other things the meaning of criminalistic innovation, its features, criteria, correlation of innovative approaches with traditional ones, study of stages of creation of such innovations, their classifications, as well as sources of innovative ideas in Criminalistics, legal maintenance of creation of criminalistic innovations, subjects of development of criminalistic innovations, etc. (*criminalistic neology*);
2) regularities and features of perception and evaluation of criminalistic innovations by scientists and practitioners, their readiness to accept and evaluate the proposed criminalistic innovations, etc. (*criminalistic axiology*);
3) regularities and features of implementation and application in practice of criminalistic innovations, the reasons for non-implementation and/ or their ineffective application, recommendations for improving the effectiveness

[1] Копнин П. В. Диалектика как логика и теория познания. Москва, 1973. P. 260.

[2] Белкин Р. С. Курс криминалистики: учеб. пособ. для вузов. 3-е изд., доп. Москва, 2001. P. 285.

[3] Idem. Курс криминалистики: в 3 т. Т. 2: Частные криминалистические теории. Москва, 1997. P. 19—23.

of the process of implementation of such innovations (*criminalistic praxeology*) [1].

The object of forensic innovation has a complex structure and represents both the criminalistic innovation itself and the connections and relationships that are manifested in the process of its development, implementation and practical implementation and application this is on the one hand, and on the other hand is criminal activities that are closely related to crime detection, investigation, crime prevention in particular and law enforcement activities in general. The object of this separate theory are two types of activity (criminal activity and law enforcement), which affect the features of development, implementation and application of criminalistic innovations, stages of their life cycle, forms and possibilities of formation and implementation of innovations in criminalistics, determinants of development and implementation of certain types of such innovations in practice, the mechanism of their implementation and functioning.

In our opinion, within the law enforcement activity we can talk about a special type of activity — innovative criminalistic activity: the activities of authorized persons to create (develop), implement, realize and apply in practice criminalistic innovations. This is, on the one hand, about such special subjects as developers, and on the other about consumers of such innovations. Developers are entities involved in the process of creating, implementing and realization of innovation (scientists, technicians, innovators, etc.). Consumers are special entities (investigator, judge, expert, etc.), which are endowed with special functional powers for their application, who have undergone qualified professional training, have the knowledge and practical skills to use such innovations. In other words, consumers are entities involved in the process of applying criminalistic innovation. Moreover, they can regulate, stimulate, control and ensure innovation in the process of using such innovations [2]. It is obvious that innovative criminalistic activity, as an independent object of criminalistic research, has a security (service) character in relation in relation to the activities of criminal investigation and trial, law enforcement activities.

The method is a system of cognitive techniques that are used both to build the theory itself and to apply its provisions in a particular practice [3]. As for the theory of criminalistic innovation, it acts both as an object of study of this theory, and as its own method.

Thus, given the stated methodological provisions, today it is too early to talk about creating a separate criminalistic theory of innovation. We consider that in today's realities a new theoretical construction is being formed, which allows imagining figuratively a separate criminalistic theory of innovation in

[1] Сокол В. Ю. Op.cit.

[2] Ковтуненко К. В. Роль учасників інноваційної діяльності в процесі використання інноваційних розробок//*Економіка харчової промисловості:* наук. журн. № 2 (18). Одеса, 2013. P. 63—66.

[3] Белкин Р. С. Op.cit. P. 22.

the criminalistic system. Theoretical knowledge and extensive experience in the practice of development and implementation of innovations in the activities of law enforcement agencies has already been accumulated, which allows to state the existence of prerequisites for the formation of criminalistic theory of innovation.

We believe that the conceptual bases of innovations in criminalistics are needed to be explored in 2 directions. The first direction involves study and research of the essence of innovations in Criminalistics and their features, scientific and methodological foundations, history of the development, structure, functions, and classification of innovations, the place of this theory in Criminalistics, the relationship with other areas of criminalistic and other scientific knowledge, judicial, investigative and expert practice. The second one means the peculiarities of development and functioning of certain types of innovations, stages of their life cycle, forms and possibilities of formation and realization of innovations in Criminalistics, determinants that determine the development and implementation of innovations in practice, as well as problems of their implementation in practice with the purpose of solving criminalistic tasks, taking into account the effectiveness and efficiency of such innovations.

In this regard, it could be argued that for today in Criminalistics *scientific prerequisites for the development and formation of forensic innovation were created*; such researches in modern conditions are a promising innovative direction in the development of Criminalistics, which requires scientific development. These questions are on the agenda and are the basis for further research of forensic scientists. Therefore, at the present stage of Criminalistics development, the problem of developing a certain criminalistic theory of innovation – criminalistic innovation is quite relevant [1]. Further researches of this scientific concept will enrich the theory of criminalistics, providing preconditions for emergence of new approaches to solve important problems of the general theory of criminalistics, criminalistic technics, tactics and methods directed on optimization of investigative, judicial and expert activity.

Criminalistic innovation is a separate criminalistic theory that contains a system of theoretical and practical knowledge about criminalistic innovations, its features, types, role and purpose, stages of development, implementation and application, particularities of functioning, links and relations between entities of such innovations (developers and customers), specificities of interaction with other participants of the innovative process, based on the study of development particularities, implementation and application of such innovations, their reflection in sources of information that form the basis of innovative means,

[1] Шевчук В. М. Інноваційні криміналістичні продукти у правозастосовній діяльності: поняття, ознаки та проблеми впровадження у практику//*Наукові праці Національного університету «Одеська юридична академія».* Одеса, 2020. Т. XXVI. P. 139—155. URL: https://doi.org/10.32837/npnuola.v26i0.671 (date accessed: 12.11.2020).

techniques and methods of collection, studying, evaluation and use evidences to optimize, improve the quality and effectiveness of law enforcement practice and solve criminalistic problems.

Criminalistic innovation should be considered as one of the main directions in Criminalistics that is still formed. Such a scientific concept has a pronounced synthetic nature, and its creation is the result of the law of integration and differentiation of knowledge in Criminalistics. Criminalistic innovation unites not only criminalistic knowledge about innovation, but also provisions of other branches of knowledge. The use of such knowledge in Criminalistics occurs both in "pure" form and to their adaptation and creative involvement in solving criminal tasks. Criminalistic researches of the problem of criminalistic innovation should be based on scientific principles of not only Criminalistics and the theory of criminalistic innovative, but also on other areas of knowledge, above all, philosophy, psychology, economics, innovation, criminology, criminal law, criminal procedure, legal psychology and others, as well as on cognition of economic, social, technical, technological, organizational and other aspects of innovation.

It is necessary to take into account the indicators of the state of modern crime, the structure and dynamics of commission of crimes, its separate varieties, the causes and conditions that contribute to the criminal activity of individuals, and others. Among all the specific disciplines about innovation integrated into the structure of Criminalistics, the provisions of innovation have a special place, which contributed to the separation of criminalistic innovation as an independent object of scientific knowledge, creation and formation of a separate criminalistic doctrine dedicated to this object. Thus, criminalistic innovation accumulates the conceptual provisions of innovation, its methods and means, the conceptual apparatus, properties and features of innovations, the specific nature of innovation process and its stages, classification approaches to the division into types of innovations, their role and purpose, the nature of links and relations between entities, who take part in creation, implementation and application of innovations, problems of efficiency and effectiveness of their application, etc.

The main functions of criminalistic innovation as a scientific field include:

1) study of regularities of development, implementation, providing and application of criminalistic innovations, their reflection in sources of information that serve as the basis for the creation of innovative criminalistic means;
2) improving the study of phenomena of criminalistic innovation in the pretrial investigation, trial, law enforcement activity; its role and purpose; functional analysis of innovative criminalistic activity;
3) study of particularities of development, implementation and functioning of certain types of criminalistic innovations, stages of their life cycle, forms and their possibilities of realization and application for effective solving of

criminalistic tasks and ensuring optimization, improving the quality and effectiveness of law enforcement practice;

4) development recommendations for creation of prognostic models of possible results and effectiveness of implementation of innovations in the process of investigation, trial, law enforcement activity and crimes prevention;
5) study by means of criminalistic analysis of relations and links that are revealed during its development, implementation and practical realization, as well as application of the system "developer — consumer — innovation — result" in order to improve the quality and effectiveness of law enforcement practice and solve criminalistic tasks;
6) development and study of regularities of influence of criminal activity on the need and demand for the creation and use of specific innovative criminalistic products and their interaction with law enforcement activities;
7) detection and study of determinants that cause the development and implementation innovations in practice, as well as the effectiveness of their application;
8) improving the classifications of varieties of innovations taking into account certain criterias and directions of application in practice and in criminalistic science;
9) development *innovative bases of criminalistic support of law enforcement activity* that combine, on the one hand, a complex of innovative criminalistic means and techniques of their application and activity of certain entities regarding the application innovations in practice, on the other hand, the system of scientific provisions that study regularities of innovative criminalistic activity, whose results are directed into effective solving of practical tasks.

Criminalistic innovation should also be considered as *specific activity* of authorized by law entities that carried out using innovative criminalistic means, embodied in a new type of new technologies, products, services, solutions, etc., which are aimed at optimizing, improving the quality and effectiveness of law enforcement practice and solving criminalistic tasks.

Practical application of criminalistic innovations is carried out by special entities that ensures the qualification, efficiency and effectiveness of the use of developed and implemented innovative means. At the same time, the entities of criminalistic innovation in the relevant types and forms of its applications are investigators, experts, prosecutors, judges, employees of operational units. In this regard, the following types of innovation activity should be distinguished:

1) investigative innovation — carried out by the investigator during crimes investigation;
2) forensic expert innovation — used during the expert engagement and conducting forensic examinations;
3) judicial innovation — carried out during examining criminal proceedings in a court;

4) operational innovation — used during investigative actions and operational-investigative activity by employees of operational units.

The application of criminalistic innovation in the activity of detectives, working in NABU and other organizations. In addition to it, with adoption of the Law of Ukraine *on Private Detective Activity* there is a need for developing theoretical and practical issues of application of problems of criminalistic innovation in private detectives' activity [1].

At one time, in modern realities there are most relevant comprehensive approach to the study regarding problems of development and application of innovative means, techniques and methods in various types of legal procedure (criminal, administrative, civil, commercial proceedings), legal practice (investigative, judicial, forensic expert practice, lawyering, procuratorial practice and others) and in separate directions of human activities (on the one hand, in criminal activity, on the other hand, in activities of law enforcement and the court in combating crime) [2]. As indicated, the application of such methodological approaches creates certain prospects and opportunities for significant expansion of boundaries of application of criminalistic knowledge and innovative criminalistic means in conditions of informatization, digitalization and technologicalization of modern society. However, it should not be limited to the field of pre-trial investigation (as this question is traditionally considered in many forensic sources), because, in our opinion, this is not entirely accurate and for today requires clarification, revision of such approaches and further study on this issue.

Based on this, we can conclude that increasing opportunities of the usage of criminalistic innovation in law enforcement areas that are not related to the investigation and crime prevention. This refers to a significant expansion of the boundaries of innovative criminalistic support, as a result, we can talk about the use of criminalistic innovation *in various areas of law enforcement.*

Considering the above, criminalistic innovations are applied by particular entities, who endowed with certain powers and who have acquired qualified professional training, have knowledge and practical skills to use such innovations. In particular, one of the areas of law enforcement is the activity of criminal justice bodies. In this sense, to clarify the essence of innovative activities in criminal proceedings, not only type, content and scope of have a fundamental importance, but also the entity that uses them. Developing this idea, we note that the subjective side of criminalistic innovation is also manifested in the specification of the entity, whose activities are accompanied by the application of innovative criminalistic means.

---

[1] E.g., Про приватну детективну діяльність: проєкт Закону від 04.02.2020 р. № 3010. URL: http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_1pf3511=68051 (date accessed: 04.09.2020).

[2] Когутич І. І. Op.cit.

So, we can say about the application of criminalistic innovation in activities of both the police and other bodies belonging to the system of criminal justice (in particular, to the court). Therefore, it is meaningful to distinguish the use of criminalistic innovation in the activities of law enforcement agencies, as a whole and as individual entities, i.e., this refers to certain types of innovative criminalistic activities [1]. According to the entities, whose activities require the use of innovative criminalistic means, the following levels of criminalistic innovation can be distinguished:

1) in law enforcement activities in general;
2) in the activities of criminal justice bodies;
3) in the activities of individual departments (bodies of the system of the Ministry of Internal Affairs of Ukraine, the Security Service of Ukraine, authorities of the prosecutor's office, etc.);
4) in the activities of individual entities (investigators, detectives, employees of operational units, forensic experts).

For its part, in the field of realization of criminalistic innovation, the following levels can be distinguished to ensure:

- litigation in certain branches (criminal proceedings, administrative, civil, arbitration, commercial proceedings);
- separate stages and proceedings in criminal proceedings (pre-trial investigation and court proceedings);
- investigation of certain types of crimes;
- tactics of conducting certain investigative (search) activities;
- tactics of covert investigative (search) actions;
- tactics of operational and investigative activities.

Mentioned above, makes it possible to approve that criminalistic innovation is a fairly broad, integrated concept, that is on the one hand, contains a set of innovative criminalistic means and methods of their application for collection, research, evaluation and usage of evidence, and activities of entities of proof to create appropriate conditions for the effective use of mentioned means in law enforcement practice, and on the other hand, a system of scientific provisions that study patterns of such innovative activity (including the impact of criminal activity), the results of which are aimed at solving practical tasks on the implementation of criminalistic innovations in the activities of law enforcement. Accordingly, criminalistic innovation should be considered *as a scientific direction,* as well *as a specific activity* of the entities authorized by law.

As a new scientific direction in Criminalistics, criminalistic innovation comprises a system of theoretical and practical knowledge about criminalistic

[1] Шевчук В. М. Інноваційні засади криміналістичного забезпечення діяльності органів правопорядку: постановка проблеми//*Paradigmatic view on the concept of world science:* Collection of scientific papers «ΛΌΓΟΣ» with Proceedings of the International Scientific Conference (Toronto, 21.08.2020). Toronto, 2020. Vol. 2. P. 139—144. URL: https://doi.org/10.36074/21.08.2020.v2.51 (date accessed: 12.11.2020).

innovations, their features, types, role and purpose, stages of development, implementation and application, peculiarities of functioning, links and relations between the entities of such innovations (developers and consumers), based on the study of regularities of the development, implementation, realization, and application of mentioned innovations, their reflection in the sources of information that form the basis for creating innovative means, techniques and methods of collection, research, evaluation and usage of evidence to optimize, improve quality and the effectiveness of law enforcement practice and the solution of forensic problems [1].

The methodological basis for the development and implementation of criminalistic innovations in law enforcement is effective, systematic structural and technological approaches, the usage of which is promising for the formation of a separate criminalistic theory: criminalistic innovation. It is important to note that a comprehensive approach to the development and formation of basic concepts of criminalistic innovation, its functions, and objectives is the methodological foundation for further research on this issue. Therefore, in today's realities, Criminalistics and each of its sections face important problems aimed at studying and taking into account modern innovative advances in science and technology, which can be effectively used in combating crime to provide successfully the urgent needs with criminalistic innovation.

It should be noted that a promising area in criminalistics is the use of *criminalistic innovation in various areas of law enforcement*, thereby expanding the application of criminalistic knowledge in various types of legal practice, which in today's reality is quite relevant and requires further research. This can be confirmed by numerous studies of criminalistic scientists theoretical and applied problems of application of the achievements of Criminalistics in litigation, criminal and civil proceedings, administrative proceedings, prosecutors, lawyers and notaries activity, etc. Therefore, in our opinion, it is necessary to intensify research on the problems of implementation *criminalistic innovation* in the prosecutor's office, advocacy and notarial activities, etc.

Conclusions. In view of the above, it can be concluded that today criminalistics and law enforcement practice has accumulated, systematized and generalized a fairly large amount of empirical material, which is the starting point for creating a separate theory - criminalistic innovation, the relevance of which is beyond doubt. The provisions of criminalistic innovation form primarily a system of knowledge that characterizes the subject-practical and information-

[1] Шепитько В. Ю. Криминалистика XXI века: предмет познания, задачи и тенденции в новых условиях//*Современное состояние и развитие криминалистики:* сб. науч. тр./под ред. Н. П. Яблокова и В. Ю. Шепитько. Харьков, 2012. P. 43—45 ; Shevchuk V. M. Criminalistic innovation: modern problems of formation and prospects for research//*Perspectives of world science and education:* abstracts of VIII International Scientific and Practical Conference. CPN Publishing Group (Osaka, 22—24.04.2020). Osaka, 2020. P. 158—168.

cognitive side of the investigative judicial, expert and other activities. Identical to criminalistics in general, criminalistic innovation has an applied nature, as it is the scientific basis for the development and application of innovative criminalistic tools of criminal proceedings, trial, various types of proceedings and legal practice (investigative, judicial, expert, prosecutorial, legal, notarial and etc.), in order to optimize them, increase efficiency and effectiveness. The final formation of this theory will help to level the controversial positions of scientists to determine the place of criminalistic innovations in Criminalistics, will enrich the general theory of criminalistics, optimize, improve the quality and effectiveness of law enforcement and further innovative, sustainable development of criminalistic science.

It is seen, that in modern realities, criminalistic innovation is one of the prioritized areas of research in Criminalistics, which require further development of theoretical and methodological foundations of the doctrine of criminalistic innovation, as well as the development and study of criminalistic innovation in various areas of law enforcement, significantly expanding boundaries of innovative criminalistic support of different types of legal practices. Therefore, the successful solution of practical problems of criminalistic innovation involves the development and formation of methodological foundations of this scientific concept, its conceptual and categorical apparatus, as well as taking into account the peculiarities of this process and prospects for their development, implementation and application problems in law enforcement activities.

References

Belkin, R. S. (1997). *Kurs kriminalistiki:* v 3 t. T. 2: Chastnye kriminalisticheskie teorii. Moscow [in Russian].

Belkin, R. S. (2001). *Kurs kriminalistiki*: ucheb. posob. dlia vuzov. 3-e izd., dop. Moscow [in Russian].

Bernaz, P. V. (2015). Innovatsii — osnova kryminalistychnoho zabezpechennia diialnosti z rozsliduvannia zlochyniv. *Pivdennoukrainskyi pravnychyi chasopys.* № 4 [in Ukrainian].

Dolzhenko, N. I., Tarianik, D. K. (2017). Innovatcii v kriminalisticheskom obespechenii raskrytiia i rassledovaniia prestuplenii: nekotorye problemy vnedreniia i puti ikh resheniia. *Nauchnyi almanakh.* № 5—1 [in Russian].

Fedorov, G. V., Grigorovich, V. L. (2012). *Innovatcionnye napravleniia razvitiia kriminalistiki*: monografiia. Ed.: G. V. Fedorova. Moscow [in Russian].

Iierusalimov, I. Ye. (2000). *Zabezpechennia vykorystannia naukovo-tekhnichnykh dosiahnen u slidchii diialnosti*. Kyiv [in Ukrainian].

Kohutych, I. I. (2013). Tendentsii prystosuvannia kryminalistychnykh znan u zdiisnenni sudochynstva. *Visnyk Lvivskoho universytetu.* Seriia yurydychna. Vyp. № 57 [in Ukrainian].

Kopnin, P. V. (1973). *Dialektika kak logika i teoriia poznaniia.* Moscow [in Russian].

Kovtunenko, K. V. (2013). Rol uchasnykiv innovatsiŷnoï diialnosti v protsesi vykorystannia innovatsiŷnykh rozrobok. *Ekonomika kharchovoji promyslovosti*: nauk. zhurn. № 2 (18). Odesa [in Ukrainian].

Nechaeva, N. B. (2013). Innovatcii v kriminalistike. *Leningradskii iuridicheskii zhurnal.* № 2 (32) [in Russian].

Pro pryvatnu detektyvnu diialnist: proekt Zakonu vid 04.02.2020 r. № 3010. URL: http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_1?pf3511=68051 (data zvernennia: 04.09.2020) [in Ukrainian].

Shepitko, V. Iu. (2012). Kriminalistika XXI veka: predmet poznaniia, zadachi i tendentcii v novykh usloviiakh. *Sovremennoe sostoianie i razvitie kriminalistiki:* sb. nauch. tr. Eds.: N. P. Iablokova i V. Iu. Shepitko. Kharkiv [in Russian].

Shepitko, V. Yu. (2018). Zavdannia kryminalistyky v umovakh hlobalnykh zahroz ta evoliutsiÿnykh peretvoren zlochynnosti. *Kriminalistika i sudebnaia ekspertiza: nauka, obuchenie, praktika:* materialy nauk.-prakt. konf. Mizhnar. konhresu kryminalistiv (Odesa, 13—15.09.2018): u 2 t. Odesa. T. 1 [in Ukrainian].

Shepitko, V. Yu. (2019). Innovatsii v kryminalistytsi yak viddzerkalennia rozvytku nauky. *Innovatsiini metody ta tsyfrovi tekhnolohii v kryminalistytsi, sudovii ekspertyzi ta yurydychnii praktytsi:* materialy Mizhnar. «kruhloho stolu» (Kharkiv, 12.12.2019). Kharkiv [in Ukrainian].

Shepitko, V. Yu. (2019). *Problemy optymizatsii naukovo-tekhnichnoho zabezpechennia slidchoi diialnosti v umovakh zmahalnoho kryminalnoho provadzhennia:* materialy nauk. konf. za rez-my roboty fakhivtsiv NDI vyvchennia problem zlochynnosti im. akad. V. V. Stashysa za fundament. temamy u 2018 r. (Kharkiv, 26.03.2019). Kharkiv [in Ukrainian].

Shepitko, V. Yu., Avdieieva, H. K. (2013). Vykorystannia suchasnykh dosiahnen nauky i tekhniky u borotbi zi zlochynnistiu: zdobutky ta perspektyvy diialnosti. *Visnyk Natsionalnoi akademii pravovykh nauk Ukrainy.* Kharkiv. № 2 (73) [in Ukrainian].

Shepitko, V. Yu., Zhuravel, V. A., Avdieieva, H. K. (2011). Innovatsii v kryminalistytsi ta ikh vprovadzhennia v diialnist orhaniv dosudovoho slidstva. *Pytannia borotby zi zlochynnistiu:* zb. nauk. pr. Eds.: V. I. Borysov ta in. Kharkiv. Vyp. 21 [in Ukrainian].

Shepitko, V. Yu., Zhuravel, V. A., Avdieieva, H. K. ta in. (2017). *Innovatsiini zasady tekhniko-kryminalistychnoho zabezpechennia diialnosti orhaniv kryminalnoi yustytsii:* monohrafiia. Eds.: V. Yu. Shepitka, V. A. Zhuravlia. Kharkiv [in Ukrainian].

Shevchuk, V. (2020). Modern problems of formation and prospects for researching the concept of criminalistic innovation. *Tendances scientifiques de la recherche fondamentale et appliquée*: collection de papiers scientifiques «ΛΌΓΟΣ» avec des matériaux de la conférence scientifique et pratique internationale (Strasbourg, 30.10.2020). Strasbourg. Vol. 2. URL: https://doi.org/10.36074/30.10.2020.v2.20 (data zvernennia: 12.11.2020).

Shevchuk, V. M. (2019). Innovatsiini napriamky rozvytku kryminalistyky. *Innovatsiini metody ta tsyfrovi tekhnolohii v kryminalistytsi, sudovii ekspertyzi ta yurydychnii praktytsi:* materialy Mizhnar. «kruhloho stolu» (Kharkiv, 12.12.2019). Kharkiv [in Ukrainian].

Shevchuk, V. M. (2019). Suchasnyi stan ta tendentsii rozvytku kryminalistyky: aktualni problemy sohodennia. *Problemy zakonnosti.* Vyp. 146 [in Ukrainian].

Shevchuk, V. M. (2020). Aktualni problemy kryminalistyky u suchasnykh umovakh. *Korszerű műszerek és algoritmusa tapasztalati és elméleti tudományos kutatási:* tudományos művek gyűjteménye a nemzetközi tudományos-gyakorlati kon-

ferencia anyagaival (Budapest, 18.09.2020). Budapest. №. 3. URL: https://doi.org/10.36074/18.09.2020.v3.33 (data zvernennia: 12.11.2020) [in Ukrainian].

Shevchuk, V. M. (2020). Criminalistic innovation: modern problems of formation and prospects for research. *Perspectives of world science and education:* abstracts of VIII International Scientific and Practical Conference. CPN Publishing Group (Osaka, 22—24.04.2020). Osaka.

Shevchuk, V. M. (2020). Innovatsii u kryminalistychnii tekhnitsi: suchasni mozhlyvosti ta problemy zastosuvannia. *Naukovyi visnyk Mizhnarodnoho humanitarnoho universytetu*. Seriia «Iurysprudentsiia». Odesa. № 43. URL: https://doi.org/10.32841/2307-1745.2020.43.32 (data zvernennia: 12.11.2020) [in Ukrainian].

Shevchuk, V. M. (2020). Innovatsiini kryminalistychni produkty u pravozastosovnii diialnosti: poniattia, oznaky ta problemy vprovadzhennia u praktyku. *Naukovi pratsi Natsionalnoho universytetu «Odeska yurydychna akademiia»*. Odesa. T. XXVI. URL: https://doi.org/10.32837/npnuola.v26i0.671 (data zvernennia: 12.11.2020) [in Ukrainian].

Shevchuk, V. M. (2020). Innovatsiini zasady kryminalistychnoho zabezpechennia diialnosti orhaniv pravoporiadku: postanovka problemy. *Paradigmatic view on the concept of world science:* Collection of scientific papers «ΛΌΗΟΣ» with Proceedings of the International Scientific Conference (Toronto, 21.08.2020). Toronto. Vol. 2. URL: https://doi.org/10.36074/21.08.2020.v2.51 (data zvernennia: 12.11.2020) [in Ukrainian].

Shevchuk, V. M. (2020). *Kryminalistyka: tradytsii, novatsii, perspektyvy*: dobirka nauk. pr. Ed.: N. A. Chmutova. Kharkiv [in Ukrainian].

Shevchuk, V. M. (2020). Metodolohichni problemy formuvannia poniatiinoho aparatu kryminalistychnoi innovatyky. *Visnyk Natsionalnoi akademii pravovykh nauk Ukrainy.* T. 2. URL: https://doi.org/10.37635/jnalsu.27(2).2020.170-183 (data zvernennia:: 12.11.2020) [in Ukrainian].

Shevchuk, V. M. (2020). Innovations in criminalistic and practice of their implementation in law enforcement activity. *Modern science: problems and innovations.* The 2nd International Scientific and Practical Conference (Stockholm, 03—05.05.2020). Stockholm.

Sokol, V. Iu. (2008). Innovatcionnaia deiatelnost kak obekt kriminalisticheskikh issledovanii. *Probely v rossiiskom zakonodatelstve:* iurid. zhurn. № 1 [in Russian].

Sokol, V. Iu. (2008). Naukovedcheskie problemy kriminalistiki. *Obshchestvo i pravo.* № 1 (19) [in Russian].

Volynskii, A. F. (2011). Innovatcionnaia sushchnost kriminalisticheskogo obespecheniia rassledovaniia prestuplenii. *Vestnik kriminalistiki.* Ed.: A. G. Filippov. Moscow. Vyp. 3 (39) [in Russian].

Zhizhina, M. V. (2012). Innovatcii v kriminalistike i sudebnoi ekspertize. *Sudebnaia ekspertiza: rossiiskii i mezhdunarodnyi opyt*: sb. Mezhdunar. nauch.-prakt. konf. (Volgograd, 23—24.05.2012). Volgograd [in Russian].

Zhizhina, M. V. (2012). Innovatcionnyi put razvitiia kriminalistiki na sovremennom etape. *Vestnik kriminalistiki.* Vyp. 1 (41) [in Russian].

Zhuravel, V. A. (2018). Okremi vchennia v strukturi zahalnoi teorii kryminalistyky. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 18. URL: https://doi.org/10.32353/khrife.2018.02 (data zvernennia: 12.11.2020) [in Ukrainian].

В. М. Шевчук

КРИМІНАЛІСТИЧНА ІННОВАТИКА: ПОНЯТТЯ, ФУНКЦІЇ, ЗАВДАННЯ ТА ПЕРСПЕКТИВИ ДОСЛІДЖЕНЬ

Статтю присвячено актуальним проблемам формування криміналістичної інноватики як нового наукового напряму в криміналістиці. Досліджено теоретично-методологічні засади розроблення та формування криміналістичної інноватики, її функцій, завдань і перспектив впровадження її положень у правозастосовну практику, окреслено перспективні напрями досліджень розглядуваної наукової концепції.

Обґрунтовано, що в сучасних реаліях заслуговують на увагу дослідження криміналістичної інноватики на підставі загальнотеоретичних підходів, які забезпечують пояснення й обґрунтування таких фундаментальних першооснов будь-якої окремої наукової теорії, як її генезис, сутність, факт, гіпотеза й теоретична побудова. Зазначено, що рівень сформованості й обґрунтованості будь-якої наукової теорії, зокрема криміналістичної інноватики, визначається ступенем і рівнем розробленості теоретично-методологічних засад цієї теорії.

Зауважено, що процес побудови криміналістичної інноватики як окремої криміналістичної теорії поки що не можна вважати завершеним через значну кількість неузгоджених і дискусійних питань, адже сучасна концепція криміналістичної інноватики ще не досягла рівня окремої криміналістичної теорії й перебуває поки що на стадії формування. Тому важливо на теоретичному рівні вивчити й розкрити закономірності функціонування усіх етапів життєвого циклу інновацій в криміналістиці: починаючи від створення, запропонування, запровадження — і завершуючи їх застосуванням на практиці. Зазначено, що важливими є питання з'ясування місця названої теорії, її завдань і функцій у криміналістичній систематиці. Стверджується, що в сучасній криміналістиці існують наукові передумови для розроблення та формування криміналістичної інноватики: такі дослідження є перспективним інноваційним напрямом розвитку криміналістики, що потребує подальшого наукового розроблення.

Методологічним підґрунтям розроблення і впровадження криміналістичних інновацій у правозастосування є діяльнісний, системно-структурний і технологічний підходи як перспективні для формування окремої криміналістичної теорії — криміналістичної інноватики. Комплексний підхід у розробленні та формуванні криміналістичної інноватики є методологічним фундаментом для подальших досліджень цієї проблематики. Обґрунтовано нові наукові підходи до вирішення досліджуваних дискусійних питань і визначено перспективні напрями досліджень означеної проблематики.

Ключові слова: інновації у криміналістиці, криміналістична інноватика, інноваційні напрями розвитку криміналістики, завдання та функції криміналістичної інноватики, криміналістична інновація.

В. М. Шевчук

КРИМИНАЛИСТИЧЕСКАЯ ИННОВАТИКА: ПОНЯТИЕ, ФУНКЦИИ, ЗАДАЧИ И ПЕРСПЕКТИВЫ ИССЛЕДОВАНИЙ

Статья посвящена актуальным проблемам формирования криминалистической инноватики как нового научного направления в криминалистике. Исследованы теоретико-методологические основы разработки и формирования криминалистической инноватики, её функций, задач и перспектив внедрения её положений в правоприменительную практику, обозначены перспективные направления исследований рассматриваемой научной концепции.

Обосновано, что в сегодняшних реалиях заслуживают внимания исследования криминалистической инноватики, базирующиеся на общетеоретических подходах, обеспечивающих объяснение и обоснование таких фундаментальных первооснов любой частной научной теории, как её генезис, сущность, факт, гипотеза и теоретическое построение. Указывается, что уровень сформированности и обоснованности любой научной теории, в том числе и криминалистической инноватики, определяется степенью и уровнем разработанности её теоретико-методологических основ.

Отмечено, что процесс построения криминалистической инноватики как частной криминалистической теории пока нельзя признать завершённым из-за множества несогласованных и дискуссионных вопросов, из-за чего по состоянию на сегодняшний день концепция криминалистической инноватики ещё не достигла уровня частной криминалистической теории и находится пока в стадии формирования. Поэтому важно теоретически изучить и раскрыть закономерности функционирования всех этапов жизненного цикла инноваций в криминалистике, начиная от создания, внедрения и заканчивая их применением на практике. Указано, что значимыми являются вопросы определения места рассматриваемой теории в криминалистической систематике, её задач и функций. Утверждается, что сегодня в криминалистике созданы научные предпосылки для разработки и формирования криминалистической инноватики, и такие исследования в современных условиях представляют собой перспективное инновационное направление развития криминалистики, требующее дальнейших научных разработок.

Методологической основой разработки и внедрения криминалистических инноваций в правоприменение являются деятельностный, системно-структурный и технологический подходы, использование которых перспективно для формирования отдельной криминалистической теории — криминалистической инноватики. Комплексный подход к разработке и формированию криминалистической инноватики станет методологическим фундаментом для дальнейших исследований этой проблематики. Обоснованы новые научные подходы по решению исследуемых дискуссионных

вопросов и определены перспективные направления исследований обозначенной проблематики.

Ключевые слова: инновации в криминалистике, криминалистическая инноватика, инновационные направления развития криминалистики, задачи и функции криминалистической инноватики, криминалистическая инновация.

Received by Editorial Board: 12.11.2020

Shevchyuk V. M. Forensic innovation: concepts, functions, tasks and research prospects//*Theory and Practice of Forensic Science and Criminalist*ics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 20—40. DOI: https://doi.org/10.32353/khrife.2.2020.02.

DOI: https://doi.org/10.32353/khrife.2.2020.03
UDC 343.98

O. Yu. Bululukov,
PhD in Law, Associate Professor at the Department of Criminalistics
of Yaroslav Mudryi National Law University, Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-1598-0542, e-mail: oblehrer@gmail.com

Subject of tactical decisions in Criminalistics

Questions under discussion as to the presence of decisions subject (in particular, of tactical decisions in criminalistics) are considered. An opinion was expressed regarding the subject of tactical decisions in criminalistics. Attention is drawn to the fact that study of the subject of a tactical decision is conditioned by the need to determine its place in the structure of a decision. The appropriate choice of the subject of a tactical decision contributes to the effectiveness of tactical influence and is important for achieving the goal of decision.

The Article purpose is to substantiate the presence of subject in a tactical decision and to define it as forms of specific forensic tools and techniques used while crimes investigation.

Research methods: formal logical methods of cognition (analysis, synthesis, generalization, analogy).

To accomplish the task at hand, the etymology of the term "subject" is considered. Publications of the ancient philosopher Aristotle were the basis of motivation on the presence of the subject in a tactical decision. According to the scientist, "means to achieve the goal" are the subject of a decision. For a detailed study of this issue, some aspects of decision theory are outlined. Emphasis in the study was placed on the fact that in the structure of a decision there is always a goal, for the sake of which decision is taken, and means that contribute to the achievement of this goal. These elements manifest themselves differently in a decision. The goal (as a certain intellectual factor) manifests itself in a decision in the form of what someone "wants to achieve" and that directs actions of a decision-maker. The goal and its achievement are in direct proportion to means chosen to achieve the goal. The mentioned means are "materialized" elements of a decision, which allows them to be attributed to the subject of a decision. The following arguments are outlined in favor of means for achieving the goal of decision as its subject: a) thoughts of a decision-maker are directed at determining the type and quality of means for achieving goal; b) the expression of the will of a person making the decision is aimed at determining the optimal option for the use of certain means; c) implementation of a decision is an action on the application of certain means.

To validate his findings, the author analyzed the definitions of a tactical decision available in the scientific literature and isolated the means of achieving the decision goal from their content. In the article conclusion, forensic tools and techniques are listed, which may be the subject of a tactical decision.

Keywords: tactical decision, decision theory, the subject of a tactical decision.

© O. Yu. Bululukov, 2020

Formulation of Research Problem. Research of the subject of tactical decisions in Criminalistics is due to the necessity to figure out its place in the structure decision. The correct choice of the subject of tactical decision contributes to the effectiveness of tactical influence, which is important to achieve the goal. The information about a committed crime, which an investigative person receives, requires to use of tactical decisions to change an investigative situation and its separate components. A series of tactical decisions, which are adopted during the investigation of crimes, in each certain case has its own goal, which can be achieved by correctly determining the subject of the decision.

The issue of the subject of tactical decision has already been considered by us [1]. At the same time, there is a lack of researches on this issue in scientific literature. In our opinion, the research of the subject of tactical decision gives the opportunity to find out additional arguments of its essence in the decision structure and promote the constructive discussion on this issue.

Analysis of Essential Researches and Publications. In scientific literature, consideration of the concept of tactical decisions and their subject we find in the works by R. S. Belkin, V. M. Bykov, O. Yu. Golovin, l. Ya. Drapkin, I. O. Kopylov, Yu. I. Novik, D. O. Solodov, S. I. Tsvetkov, G.S. Shostak, M. H. Shurukhnov, S. Yu. Yakushin [2] and others. These scientists, in their definitions of tactical

[1] Булулуков О. Ю. До питання про предмет тактичного рішення під час розслідування злочинів//*Наукові праці Національного університету «Одеська юридична академія»:* зб. наук. пр. 2017. Т. XIX. P. 62—69.

[2] Белкин Р. С. Курс советской криминалистики: в 3 т. Т. 3: Криминалистические средства, приемы и рекомендации. Москва, 1979. P. 91 ; Idem. Криминалистика: проблемы, тенденции, перспективы. От теории — к практике. Москва, 1988. P. 104—136 ; Idem. Криминалистика: проблемы сегодняшнего дня. Злободневные вопросы российской криминалистики. Москва, 2001. P. 160—162 ; Idem. Криминалистическая энциклопедия. 2-е изд., доп. Москва, 2000. P. 219 ; Idem. Курс криминалистики: в 3 т. Т. 3: Криминалистические средства, приемы и рекомендации. Москва, 1997. P. 156—201 ; Быков В. М. Тактическое решение следователя//*Уголовно-правовые и процессуальные гарантии защиты конституционных прав граждан*. Калинин, 1980. P. 114 ; Головин А. Ю. Криминалистическая систематика: монография. Москва, 2002. P. 253 ; Драпкин Л. Я. Решения следователя и тактические приемы в структуре процессуальных действий//*Следственные действия (криминалистические и процессуальные аспекты):* межвуз. сб. науч. тр./редкол. И. Ф. Герасимов, Л. Я. Драпкин и др. Свердловск, 1983. P. 12 ; Копылов И. А. Следственная ситуация и тактическое решение: учеб. пособ. Волгоград, 1988. P. 9 ; Кофанов А. В., Кобилянський О. Л., Кузьмічов Я. В., Удовенко Ж. В., Хільченко С. В. Криміналістика: питання і відповіді: навч. посіб. Київ, 2011. P. 166—167 ; Новик Ю. И. Научные основы принятия тактических решений при производстве следственных действий: автореф. дис. … канд. юрид. наук. Минск. 1979. P. 3—20 ; Солодов Д. А. Процессуальные и тактические решения следователя (сущность, проблемы оптимизации принятия): автореф. дис. … канд. юрид. наук. Воронеж, 2003. P. 11 ; Цветков С. И. Состояние и перспективы использования данных науки управления в криминалистике: автореф. дис. … канд. юрид. наук. Москва, 1977. P. 8—9 ; Idem. Криминалистическая

decisions, drew attention to means of achieving the goal of decision, which, in our opinion, is their subject.

The **Article Purpose** is to argue the existence of the subject in the tactical decision and distinguish it through analysis and synthesis of scientific papers and other literature sources on this problematics.

Main Content Presentation. Focused attention to the definition of the subject of the tactical decision is caused by the necessity of the comprehensive study of this concept. The preliminary consideration of the mentioned issue [1] did not fully cover all the available arguments on the existence of the subject in the tactical decision, which impelled to a restudy and search for additional arguments on this subject.

To solve this target, the etymology of the term "subject" firstly should be considered.

In Current References literature the term "subject" is "that on which the cognitive, creative, practical activity of someone, something is directed" [2]. In philosophy the subject is "that to which the thought or action of the entity is directed"[3], similar definitions are also given by other reference sources [4].

The leading motivation of the presence in a tactical decision of the subject is the emphasis on the presence of the subject in the decision, which we observe in the works by ancient philosophers. Aristotle paid considerable attention to this issue. According to the ancient Greek encyclopedist, the subject of the decision is the "means of achieving the goal" [5].

For a detailed consideration of this issue, we should address to separate aspects of decision-making theory. It is well known that in the structure of the decision there is always a goal to achieve which the decisions and means are adopted that contribute to achieving this goal. Mentioned elements are differently realized into decision. The goal (as a certain intellectual factor) is manifested in

---

теория принятия тактических решений: автореф. дис. … д-ра юрид. наук. Москва, 1992. 41 р. ; Шостак Г. С. Тактическое решение и его значение в работе следователя//*Теория и практика криминалистики и судебной экспертизы*. Саратов, 1978. Р. 43—44 ; Шурухнов Н. Г. Криминалистика: учеб. пособ. Москва, 2002. Р. 221 ; Якушин С. Ю. Тактические решения следователя и средства их реализации при расследовании преступлений: исходные положения частной криминалистической теории//*Ученые записки Казанского гос. ун-та*. Казань, 2008. Т. 150. Кн. 5. Р. 240.

[1] Булулуков О. Ю. Op.cit.

[2] Великий тлумачний словник сучасної української мови/уклад. і голов. ред. В. Т. Бусел. Київ; Ірпінь, 2005. Р. 1104.

[3] Предмет/Вікіпедія. URL: https://uk.wikipedia.org/wiki/%D0%9F%D1%80%D0%B5%D0%B4%D0%BC%D0%B5%D1%82 (date accessed: 10.11.2020).

[4] Словник української мови: в 11 т. Т. 7/Інститут мовознавства АН УРСР; за ред. акад. І. К. Білодіда. Київ, 1976. Р. 527.

[5] Аристотель. Сочинения: в 4 т. Т. 4/под ред. А. И. Доватур, Ф. Х. Кессиди/перевод с древнегреч. Н. В. Брагинской, М. Л. Гаспарова, С. А. Жебелева, Т. А. Миллер. Москва, 1983. Р. 102—103.

the decision in the form of what someone "wants to achieve" [1], what directs the actions of a person who makes the decision. Consciously, a person seeks to achieve the target, and the latest contributes to the formation of a theoretical structure of the decision regarding implementation of intentions and desires of a human. The goal is a capsule in which the process of formation (making) and implementation of decisions are happening. The goal determines the essence of the decision, which will be chosen, and fills it in some meaning. However, the goal (as the theoretical basis for any decision) is realized only when the decision has already been made, the consequence of such a decision is a certain result. It is obvious, that not every result of the agreed decision is desired and expected. The result of the decision, as well as its goal, depends on another structural element of the decision, namely, on the means chosen to achieve the goal and achieve the desired result. For the first glance, means of achieving the goal are a secondary element in making decisions, however, this is a wrong impression. Imagine that we intend to buy a car. This is a great goal, which in modern times is a priority for a large part of humankind, especially for men. Though, such a purchase requires funds, which are means to achieve this goal – the purchase of a car. Thus, the means necessary to achieve the goal and the goal itself correspond to each other. At the same time (if in the decision to purchase a car the goal is formed in our minds in the form of a certain idea) means, i.e. funds for such acquisition is a real factor that contributes to achieving the goal and achieving the desired result. Thus, the means to achieve the goal in the relationship "goal – means" hold a specific place because they affect the desired result, accordingly, affect the setting of the overall goal of the decision. It is the means during the implementation of the decision that contributes to the "materialization" of the goal of the decision, the final transition of the dream/desire / of a person in the goal. Such an approach to the place of means of achieving the goal of the decision in the structure of decision is proved because it is the means are materialized elements of the decision and they are the subject of the decision. This conclusion is based on a) determining the type and quality of means to achieve the goal (what the thoughts of a person making the decision are directed at); b) strong-willed individuals, who make the decision-directed to determine the optimal variants of the use of these means; c) implementation of the decision: actions of a certain person to use these means.

Given argumentation gives the basis to believe that under any circumstances the subject of the decision is means that contribute to its implementation and achieving its goal.

Tactical decisions studied by us are no exception: their subject is also related to the means of implementing the decision. This conclusion is based on the necessity to overcome counteraction to investigation in some cases or to obtain the necessary information about the crime committed in the conditions of its silence by certain persons. The use of forensic means in tactical decisions to achieve the goal of the investigation is an objective and necessary factor due to the

[1] Великий тлумачний словник … . P. 661.

need to act (or not to act) in the current situation to determine the circumstances of a crime. Thus, Aristotle's theoretical views on the definition of the subject of the decision can be extended to tactical decisions in Criminalistics, used during the pre-trial investigation.

In scientific literature in different time, a lot of definitions of tactical decisions were formulated, and this concept was sufficiently studied. In order to distinguish the subject in the existing definitions of the tactical decision, they should be analyzed.

Thus, S. I. Tsvietkov specifies the tactical decision as "the conclusion based on analysis of the investigative situation about the need to conduct one or several investigative actions and to use certain tactical admissions and technical and criminalistic means by certain persons and in a certain sequence for the most effective collection, research, evaluation and the use of evidence"[1]. The subject of this tactical decision, according to this definition, is "the conduct of one or several investigative (search) actions and the use of certain tactical admissions and technical and criminalistic means". We believe that in the above definition of the tactical decision, the detail of means and techniques do not fully reflect all the opportunities that can be used in case of making tactical decisions.

In the definition proposed by I. O. Kopylov, the tactical decision is "a conclusion on the change of the investigative situation by means of criminalistic tactics that best correspond to the situation, in order to quickly and fully investigate the crime" [2]. The subject of the tactical decision, based on the above definition, is "the use of criminalistic tactics means to change the investigative situation". The reference in the definition to the implementation of a tactical decision only by means of criminalistic tactics unreasonable limits the means that can be used to make a tactical decision.

O. Yu. Golovin determines the subject of tactical decision in a slightly different way. According to the scientist's opinion, the tactical decision is "based on the results of the assessment of the formed investigative situation, the investigator's conclusion about the nature of the actical task, which he should do and main methods and techniques of making it" [3]. The subject of a tactical decision (according to this definition) is the "basic techniques, methods and means" of solving a tactical task. The question of *the basic techniques, methods and means* is debatable. What the author meat by highlighting *the basic techniques, methods and tools.* It is known that during investigation of criminal offenses all available means of Criminalistics are used, in particular criminalistic tactics. It is impossible to divide such means into basic and the rest, as their value is caused by efficiency of use in each separate investigative situation.

In G. S. Shostak's opinion, the tactical decision "this is one that does not contravene the law, based on scientific provisions of Criminalistics and other sciences, selected out of several, after preliminary analysis and arguments, the

[1] Цветков С. И. Op.cit.

[2] Копылов И. А. Op.cit.

[3] Головин А. Ю. Op.cit. P. 254.

most effective and alternative option, aimed at achieving a certain goal in the formed investigative situation" [1]. In this formulation of its, the author defines the subject of the tactical decision in a general way, emphasizing that this is "the alternative option aimed at achieving a certain goal and tasks". We believe that the use in the pointed definition the phrase "the alternative option" does not give the possibility to imagine means that can promote the achieving of the goal of the decision: mentioned means of tactical decision defined quite abstractly, that does not reflect all possible options, even in the general case.

In the work by Yu. I. Novik, we can find the following definition of the tactical decision: "An imagery dynamic model of the investigative action, which was formed in the mind of an investigator on the basis of choice, within the criminal procedure law with scientific recommendations of criminalistic tactics, as well as criminal procedural norms that regulate the conduction of this investigative action and have a tactical content" [2]. We consider that it is quite difficult to definite the subject of the tactical decision out of this formulation. However, according to this indication that the decision as a model was formed on the basis of "the choice…from the scientific recommendations of criminalistic tactics" gives grounds to determine the latest, according to Yu. I. Novik, the subject of a tactical decision. Besides, indicating only the recommendations of criminalistic tactics (as a means of implementing a tactical decision) does not correspond to reality. The range of means that can be used is much larger and is not only limited to "criminalistic tactics recommendations".

The definition of the tactical decision is also given in the works by l. Ya. Drapkin, devoted to the problems of criminalistic tactics. In his view, the tactical decision is "an imagery model of the most optimal options of actions and lines of conduct in the process of identifying, researching, using information, its data storage devices, achieving the rest goals of criminal proceedings" [3]. In this definition, the subject can be considered "optimal options and a line of behavior" of a person making a tactical decision. At the same time, such a definition in short form names the possible means of implementing the tactical decision.

The subject of the tactical decision is quite clearly defined by R. S. Belkin: "A tactical decision is a choice of the goal of the tactical influence on the general investigative situation as a whole or its separate components, on a course and results of process of investigation and its elements and definition of methods, techniques and means of achievement of this goal" [4]. Thus, the goal of the decision

[1] Шостак Г. С. Op.cit.

[2] Новик Ю. И. Op.cit. P. 9. (Аналогічно визначено тактичне рішення і в дослідженні: Дулов А. В., Новик Ю. И. Понятие и структура тактического решения, принимаемого следователем при производстве следственного действия//*Теоретические проблемы криминалистической тактики:* межвуз. сб. науч. тр. Свердловск, 1981. P. 47).

[3] Драпкин Л. Я. Op.cit.

[4] Белкин Р. С. Курс советской криминалистики: … . ; Idem. Криминалистика: проблемы, тенденции … . P. 110 ; Idem. Курс криминалистики: … . P. 163 ;

can be achieved through the use of "methods, techniques and means", which is the subject of the tactical decision. References to "methods, techniques and means" as contributing to the goal of the tactical influence are best distinguishes them, emphasizing their importance in the decision structure.

Considering the definition of the tactical decision, M. H. Shurukhnov describes it as "the process of choosing the goal of tactical influence on the general investigative situation as a whole or its separate components, determining of the line of the investigator's own behavior, the most optimal scientific and technical means, and methods to achieve this goal [1]. In view of this formulation, the subject of the tactical decision is "determining the line of the investigator's own behavior, the most optimal scientific and technical means and methods to achieve this goal". Such definition of the subject of the tactical decision is similar to the previous author's definition. An expression "determining the line of the investigator's own behavior, in our behavior, is unnecessary because the choice of the investigator's own behavior is admission, the usage of which is emphasized by the author while defining the tactical decision.

By analyzing the definition of the tactical decision in the researches by D. O. Solodov, we can come to the conclusion that the subject of the tactical decision takes an important place. Thus, the scientists noticed, that the tactical decision is "the choice of a rational and acceptable option by the investigator (investigative or another procedural action, tactical approach, mission) prevention and overcoming opposition to the investigation of a crime and neutralizing the negative results of such influence"[2]. So, the subject of the decision, according to this author's opinion, is "the choice of a rational and acceptable option by the investigator (investigative or another procedural action, tactical approach, mission)". We believe that the determination means for achieving target only by "admissions" of implementing "procedural actions, tactical approaches, missions" by the investigator is not reflected all possible means, which can contribute to achieving the goal.

An interesting approach to the definition of the subject of the tactical decision is found in V. M. Bykov. So, in the view of the latest one, "the tactical decision is the decision of the investigator, adopted within his competence in compliance with the law, on the basis of known circumstances of the crime and the current investigative situation, which consists in selecting from all possible decisions the most optimal admission, method and means of crime investigation aimed at achieving the goals of criminal proceedings [3]. The subject of the tactical

Idem. Криминалистическая энциклопедия. … ; Idem. Криминалистика: проблемы сегодняшнего дня. … . Такої самої думки щодо визначення тактичного рішення В. Ю. Шепітько (E.g., Шепітько В. Ю., Коновалова В. О., Журавель В. А. та ін. Криміналістика: підручник/за ред. В. Ю. Шепітька. 5-те вид., перероб. та допов. Київ, 2016. P. 236).

[1] Шурухнов Н. Г. Op.cit.

[2] Солодов Д. А. Op.cit.

[3] Быков В. М. Op.cit.

decision, that is in this definition, is "to search for the most optimal approach, admission and methods of crime investigation". Presenting the subject of the tactical decision in this way, on the one hand, summaries the means that can be used by the investigator to achieve the goal of the decision, on the other hand, accurately reflects what will contribute to their achievements.

According to I.M. Luzgin, "the tactical decision is to find a certain line of behavior in a particular situation" [1]: neither the goal nor the means to achieve it in this definition are absent. Therefore, we consider this definition to be a conclusion regarding the appointment of a tactical decision.

A. V. Kofanov defines the subject of the tactical decision quite simply and at the same time precisely. The tactical decision, in his opinion, is "a willful act of the investigator, which consist in determining the goal, as well as the means and methods of achieving it." [2]. The definition of the subject of the tactical decision by A. V. Kofanov, seems to us the most successful due to the fact that "the definition of means and methods" aimed at achieving the goal in the context of a certain volitional act of the investigator.

One of the interesting definitions of the tactical decision was formulated by S. Yu. Yakushin: a tactical decision is "a certain volitional and intellectual act based on the analysis of the current situation, knowledge of methods and mechanisms of crimes, scientific recommendations of Criminalistics, personal experience of investigation and intuition of a person who adopts it, which contributes to the choice of the most optimal option in specific tactical conditions" [3]. Analyzing this definition from the point of isolating its subject from it, it is possible to notice a certain veiling of it in the text. The author emphasizes the certain knowledge of the person who makes decisions regarding "methods and mechanisms of crimes, scientific recommendations of Criminalistics", that, in turn, contributes to choose the most optimal option. From the subtext of the content of the definition of the tactical decision, it follows that the mentioned knowledge contributes to the choice of certain actions. However, there are no words about the goal of actions, which negatively affects the definition of the subject of the tactical decision.

Conclusions. The analysis of the subject of the decision (based on the general provisions of the theory decision-making and current and basic definitions of tactical decisions, that take place in scientific literature) gives the opportunity to make the following conclusions. Firstly, the tactical decision has its subject that is the means of its implementation and achieving the goal. Secondly, in our opinion, in a broad sense, "the subject of the tactical decision is: a) the system of theoretical approaches regarding the formation of the tactical decision (regarding its model, mode of action, the purpose of influence); b) certain variation of the

[1] Лузгин И. М. Моделирование при расследовании преступлений. Москва, 1981. P. 92.

[2] Кофанов А. В., Кобилянський О. Л., Кузьмічов Я. В., Удовенко Ж. В., Хільченко С. В. Op.cit.

[3] Якушин С. Ю. Op.cit.

tactical influence on an investigative case or its components <…>; c) time, place and decision-makers at the initial stage of implementation” [1].

The subject of a tactical decision is reflected in the definition of a tactical decision in a concise form, as the use of tactical, technical, organizational and other means of Criminalistics in the investigation (trial) of crimes of a certain type to achieve the goal.

References

Aristotel. (1983) *Sochineniia:* v 4 t. T. 4. A. I. Dovatur, F. Kh. Kessidi. (Eds.) Perevod s drevnegrech. N. V. Braginskoi, M. L. Gasparova, S. A. Zhebeleva, T. A. Miller. Moscow [in Russian].

Belkin, R. S. (2001). *Kriminalistika: problemy segodniashnego dnia. Zlobodnevnye voprosy rossiiskoi kriminalistiki.* Moscow [in Russian].

Belkin, R. S. (1988). *Kriminalistika: problemy, tendentcii, perspektivy. Ot teorii — k praktike*. Moscow [in Russian].

Belkin, R. S. (2000). *Kriminalisticheskaia entciklopediia*. 2-e izd., dop. Moscow [in Russian].

Belkin, R. S. (1997). *Kurs kriminalistiki:* v 3 t. T. 3: Kriminalisticheskie sredstva, priemy i rekomendatcii. Moscow [in Russian].

Belkin, R. S. (1979). *Kurs sovetskoi kriminalistiki:* v 3 t. T. 3: Kriminalisticheskie sredstva, priemy i rekomendatcii. Moscow [in Russian].

Bululukov, O. Yu. (2017). Do pytannia pro predmet taktychnoho rishennia pid chas rozsliduvannia zlochyniv. *Naukovi pratsi Natsionalnoho universytetu «Odeska yurydychna akademiia»*: zb. nauk. pr. T. XIX. [in Ukrainian].

Bykov, V. M. (1980) *Takticheskoe reshenie sledovatelia. Ugolovno-pravovye i protcessualnye garantii zashchity konstitutcionnykh prav grazhdan.* Kalinin [in Russian].

Velykyi tlumachnyi slovnyk suchasnoi ukrainskoi movy. (2005). Ed.: V. T. Busel. Kyiv; Irpin [in Ukrainian].

Golovin, A. Iu. (2002). *Kriminalisticheskaia sistematika:* monografiia. Moscow [in Russian].

Drapkin, L. Ia. (1983). Resheniia sledovatelia i takticheskie priemy v strukture protcessualnykh deistvii. *Sledstvennye deistviia (kriminalisticheskie i protcessualnye aspekty)*: mezhvuz. sb. nauch. tr. Eds.: I. F. Gerasimov, L. Ia. Drapkin i dr. Sverdlovsk [in Russian].

Dulov, A. V., Novik, Iu. I. (1981). Poniatie i struktura takticheskogo resheniia, prinimaemogo sledovatelem pri proizvodstve sledstvennogo deistviia. *Teoreticheskie problemy kriminalisticheskoi taktiki:* mezhvuz. sb. nauch. tr. Sverdlovsk [in Russian].

Kopylov, I. A. (1988). *Sledstvennaia situatciia i takticheskoe reshenie:* ucheb. posob. Volgograd [in Russian].

Kofanov, A. V., Kobylianskyi, O. L., Kuzmichov, Ya. V., Udovenko, Zh. V., Khilchenko, S. V. (2011). *Kryminalistyka: pytannia i vidpovidi:* navch. posib. Kyiv [in Ukrainian].

Luzgin, I. M. (1981). *Modelirovanie pri rassledovanii prestuplenii.* Moscow [in Russian].

Novik, Iu. I. (1979). *Nauchnye osnovy priniatiia takticheskikh reshenii pri proizvodstve sledstvennykh deistvii.* (Abstract of candidates thesis). Minsk [in Russian].

[1] Булулуков О. Ю. Op.cit. P. 69.

Predmet/Vikipediia. URL: https://uk.wikipedia.org/wiki/%D0%9F%D1%80%D0%B5%D0%B4%D0%BC%D0%B5%D1%82 (data zvernennia: 10.11.2020) [in Ukrainian].

Slovnyk ukrainskoi movy: v 11 t. (1976). T. 7. Instytut movoznavstva AN URSR; Ed.: I. K. Bilodida. Kyiv [in Ukrainian].

Solodov, D. A. (2003). *Protcessualnye i takticheskie resheniia sledovatelia (sushchnost, problemy optimizatcii priniatiia)*. (Abstract of candidates thesis). Voronezh [in Russian].

Tcvetkov, S. I. (1992). *Kriminalisticheskaia teoriia priniatiia takticheskikh reshenii:* avtoref. dis. … d-ra iurid. nauk. Moscow [in Russian].

Tcvetkov, S. I. (1977). *Sostoianie i perspektivy ispolzovaniia dannykh nauki upravleniia v kriminalistike*. (Abstract of candidates thesis). Moscow [in Russian].

Shepitko, V. Yu., Konovalova, V. O., Zhuravel, V. A. ta in. (2016). *Kryminalistyka:* pidruchnyk. Ed.: V. Yu. Shepitko. 5-te vyd., pererob. ta dopov. Kyiv [in Ukrainian].

Shostak, G. S. (1978). Takticheskoe reshenie i ego znachenie v rabote sledovatelia. *Teoriia i praktika kriminalistiki i sudebnoi ekspertizy.* Saratov [in Russian].

Shurukhnov, N. G. (2002). *Kriminalistika:* ucheb. posob. Moscow [in Russian].

Iakushin, S. Iu. (2008). Takticheskie resheniia sledovatelia i sredstva ikh realizatcii pri rassledovanii prestuplenii: iskhodnye polozheniia chastnoi kriminalisticheskoi teorii. *Uchenye zapiski Kazanskogo gos. un-ta. Kazan.* T. 150. Kn. 5 [in Russian].

О. Ю. Булулуков

ПРЕДМЕТ ТАКТИЧНОГО РІШЕННЯ В КРИМІНАЛІСТИЦІ

Розглянуто дискусійні питання щодо наявності предмета рішень (зокрема, тактичних рішень) у криміналістиці. Висловлено думки щодо предмета тактичних рішень у криміналістиці.

Проаналізовано визначення тактичного рішення, наведені в науковій літературі, й виокремлено предмет тактичного рішення. На підставі розгляду визначено предмет тактичного рішення в криміналістиці, у складі якого виокремлено тактичні, технічні, організаційні й інші засоби криміналістики.

Ключові слова: тактичне рішення, теорія прийняття рішень, предмет тактичного рішення.

О. Ю. Булулуков

ПРЕДМЕТ ТАКТИЧЕСКОГО РЕШЕНИЯ В КРИМИНАЛИСТИКЕ

Рассмотрены дискуссионные вопросы о наличии предмета решений (в частности, тактических решений) в криминалистике. Высказано мнение относительно предмета тактических решений в криминалистике. Акцентировано внимание на том, что исследование предмета тактического решения обусловлено необходимостью определить его место в структуре решения. Правильное избрание предмета тактического решения способствует эффективности тактического воздействия, является важным для достижения цели решения.

Цель статьи — аргументировать наличие у тактического решения предмета и выделить его в виде конкретных средств криминалистики, используемых при расследовании преступлений.

Методы исследования — формально-логические методы познания (анализ, синтез, обобщение, аналогия).

Для решения поставленной задачи рассмотрена этимология термина «предмет». Основой мотивации о наличии предмета тактического решения послужили труды древнегреческого философа-энциклопедиста Аристотеля. По мнению учёного, предметом решения являются «средства достижения цели». Для детального изучения этого вопроса рассмотрены отдельные аспекты теории принятия решений. В исследовании акцент сделан на том, что в структуре решения всегда есть цель, ради достижения которой принимается это решение, и средства, способствующие достижению указанной цели. Все эти элементы по-разному проявляются в решении. Цель (как некий интеллектуальный фактор) проявляется в решении в виде того, чего кто-то хочет достичь, что направляет действия лица, принимающего решение. Цель и её достижение прямо зависят от средств, выбранных для достижения цели. Указанные средства являются «материализованными» элементами решения, что позволяет отнести их к предмету решения. Приведены следующие аргументы в пользу средств достижения цели решения как его предмета: а) на определение вида и качества средств достижения цели направлены мысли лица, принимающего решение; б) волеизъявление лица, принимающего решение, направлено на выбор оптимального варианта применения определённых средств; в) реализация решения — это действие по применению определённых средств.

Для подтверждения своих выводов автор проанализировал имеющиеся в научной литературе определения тактического решения и из их содержания вычленил средства достижения цели решения. В заключение работы названы средства криминалистики, которые могут являться предметом тактического решения.

Ключевые слова: тактическое решение, теория принятия решений, предмет тактического решения.

Received by Editorial Board: 12.11.2020

Bululukov O. Yu. The subject of tactical decision in criminalistics//*Theory and Practice of Forensic Science and Criminalistics:* Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 41—51. DOI: https://doi.org/10.32353/khrife.2.2020.03.

DOI: https://doi.org/10.32353/khrife.2.2020.04
UDC 343.1:159.9.018

O. V. Synchuk,
PhD in Law, Assistant at the Department of Criminalistics
of Yaroslav Mudryi National Law University,
Kharkiv, Ukraine,
ORCID: http://orcid.org/0000-0002-8227-9409,
e-mail: o.v.synchuk@nlu.edu.ua

Psychological aspects of crimes pre-trial investigation

The article is devoted to the problem of a psychological component of crimes pre-trial investigation. The factors of negative impact of circumstances and consequences of illegal actions on the psyche of participants of criminal proceedings are considered. The need to use knowledge of psychological phenomena and processes in the course of crime investigation by investigators is substantiated.

The activities of investigator are characterized by significant emotional intensity. Taking into account full complexity of investigative activities encompassing a variety of interpersonal interactions, special attention is paid to the issue of psychological training of law enforcement agencies. Long-term perception of antisocial phenomena and communication with representatives of different social classes under conditions of time pressure and strict procedural regulation by investigator can result in increased mental stress in investigator and, as a result, in professional deformation. The investigator, being under the influence of negative emotions, must be able to maintain emotional stability. In this regard, the intellectual, volitional and communicative personal qualities of an investigator are particularly important. Keeping in touch with other participants of criminal proceedings, an investigator must maintain rationalism and composure, avoid formalism and bias. The purpose of such communication is to obtain information contributing to the establishment of truth on a specific criminal proceeding. The main task of an investigator in this process is to establish psychological contact with the use of psychological influence methods.

Keywords: investigator, investigative action, investigation, disclosure, crime, crime detection and investigation, criminal case, psyche, psychology, psychological characteristics, psychological contact, psychological impact, psychological pressure.

Formulation of Research Problem. Advances in psychology have long attracted the attention of law enforcement and forensic scientists. The first scientific works on psychology related to criminal justice dated back to the XVII—XVIII centuries (I. T. Pososhkov, M. M. Shcherbatov). During the XIX century. works on legal psychology had been published (O. U. Freze,

© O. V. Synchuk, 2020

L. Ye. Vladymyrov, I. Friedrich), and at the beginning of the XX century — fundamental works based on experimental researches (Hans Gross, W. Stern).

For a long time, psychologists had been involved in the pre-trial investigation process only sporadically. In the late 1960's, the situation has changed, and modern world experience shows numerous examples of successful application of psychological knowledge by lawyers (investigators). Although some concepts and terms still cause controversy among scientists, most experts admit the high effectiveness of the use of psychological methods and techniques in the investigative activities.

Analysis of Essential Researches and Publications. Among modern scientists, whose researches were devoted to the reasoning of the usage of special psychological knowledge by the employees of Law enforcement agencies, we may recall: V. P. Bakhin, R. S. Belkin, I. Ye. Bykhovskyi, V. L. Vasilyev, A. I. Vinberg, V. H. Honcharenko, A. V. Dulov, M. I. Yenikieiev, L. M. Karnieieva, Ya. Yu. Kondratiev, V. O. Konovalov, M. V. Kostytsky, V. V. Koshenets, M. I. Lutskyi, V. F. Pyrozhkov, V. Ya. Marchak, O. R. Ratinov, Yu. V. Chufarovskyi, V. Yu. Shepitko and others. [1]

So, for example, O. R. Ratinov notices that the comprehensive study of the psychological basis of criminal procedure contributes to forming such recommendations that give the opportunity to prevent many failures, to make the work of an investigator and a judge easier and somehow counterbalance the difference in their experience and skills. That is why, psychological knowledge is necessary for junior forensic investigators, as well as for experienced ones [2].

The **Article Purpose is** to analyze the psychological aspects of the pre-trial investigation of crimes, substantiate the necessity of qualified psychological training of the employees of Law enforcement agencies.

Main Content Presentation. Crimes detection is a determined by the government and laws and regulations of the Ministry of Internal Affairs of Ukraine complex activity of operational units, bodies of inquiry, pretrial investigation, other units of internal affairs aimed at determining the presence or absence socially dangerous crime, collecting evidences of guilt of perpetrator in order to prosecute him / her and reimbursement for caused by criminal activities, as well as finding out and removing causes and conditions that contribute to the commission of crimes.

---

[1] E.g., Бахін В. П., Гончаренко В. Г. Як розкриваються злочини. (Криміналістика у питаннях та відповідях). Київ, 1996. 198 p. ; Белкин Р. С. Криминалистика: проблемы, тенденции, перспективы. От теории — к практике. Москва, 1988. 304 p. ; Коновалова В. О., Шепітько В. Ю. Юридична психологія. Харків, 2008. 240 p. ; Пирожков В. Ф. Криминальная психология. Москва, 2001. 704 p. ; Костицький М. В. Проблема свідомості у філософії та психології//*Юридична психологія*. 2017. № 1. P. 9—20 та ін.

[2] Ратинов А. Р. Судебная психология для следователей. Москва, 2001. P. 10.

The process of crime detection as a type of professional activity is characterized powerful psychological pressure, as it provides solving plenty of tasks and occurs in the conditions of constant conflict interaction with criminal environment. Regularly perceived by an investigator (or judge) of and circumstances and consequences of illegal actions and communication with criminals, victims and witnesses of crimes can provoke a depressed state of mind.

Besides, among psychological characteristics of the procedural activity, it is distinguished legal regulation, the presence of Power and lack of time. Legal regulation restricts the will of law. [1]. From the other hand, psychological attitude of a person to his / her Power may be different. Though his Power and procedural means of coercion, an investigator constantly influences persons involved in criminal proceedings. Reasonable use of such means involves making a deliberate and substantiated decision, but in practice we sometimes observe two negative, opposite in content trends. One of them based on excessive use of Power that caused abuse of official capacity. Such abuses are most frequently embodied in an unsubstantiated announcement of suspicion, taking a person into custody, etc. The second trend in the use of Power is due to the indecision of its use, caused by doubts about the appropriateness of certain actions and fear of possible responsibility [2]. Lack of time is a psychological characteristic of procedural activity, because it regulates all its stages and determines a strict regime for it, and because of this psychologically affects a person and makes his work more intense [3]. Considering significant number of criminal cases pending, the large number of works on each of them, which involves the implementation of various of operational and search measures and investigative actions, psychological tension effects on person's acceptance, with Power, important and even fateful decisions.

It provides difficult work conditions and arouses negative emotions which, on their part, often provokes psychological deformation of a person.

Modern Criminalistics the most uses the achievements of psychology which, in turn, on its part, is based on the methodological foundations of the physiology of the high nervous system. Thus, developments of tactful techniques based on the use of psychological influence makes it possible to establish psychological contact, expose lies, update the forgotten. [4]. For example, V. O. Konovalova and V. Yu. Shepitko note that the role of Psychology is determined by the fact that tactics are directly aimed at a specific object — the human psyche. Creation

[1] Правова доктрина України: у 5 т. Т. 5: Кримінально-правові науки в Україні: стан, проблеми та шляхи розвитку/за заг. ред. В. Я. Тація, В. І. Борисова. Харків, 2013. P. 1162.

[2] Коновалова В. О., Шепітько В. Ю. Юридична психологія: підручник. Харків, 2008. P. 54—55.

[3] Ibid. P. 55.

[4] Правова доктрина України: … . P. 1159.

and building of such techniques are based on psychological characteristics of the processes of perception, memory, thinking; certain properties and states, and the content and mechanism of implementation are due to the need for psychological influence for a specific purpose [1]. During communication, tactics, as carriers of psychological influence, solve the following tasks: diagnosis of mental states of persons who are in the orbit of criminal procedure; change in the behavior of these persons; obtaining the necessary information from them; implementation of the educational function [2].

M. I. Porubov indicates that psychological influence on a respondent should consist in creation of the most suitable conditions for mental properties of the individual, in creating for the respondent situations that allow to obtain from him true testimony [3].

O. O. Zakatov believes that the task of the investigator is to create for the person, to whom the psychological influence is directed, such conditions that would lead this person to an independent decision to give truthful testimony [4]. It is worth agreeing with it, because the same emotional feelings may be caused by different psychophysiological reactions, and the same reactions in one person can be caused by various anxieties [5].

According to V. O. Konovalova, the essence of psychological influence is due to a set of techniques aimed at diagnosing the mental state of the witness, accused, suspect and selecting the most effective methods of investigative actions [6]. Allowability of psychological influence means that it should not be any way to degrade the dignity of a person, distort the prospect of achieving objective truth. Therefore, the influence should be moral. The morality of psychological influence, as an integral part of it, is explained primarily by the fact that psychological influence, transformed into a tactical technique, is a means of obtaining evidence [7].

Considering the ratio between lawful influence and violence, O. R. Ratinov noted that between the boundary between them is determined by the freedom

---

[1] Коновалова В. Е., Шепитько В. Ю. Криминалистическая тактика: теории и тенденции: учеб. пособ. Харьков, 1997. P. 112.

[2] Шепитько В. Ю. Допустимость психологического воздействия в следственной деятельности и средства криминалистической тактики//*Воронежские криминалистические чтения*: сб. науч. тр. Воронеж, 2010. Вып. 12. P. 370.

[3] Порубов Н. И. Научные основы допроса на предварительном следствии. Минск, 1978. P. 53.

[4] Закатов А. А. Ложь и борьба с нею. Волгоград, 1984. С.107.

[5] Бєляєва К. В. Психологічний експеримент на досудовому слідстві. Критерії допустимості//*Криміналістика XXI століття*: мат-ли Міжнар. наук.-практ. конф. (Харків, 25—26.11.2010). Харків, 2010. P. 210.

[6] Коновалова В. Е. Организационные и психологические основы деятельности следователя. Киев, 1973. P. 102.

[7] Коновалова В. Е., Шепитько В. Ю. Основы юридической психологии: учебник. Харьков, 2006. P. 205.

to choose a certain position: that is, free decision-making under condition of influence and its absence in the conditions of violence [1].

The criterion for the allowability of psychological influence (according to V. H. Honcharenko) is the possibility or impossibility of a person's freedom to choose their position in communication, statements, actions, behavior, if certain restrictions are not expressly provided by law [2].

Yu. V. Chufarovsky considered the use of lawful psychological influence not only allowable but also necessary, because otherwise the law enforcement officer would be "unarmed" in front of the offender or dishonest witness and become a stenographer who simply records what he is told or what he sees, with the help of which he will allow the other party to counteract, falsify, etc. [3]

The interaction of the investigator with other participants in the criminal proceedings is complicated by the formality characteristic of this type of communication, which restricts their mental activity and requires communicative flexibility from the investigator. The establishment of communicative contact is due to the mental state of the persons who contact, their mental mutual adaptation. This process can be complicated by the negative attitude of individuals to law enforcement official — resentment, aggression, secrecy, suspicion. The position of individual investigators may also be dominated by negative attitudes (extremely negative attitude towards the suspect) and related arrogance, insolence, etc.

The professional quality of the investigator is the ability to neutralize, inhibit the emotionally negative attitude towards the interlocutor and adequately determine his mental state, which can be sharply excited, emotionally negative or depressed. Further behavior of the investigator should be based on these conditions, so as not to aggravate the negative mental state of these persons.

Each victim, witness or suspect has his or her own problems with related to the investigation, and each of them need to see in the investigator an honest, principled, cultured person who knows his or her case, does not degrade them, and protects their legally guaranteed rights [4].

Conclusions. Mentioned above gives the opportunity to claim that the potential of applying knowledge of psychology in the investigation of crimes is in fact inexhaustible. By understanding the mechanisms of mental processes and the peculiarities of psychological states of a person, the investigator can minimize the conflict of the process of communication with various participants in criminal proceedings. High-quality comprehensive psychological training of law enforcement officers can not only change for the better the biased attitude of

[1] Ратинов А. Р. 1967. Р. 262—264.

[2] Гончаренко В. Г. Лекції з судової психології, читані в Академії адвокатури України. Київ, 2008. Р. 63.

[3] Чуфаровский Ю. В. Юридическая психология: теоретические аспекты, практическое применение. Москва, 1996. Р. 141—142.

[4] Еникеев М. И. Общая, социальная и юридическая психология: учеб. для вузов. Санкт-Петербург, 2003. Р. 518—519.

citizens towards law enforcement officers, but also have a significant impact on improving the effectiveness of the fight against crime.

References

Bakhin, V. P., Honcharenko, V. H. (1996). *Yak rozkryvaiutsia zlochyny. (Kryminalistyka u pytanniakh ta vidpovidiakh)*. Kyiv [in Ukrainian].

Belkin, R. S. (1988). *Kriminalistika: problemy, tendentcii, perspektivy. Ot teorii — k praktike.* Moscow [in Russian].

Bieliaieva, K. V. (2010). Psykholohichnyi eksperyment na dosudovomu slidstvi. Kryterii dopustymosti. *Kryminalistyka XXI stolittia:* materialy Mizhnar. nauk.-prakt. konf. (Kharkiv, 25—26.11.2010). Kharkiv [in Ukrainian].

Chufarovskii, Iu. V. (1996). *Iuridicheskaia psikhologiia: teoreticheskie aspekty, prakticheskoe primenenie.* Moscow [in Russian].

Honcharenko, V. H. (2008). *Lektsii z sudovoi psykholohii, chytani v Akademii advokatury Ukrainy.* Kyiv, 2008 [in Ukrainian].

Konovalova, V. E. (1973). *Organizatcionnye i psikhologicheskie osnovy deiatelnosti sledovatelia.* Kiev [in Russian].

Konovalova, V. E., Shepitko ,V. Iu. (2006). *Osnovy iuridicheskoi psikhologii:* uchebnik. Kharkiv [in Russian].

Konovalova, V. E., Shepitko, V. Iu. (1997). *Kriminalisticheskaia taktika: teorii i tendentcii:* ucheb. posob. Kharkiv [in Russian].

Konovalova, V. O., Shepitko, V. Yu. (2008). *Yurydychna psykholohiia.* Kharkiv [in Ukrainian].

Kostytskyi, M. V. (2017). Problema svidomosti u filosofii ta psykholohii. *Iurydychna psykholohiia.* № 1 [in Ukrainian].

Pirozhkov, V. F. (2001). *Kriminalnaia psikhologiia.* Moscow [in Russian].

Polozhennia pro osnovy orhanizatsii rozkryttia orhanamy vnutrishnikh sprav Ukrainy zlochyniv zahalnokryminalnoi spriamovanosti: zatv. Nakazom MVS Ukrainy vid 30.04.2004 r. № 458 (utratyv chynnist). URL: https://zakon.rada.gov.ua/laws/show/z0814-04 (data zvernennia: 01.09.2020) [in Ukrainian].

Porubov, N. I. (1978). *Nauchnye osnovy doprosa na predvaritelnom sledstvii.* Minsk [in Russian].

Pravova doktryna Ukrainy (2013): u 5 t. T. 5: Kryminalno-pravovi nauky v Ukraini: stan, problemy ta shliakhy rozvytku. Eds: V. Ya. Tatsiia, V. I. Borysova. Kharkiv [in Ukrainian].

Ratinov, A. R. (1967). *Sudebnaia psikhologiia dlia sledovatelei.* Moscow [in Russian].

Ratinov, A. R. (2001). *Sudebnaia psikhologiia dlia sledovatelei.* Moscow [in Russian].

Shepitko, V. Iu. (2010). Dopustimost psikhologicheskogo vozdeistviia v sledstvennoi deiatelnosti i sredstva kriminalisticheskoi taktiki. *Voronezhskie kriminalisticheskie chteniia:* sb. nauch. tr. Voronezh. Vyp. 12 [in Russian].

Zakatov, A. A. (1984). *Lozh i borba s neiu.* Volgograd, 1984 [in Russian].

О. В. Синчук

ПСИХОЛОГІЧНІ АСПЕКТИ ДОСУДОВОГО РОЗСЛІДУВАННЯ ЗЛОЧИНІВ

Розглянуто важливість психологічної складової слідчої діяльності. Наведено приклади негативного впливу на психіку учасників кримінального

провадження. Обґрунтовано необхідність якісної психологічної підготовки співробітників правоохоронних органів.

Професійна діяльність слідчого характеризується значним психологічним навантаженням, яке може негативно впливати на якість виконуваної ним роботи. Постійне відчуття негативних емоцій, викликаних регулярним сприйняттям наслідків злочинних дій та спілкуванням з їх виконавцями, неминуче призводить до професійної деформації. В результаті цього змінюється підхід слідчого до інших учасників кримінального провадження. Як наслідок у слідчого виникає упереджене та зверхнє ставлення до осіб, які певним чином потрапили у поле зору правоохоронних органів у зв'язку із розслідуваною справою.

Ключові слова: слідчий, слідча дія, розслідування, розкриття, злочин, оперативно-розшукові заходи, кримінальна справа, психіка, психологія, психологічна характеристика, психологічний контакт, психологічний вплив, психологічний тиск.

А. В. Синчук

ПСИХОЛОГИЧЕСКИЕ АСПЕКТЫ ДОСУДЕБНОГО РАССЛЕДОВАНИЯ ПРЕСТУПЛЕНИЙ

Статья посвящена проблеме психологической составляющей досудебного расследования преступлений. Рассмотрены факторы негативного воздействия обстоятельств и последствий противоправных действий на психику участников уголовного производства. Обоснована необходимость использования следователями знаний психологических явлений и процессов в ходе расследования преступлений.

Деятельность следователя характеризуется значительной эмоциональной насыщенностью. Учитывая сложность следственной деятельности, включающей разнообразие межличностного взаимодействия, особое внимание уделяется вопросу психологической подготовки сотрудников правоохранительных органов. Длительное восприятие следователем антисоциальных явлений и общение с представителями различных слоёв общества в условиях дефицита времени и строгой процессуальной регламентации могут стать причиной повышенной психической напряжённости и, как следствие,— профессиональной деформации. Следователь, ощущая воздействие негативных эмоций, должен быть в состоянии проявить эмоциональную устойчивость. При этом особое значение приобретают интеллектуальные, волевые и коммуникативные личностные качества следователя. Контактируя с другими участниками уголовного производства, следователь должен сохранять рационализм и хладнокровие, избегать формализма и предвзятости. Целью такого общения является получение сведений, способствующих установлению истины по конкретному производству. Основной задачей следователя в этом процессе становится установление психологического контакта с применением методов психологического воздействия.

Ключевые слова: следователь, следственное действие, расследование, раскрытие, преступление, оперативно-розыскные мероприятия, уголовное дело, психика, психология, психологическая характеристика, психологический контакт, психологическое воздействие, психологическое давление.

Received by Editorial Board: 28.10.2020

Synchuk O. V. Psychological aspects of crimes pre-trial investigation//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 52—59. DOI: https://doi.org/10.32353/khrife.2.2020.04.

DOI: https://doi.org/10.32353/khrife.2.2020.05
UDC 343.98:343.326

H. O. Chornyi,
PhD in Law, Associate Professor of the Department of Criminalistics
of Yaroslav Mudryi National Law University, Kharkiv, Ukraine,
ORCID: http://orcid.org/0000-0003-1649-6437,
e-mail: chernygennadiy@gmail.com

Microtraces in the system of criminal characteristics of terrorist nature crimes

The article is devoted to study of problems of microtraces classification at the general theoretical and scientific forensic level with subsequent extrapolation to microtraces which form a typical trace evidence picture of forensic characteristics in terrorist nature crimes. The analysis of scientific approaches to the definition of microtrace allows us to identify and outline main features typical for this definition, namely: small size; small amount of substances and materials: invisible or faintly visible under normal conditions of observation; peculiarities of their detection, record, seizure and research. The classification of microtraces based on various grounds is provided. Thus, according to organization of matter (form of physical embodiment), microtraces (microparticles) are divided into: single physical formations (individual physical bodies with a stable form); substances (materials) that do not take the from of an individual body (liquids, powdered substances). In accordance with immediate source of origin, micro-objects are classified into two large groups: parts of natural origin (from natural objects); parts separated from objects that are largely processed or man-made. In the first group, four subgroups must be distinguished: microtraces that have separated from the human body; micro-objects from animal; microparticles from plants; micro-objects of mineral nature. When considering micro-objects in conjunction with carrier objects, they are differentiated by a trace-forming object and the type of contact with the carrier: overlay; inclusion; layering.

It is noted that the most typical ways of committing terrorist nature crimes are the use of firearms, cold weapons and the use of explosive weapons and / or explosives.

Taking into account the fact that manufacture, possession and use of explosive weapons or explosives for the investigation of crimes of this category affects the criminal law qualification, tactics of individual investigative actions (eg site inspection, search, etc.). Microtraces can be classified according to conditions and time of their formation into the following groups: formation of microtraces that are associated with illegal manufacture, acquisition, storage, sale of explosive weapons or explosives; microtraces of preparation of explosive weapons directly before the explosion; microtraces of explosive weapons. The analysis of the essence of these situations allowed the author to establish and

© H. O. Chornyi, 2020

provide an appropriate list of typical microtraces in investigation of terrorist nature crime.

Keywords: microtraces classification, typical trace evidence picture, microtraces of explosive weapons and explosives, investigation of terrorist nature crimes.

Formulation of Research Problem. A typical trace picture, as an element of forensic characteristic, has a significant value for further planning and organization of investigation of terrorism crimes. Traces and other material evidence, detected at the scene, in the future are the basis for setting out and examination of leads (typical, general and individual). At the same time, some leads can be put set out depending on the method and tools of crime (with the help of an explosive device, explosives or using firearms, etc.), according to the suspect and his relevant professional skills (e. g., special skills of a military engineer, sapper, miner, sniper, etc.).

Most forensic scientists, researching traces of commission of crime, pay attention to macrotraces, ignoring microtraces — traces that are the small size or small number of substances (materials), are faintly visible or invisible at all, in the result of which they are in used with forensic thechnique in a particular way, as well as means to detect, record, seize and investigate.

A special importance microtraces are acquired in the system of the forensic characteristic of terrorist crimes, which is due to certain factors. By their nature, terrorist crimes belong to serious and especially serious criminal offenses, and their commission requires criminals to carefully prepare, conspire and oppose the disclosure of their activities by law enforcement agencies. Such crimes involve the use (as a method and tool of committing a crime) of dangerous explosives (devices), that cause their almost final damage (destruction) together with the object of a terrorist attack. This makes it impossible to detect macrotraces and promote great probative value to microtraces – material evidences. Detection, recording, and investigation of traces of the use of these substances (devices) or firearms require the use of special forensic knowledge.

In modern forensic science, there are a series of controversial issues on detection, recording and using microtraces — material evidence in the investigative-judicial and forensic expert activity. The problems of determining the essence of the conceptual apparatus of the delineations “microparticles”, “microtraces”, “microobjects”; determination of criteria and identifying features of the microtrace; classification of microtraces on various grounds; types of microtraces in the case of explosive devices, substances or firearms; features of detection, removal and recording of microtrace during the investigation of terrorist crimes require a separate in-depth study, critical analysis and further scientific development.

Analysis of Essential Researches and Publications The theoretical basis of our research are works of well-known forensic scientists, who have studied the issues of traces and microtraces (in particular, in the system of the forensic

characteristic of crimes) and created certain controversial issues related to the analysis of modern conditions, trends and promising areas of such researches. These issues were investigated by R. S. Belkin, Ye. M. Bershadskyi, M. B. Vander, O. Vendel, V. H. Honcharenko, I. V. Hora, H. L. Granovskyi, Ye. I. Zuiev, P. P. Ishchenko, V. Ye. Kapitonov, O. A. Kyrychenko, P. Kirk, N. I. Klymenko, A. V. Kochubey, I. F. Krylov,V. O. Konovalova, V. A. Kolesnyk, N. P. Mailis, P. Mentsl, M. Ya. Rozental, M. M. Rusakov, N. O. Prokopenko, M. V. Saltevskyi, A. Svensson, M. P. Khylobok, V. I. Shikanov, V. Yu. Shepitko and others. [1]

For today, the series of issues which are decisive in the development of conceptual apparatus problems and applying methods of detection, recording and investigation of microtraces of terrorism crimes commission. These and other circumstances need a comprehensive approach to research mentioned problematics and require further scientific developments in this field of knowledge.

The **Article Purpose** is a study of issues of definition and essence of microtraces in the system of forensic characteristic of terrorism crimes, their features, properties, theoretical and practical problems of detection, recording, removal and research in law enforcement. Objectives of the study: to analyze scientific approaches to understanding the concept of "microtrace", formulate its definition, identify essential features and properties, classify and consider microtraces of explosives, substances, firearms in the investigation of terrorist crimes.

Main Content Presentation. Studying the elements of the forensic characteristic of terrorism crimes it should be noted that each component and the presence of correlations are extremely important for the organization and planning of the investigation, promotion and verification of leads.

Typical traces of terrorism crimes (the typical trace picture) include: a) changes in substances; b) traces reflection; c) subjects — material evidence; d) documents (written, electronic, etc.); e) tracei — microparticles [2].

In the theory of forensic tactics, considering the typical traces of crime as elements forensic characteristic, considerable attention is paid to the research on the issues of detection, recording, seizing and examining macrotraces.

[1] E.g., Белкин Р. С. Криминалистика: проблемы, тенденции, перспективы. От теории — к практике. Москва, 1988. 304 р. ; Вандер М. Б. Использование микрочастиц при расследовании преступлений. Санкт-Петербург, 2001. 224 р. ; Свенссон А., Вендель О. Раскрытие преступлений: современные методы расследования уголовных дел. Москва, 1957. 475 р. ; Кочубей А. В. Теоретические основы учения о микрообъектах: монография. Волгоград, 2007 ; Розенталь М. Я. Теория и практика использования микрочастиц в расследовании тяжких преступлений против личности. Красноярск, 1993. 146 р. ; Шиканов В. И. Актуальные вопросы уголовного судопроизводства и криминалистики в условиях современного научно-технического прогресса. Иркутск, 1978.

[2] Криміналістика: підручник: у 2 т. Т. 2/В. Ю. Шепітько, В. А. Журавель, В. О. Коновалова та ін.; за ред. В. Ю. Шепітька. Харків, 2019. Р. 16.

In our opinion, the issue of classification, peculiarities of detection, recording, seizing and examining macrotraces in the structure of forensic characteristics of the terrorism crimes are not sufficiently studied and examined.

In the theory and practice of Criminalistics the following concepts "microparticles", "microtraces", "microobjects", etc., are used [1]. Therefore, one of the urgent tasks of theoretical development of the comprehensive use of tactful methods is to solve conceptual apparatus problems. After all, at the beginning of any scientific research it is necessary to find out the concept, place and interrelationship of the studied phenomenon (category), understand the general theoretical provisions, formulate the initial concepts and only then to start the scientific development of the problem. Neglecting this rule causes only confusion, and sometimes forces to ignore the already existing experience of theoretical and applied researches and consider the relevant issues from the beginning.

Microobjects — material evidence should be understood as a variety of small bodies, as well as a small number of substances and materials that are invisible or barely visible under normal conditions of observation.

Thus, the small size, the difficulty of detection in normal conditions (normal vision and lighting) are the main features that distinguish microobjects from other objects, determine the specifics of working with them. The given definition does not exclude, of course, use in expert researches of special normalized gradations of samples of substance, micropreparations, etc.

Objects are invisible that under ordinary conditions (normal lighting, subjective data of the observer) are not visually perceived. They can be invisible due to their small sizes, which is beyond the threshold of human visual acuity, as well as due to a slight difference from the environment in color or other properties.

Faintly visible microobjects are determined when possible to see them in normal conditions, but it is impossible to study their features without special technical means and methods. In this case, the visual signal is perceived only about the presence of the object, and the necessary information about its properties is not available to the naked eye.

Due to the diversity and heterogeneity of microparticles, their classification on various grounds has a practical interest. Dividing of a group of microparticles makes it possible to give specific recommendations for working with particles of a particular group; assess the nature and amount of information they may be carriers; determine the necessary set of studies.

The most comprehensive condition for classification of microparticles is its material form (organization of material substance). According to this condition, the microparticles are divided into: single material structures (individual physical

[1] Клименко Н. И. Использование микрообъектов при расследовании преступлений: метод. указания для студ. юрид. ф-та. Киев, 1984. P. 5—13.

bodies which have a stable form), and substances (materials) that do not have the form of single object (liquids, powdery substances).

The boundary between these groups is movable: small quantity of liquid (e. g., blood, paint, glue, etc.) after dried may harden, i.e. obtain the stable form of physical body (separated microclusters, film, etc.).

According to the direct source of origin microobjects are classified into two groups: 1) parts of natural origin (from natural objects), and 2) parts that were separated from objects that are largely processed or artificially created by a human.

In the first group of such subgroups there are four: 1) microobjects that have separated from the human body (strands of hair, pieces of skin, nail fragments, various discharges in a very small amount, etc.); 2) microobjects of animal origin (fibres of wool, fluff, hair, etc.); 3) microparticles of plant origin (seeds, particles of grasses and trees, dust, spores, etc.); 4) microobjects of mineral character (soil particles, particles of solid minerals, microtraces of natural oil). These subgroups determine the specialization of the examination, which examines the relevant microobjects, and the forensic expert institution over the direction of objects (criminalistic, forensic researches).

The second group includes bodies and substances that have separated in the form of microparticles from processed or artificially created objects (products). Particles of this group can be divided into the main components of the composition into three subgroups: 1) microparticles of inorganic composition (fragments of glass, ceramics, microparticles of metal products, some building materials, inorganic chemicals); 2) microobjects with the main organic composition (fibers from wool and vegetable yarn, pieces of wooden products, paper, tobacco particles, microtraces of fuels and lubricants and chemicals and other organic substances); 3) microparticles of mixed composition (fibers from combined threads, particles of autoenamel). Classification of microobjects by composition is important for the correct construction of the methodology of their further expert research.

Considering microobjects jointly with objects — carries, the first differentiate by trace object and type of contact with the carrier: overlay, inclusion, layering.

Microtraces — overlay — are microparticles which are in contact with a surface of objects – carries. The power of this contact is different and depends on features of microobjects and the trace surface. Thus, the body tissues of the human and textile fibers provide strong storage on the cutting edges of cold steel and tools for mechanical adhesion to the irregularities of the sharpened surface. In addition, organic particles-overlays are often fixed on the surface with the help of adhesive authorities (sticking or gluing — through the presence of liquid secretions' particles on the surface). Sometimes, even after finding the knife in the water, overlays of frequent skin, soft tissue, and hair were found on its blade. The microtraces - overlays are firmly stored in the area of various fractures

(mechanical adhesion), as well as the small bodies, processed on the object with significant mechanical force (for example, after a collision). Another thing — dry microparticles, transferred to solid smooth surfaces without force contact. These overlays do not have a strong connection with the surface of media, so it is very important to fix them in time.

Microtraces – inclusion — are microparticles that are in contact with the carrier due to penetration into its mass (into the material of the object). Traces — inclusions, in particular, include small pieces of metal shavings, fragments of metal objects, wall cladding, furniture upholstery, etc. Microinclusion can also be found in the tissues of the human body.

In practice, there are not only overlays and inclusions in pure form, but also combined microtraces: overlays with inclusions (for example, plant microparticles with hooks and spikes that are on the surface and penetrate into the carrier object).

Depending on the mechanism of trace formation of the properties of particles and carrier objects, overlays and inclusions are classified as microtraces obtained with the deformation of the trace-forming object, and as micro-traces without significant deformation of the object. If, as a result of contact interaction, the microparticle stops existing as a single physical body and turns into a mass of matter, it will not be an overlay, but the microtrace -layer or the microtrace — inclusion.

Microtraces – layer — are small amounts of substances (materials) that are in contact with the surface of the carrier objects. The strength of the contact of the layers (as well as the overlays) with the objects depends on many factors. This connection, for example, can be quite strong - in the presence of adhesive properties of the substance-layering (liquid, semi-liquid substances), however, often the connection of the layering with the trace-forming surface is quite weak, so you have to deal with such a carrier object very carefully (objects with microlayers of dust, ash, dry building materials, etc.).

Considering the general theoretical forensic issues of classification of microtraces, we should note that the most typical ways of committing terrorist crimes are the use of firearms, melee weapons and the use of explosive devices and / or explosives.

In view of the fact that the manufacture, possession and use of explosive devices or explosives for the investigation of crimes of the mentioned category affects the criminal qualification and tactics of certain investigative actions (e.g., inspection of the scene, search, etc.), microtraces can be classified by situation, conditions and time of their formation into the following groups: microtraces, which are associated with the illegal manufacture, acquisition, storage and sale of explosive devices or explosives; microtraces of preparation of explosive devices directly for the explosion and microtraces of the use of explosive devices.

Considering the traces of the first group, it should be noted that they remain on the explosive device, clothing and body of the person who made it, on objects

used for the manufacture, storage or transportation of explosive devices or explosives, in particular:

1) traces that indicate a belonging to explosive devices or explosives (marking on individual elements of the explosive device of factory and / or self-made production, traces of layering and inclusion in the form of marks or self-made records). They can determine the type, shape, place and date of manufacture of both the explosive device and its individual elements;
2) traces left on the explosive device as a result of its manufacture and / or processing (traces of thermal or mechanical treatment of the body of the explosive device, when it is a shell explosive device; traces of drilling, welding, soldering, turning or milling equipment);
3) traces of explosives and metallization on the clothes and bodies of persons involved in the crime, on the objects where the explosive device was moved. From these traces it is possible to determine the group affiliation of the composition of the alloy or metal from which the shell of the explosive device was made, and compare it with other physical evidence.

Traces of the second group remain during the preparation of the explosive device directly before the explosion at the scene and include:

1) microtraces of fingers (fatty secretions); imposition, inclusion or layering of footprints, vehicles, hacking tools and instruments (the greatest interest for the study of explosive devices are traces of metallization on the clothes and body of the suspect from contact with the metal body of the explosive device); particles of substances and fibers that remained on the explosive device due to its interaction with the places of its transportation, storage and masking;
2) microtraces of installation and masking of an explosive device at the place of probable explosion (except for microtraces of hands, feet, vehicles and clothes, traces of application of tools can be found at places of dividing previously formed parts - with adhesive tape, twine, wire, etc.). It is also important to carry out search operations aimed at identifying items that indicate the means of delivery and camouflage of the explosive device (packages, bags, boxes on which it is possible to capture odorous (odorological) traces);
3) microtraces of explosive devices, which should be considered: microtrace — objects ((fragments of the body of the explosive device in the form of microparticles of metal, wood, plywood, plastic, etc.; fragments of means of initiation before the explosion of the explosive device in the form of lamp sockets, parts of spiral electric heaters, microparticles of radio parts, clockworki, wire parts, striking elements in the form of deformed nails, nuts, grists, etc.); microtraces — substances (primarily explosive products (nitrogen oxides, carbon and other toxic gases)); microtraces — inmposition or layering of soot on the scenery; microtraces — inclusion or layering due to the action of microparticles of explosives that did not explode (did not

react) on the fragments of the explosive device; microtraces-reflections (dents, micro-cracks in the places of laying the device, cracks and charring, microstructural changes in the materials of products that were nearby during the explosion, change in the shape of objects as a result of an air shock wave) [1].

In the case of committing terrorist crimes with the use of firearms or the detection of traces of its use, the following are detected: microtraces of damaged clothes with traces of bullets, grists, secondary shells, etc., the presence of gunpowder soot, gunpowder residues, traces of the muzzle of the weapon, tissue gaps in the area of the entrance, traces of abrasion, metallization, sediment.

The investigator and prosecutor need to be aware that, in the case of the use of firearms, persons present at the crime scene can be identified by traces of gunshot wounds on their bodies and clothing. The topography and intensity of such traces make it possible to determine the person who held the weapon at the time of the shot and the persons who were close to it at the time of the shot.

The products of the shot are superimposed both on the affected obstacle and on other objects-carriers (in particular, on the inner surface of the firing case and the barrel of the weapon, as well as on the surface of objects in contact with the weapon). Such items may be the inside of clothing pockets, suitcases, packages in which weapons were carried after the shot. The organic part of such traces is gunpowder, the basis of which is nitrocellulose, as well as the products of its combustion. The location of such a crime, the relative position of the offender and the victim, the direction and distance of the shot, the type of gunpowder used and the type of weapon can be determined by the particles of gunpowder found at the scene that did not burn.[2]

Particular attention should be paid to the search for weapons, shell casings, sometimes shops and other objects used by criminals during the shooting, in order to identify traces of layering, overlaying or inclusion. The weapon examines the barrel, shutter, muffler, trigger and other parts; biological traces (fatty substance) and traces of papillary patterns can be found on combat cartridges.

The current level of development of Criminalistics and the achievements of foreign and domestic scientists make it possible to detect handprints on the shot surfaces of bullets and shell casings using cyanoacrylic acid. he high sensitivity of cyanoacrylic acid to the microscopic amounts of the fatty component of the trace makes it possible to detect and record handprints not only on the cartridges, but also on the shell casings after the shot.

---

[1] Криминалистическая взрывотехника: учеб. пособ./под ред. О. В. Белова. Москва, 2012. P. 168.

[2] Колесник В. А., Гора І. В. Криміналістика в протидії незаконному використанню вибухових пристроїв, вогнепальної зброї та обігу наркотиків: навч. посіб. Київ, 2017. P. 159—160.

Detection and removal of traces of dactyloscopic origin on the fired shells, together with the inspection of the shells on the arrays of forensic records of bullet casings, allows you to check the fingerprint on the arrays of dactyloscopic records — tracks and fingerprints.[1]

Specialists fix micro-objects and media in various ways, which makes it possible to create a secure and accessible storage media. The main and obligatory means of fixing microparticles during investigative actions is a minute.

The minute as a means of fixing microobjects — physical evidence has to meet the general requirements of Art. 104, 105 the Criminal Procedural Code of Ukraine, contain a consistent presentation of information, objectively and fully reflect the facts, be terminologically clear and understandable.

There are two main options for extracting microparticles: a) together with the carrier object (extraction of trace traces); b) separating from the carrier object.

If possible, if practically justified, the microparticles should be removed together with the carrier object after they have been properly secured. Small transportable items (weapons, clothing, shoes, utensils, etc.) are usually removed completely. imilarly, objects are removed — possible carriers of microparticles, when the particles themselves during the investigation could not be detected (sometimes such carriers are not removed, but temporarily denied access to them, and then re-inspect or make objects available to experts).

If the detected micro-objects are located on a large area and the object is not valuable (wallpaper, fence shield, asphalt coating, etc.), then remove a fragment of the surface with particles that are pre-protected with cellophane application (removal is carried out with tools from the investigative suitcase - scalpel , saw, chisel). Often the microparticles are on the parts of the object, which during removal can be separated from it (for example, car bumper, cabinet door, chair seat, etc.).

Microparticles are photographed in accordance with the general recommendations of forensic photography. Photographic materials show areas with objects on which microparticles are found. After performing nodal photographs, detailed photography of microparticles is started. Macro and microphotography methods are used to obtain detailed photographs of particles.[2]

Conclusions. In view of the above, in modern realities an important element of the forensic characteristic of terrorist crimes is a typical trace picture, which should be considered as a set of studies of macro and microtraces. The latter are quite common in the case of their use as a weapon (explosives, devices, firearms, etc.) or a method of committing a terrorist crime.

---

[1] Ibid. P. 168—169.

[2] Практикум з криміналістики: навч. посіб./В. Ю. Шепітько, В. О. Коновалова, В. А. Журавель та ін.; за ред. В. Ю. Шепітько. Київ, 2013. 128 р.

Since the fact of manufacture, possession and use of explosive devices or explosives, firearms for the investigation of crimes of this category affects the criminal qualification and tactics of certain investigative actions (e.g., inspection of the scene, search, tactical features of the relevant examinations, etc.), the microtraces, according to the author, can be classified according to the situation and the time of their formation into the following groups: the formation of microtraces, which are associated with the illegal manufacture, acquisition, storage, sale of explosive devices or explosives; microtraces of preparation of explosive devices directly before the explosion; microtraces of explosive devices; microtraces of firearms (microtraces on firearm elements,shell cases, bullets, etc.).

Due to the fact that in criminal activity in the modern world every time new, improved forms, methods and tools are used, one of the promising areas of scientific development in modern Criminalistics is the study of these problems.

References

Belkin, R. S. (1988). *Kriminalistika: problemy, tendentcii, perspektivy. Ot teorii — k praktike.* Moscow [in Russian].

Klimenko, N. I. (1984). *Ispolzovanie mikroobektov pri rassledovanii prestuplenii:* metod. ukazaniia dlia stud. iurid. f-ta. Kyiv [in Russian].

Kochubei, A. V. (2007). *Teoreticheskie osnovy ucheniia o mikroobektakh:* monografiia. Volgograd [in Russian].

Kolesnyk, V. A., Hora, I. V. (2017). *Kryminalistyka v protydii nezakonnomu vykorystanniu vybukhovykh prystroiv, vohnepalnoi zbroi ta obihu narkotykiv*: navch. posib. Kyiv [in Ukrainian].

Kriminalisticheskaia vzryvotekhnika (2012): ucheb. posob. Ed.: O. V. Belova. Moscow [in Russian].

Kryminalistyka: pidruchnyk (2019): u 2 t. T. 2. Eds: V. Yu. Shepitko, V. A. Zhuravel, V. O. Konovalova ta in. Kharkiv [in Ukrainian].

Praktykum z kryminalistyky (2013): navch. posib. Eds: V. Yu. Shepitko, V. O. Konovalova, V. A. Zhuravel ta in. Kyiv [in Ukrainian].

Rozental, M. Ia. (1993). *Teoriia i praktika ispolzovaniia mikrochastitc v rassledovanii tiazhkikh prestuplenii protiv lichnosti.* Krasnoyarsk [in Russian].

Shikanov, V. I. (1978). *Aktualnye voprosy ugolovnogo sudoproizvodstva i kriminalistiki v usloviiakh sovremennogo nauchno-tekhnicheskogo progressa*. Irkutsk [in Russian].

Svensson, A., Vendel, O. (1957). *Raskrytie prestuplenii: sovremennye metody rassledovaniia ugolovnykh del.* Moscow [in Russian].

Vander, M. B. (2001). *Ispolzovanie mikrochastitc pri rassledovanii prestuplenii.* Saint Petersburg [in Russian].

Г. О. Чорний

МІКРОСЛІДИ В СИСТЕМІ КРИМІНАЛІСТИЧНОЇ ХАРАКТЕРИСТИКИ ЗЛОЧИНІВ ТЕРОРИСТИЧНОЇ СПРЯМОВАНОСТІ

Статтю присвячено вивченню проблем класифікації мікрослідів на загальнотеоретичному науковому криміналістичному рівні з подальшою екстраполяцією до мікрослідів, які складають типову слідову картину криміналістичної характеристики злочинів терористичної спрямованості. Аналіз підходів до визначення поняття «мікросліди» дає змогу виокремити основні ознаки, характерні для зазначеної дефініції, а саме: малий розмір; мала кількість речовин і матеріалів, невидимі або слабовидимі за нормальних умов спостереження; особливості їх виявлення, фіксування, вилучення та дослідження. Мікросліди класифіковано за: 1) організацією матеріальної субстанції (формою матеріального втілення) — одиничні матеріальні утворення (окремі фізичні тіла, що мають стійку форму) та речовини (матеріали), що не мають форми одиничного тіла (рідини, порошкоподібні речовини); 2) безпосереднім джерелом походження — на дві групи: частини природного походження (від природних об'єктів) та частини, що відокремилися від об'єктів, значною мірою оброблених або штучно створених людиною. У першій групі перебувають чотири підгрупи: мікрооб'єкти, що виокремилися від організму людей, тварин, рослин і мікрооб'єкти мінерального походження. Під час розглядання мікрооб'єктів сукупно з об'єктами-носіями, їх диференціюють за слідоутворювальним об'єктом і видом контактного зв'язку з носієм (накладення, включення або нашарування).

Зазначено, що найтиповішими способами скоєння злочинів терористичної спрямованості є використання вогнепальної, холодної зброї та застосування вибухових пристроїв і/або вибухових речовин.

Зважаючи на те, що факт виготовлення, володіння та застосування вибухових пристроїв або вибухових речовин для розслідування злочинів зазначеної категорії впливає на кримінально-правову кваліфікацію й тактику проведення окремих слідчих дій (наприклад, огляд місця події, обшук тощо), мікросліди можна класифікувати за умовами та часом їх утворення на такі групи: утворення мікрослідів, які пов'язані з незаконним виготовленням, придбанням, збереженням, збутом вибухових пристроїв або вибухових речовин; мікросліди підготовки вибухових пристроїв безпосередньо до вибуху; мікросліди застосування вибухових пристроїв. Аналіз сутності згаданих ситуацій дав змогу авторові скласти відповідний перелік типових мікрослідів під час розслідування злочинів терористичної спрямованості.

Ключові слова: класифікація мікрослідів, типова слідова картина, мікросліди вибухових пристроїв і вибухових речовин, розслідування злочинів терористичної спрямованості.

Г. А. Чёрный

МИКРОСЛЕДЫ В СИСТЕМЕ КРИМИНАЛИСТИЧЕСКОЙ ХАРАКТЕРИСТИКИ ПРЕСТУПЛЕНИЙ ТЕРРОРИСТИЧЕСКОЙ НАПРАВЛЕННОСТИ

Статья посвящена изучению проблем классификации микроследов на общетеоретическом криминалистическом уровне с последующей экстраполяцией к микроследам, составляющим типовую следовую картину криминалистической характеристики преступлений террористической направленности. Проведённый анализ научных подходов к определению понятия «микроследы» позволяет вычленить основные признаки, характерные для данной дефиниции, а именно: малый размер; малое количество веществ и материалов, невидимых или слабо видимых при нормальных условиях наблюдения; особенности обнаружения, фиксации, изъятия и исследования. Микроследы классифицированы по различным основаниям. Так, по организации материальной субстанции (форме материального воплощения) микроследы (микрочастицы) делят на: единичные материальные образования (отдельные физические тела, обладающие устойчивой формой); вещества (материалы), не имеющие формы единичного тела (жидкости, порошкообразные вещества). По непосредственному источнику происхождения микрообъекты классифицируют на две группы: частицы естественного происхождения (природные объекты) и частицы, отделившиеся от искусственных объектов (в значительной степени обработанных или созданных человеком). В первой группе выделяют четыре подгруппы: микрообъекты, отделившиеся от организма человека; микрообъекты животного происхождения; микрочастицы растительного происхождения; микрообъекты минерального характера. Рассматривая микрообъекты в совокупности с объектами-носителями, их дифференцируют по следообразующему объекту и виду контактной связи с носителем (наложение, включение или наслоение).

Отмечено, что типичными способами совершения преступлений террористической направленности является использование огнестрельного, холодного оружия и применение взрывных устройств и/или взрывчатых веществ.

Принимая во внимание, что факт изготовления, владения и применения взрывных устройств или взрывчатых веществ для расследования преступлений указанной категории влияет на уголовно-правовую квалификацию, тактику проведения отдельных следственных действий (например, осмотр места происшествия, обыск и т. д.), микроследы можно классифицировать по ситуации условий и времени их образования на следующие группы: образование микроследов, связанных с незаконным изготовлением, приобретением, хранением и сбытом взрывных устройств или взрывчатых веществ; микроследы подготовки взрывных устройств непосредственно к взрыву; микроследы применения взрывных устройств. Анализ указанных

ситуаций позволил автору установить и представить соответствующий перечень типовых микроследов при расследовании преступлений террористической направленности.

Ключевые слова: классификация микроследов, типичная следовая картина, микроследы взрывных устройств и взрывчатых веществ, расследование преступлений террористической направленности.

Received by Editorial Board: 26.10.2020

Chornyi H. O. Microtraces in the system of criminal characteristics of terrorist nature crimes//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 60—72. DOI: https://doi.org/10.32353/khrife.2.2020.05.

DOI: https://doi.org/10.32353/khrife.2.2020.06
UDC 343.98

O. P. Necheporenko,
PhD in Law, Forensic Expert of the Sector of Trasological Research
of the Department of Criminalistics at Sumy Research Expert Criminal Center
of the Ministry of Internal Affairs of Ukraine, Sumy, Ukraine,
ORCID: https://orcid.org/0000-0003-4753-0239, e-mail: vivat84@ukr.net

Problematic aspects of shoeprints seizure from the crime scene (Review Article)

The author of the article analyzes existing methods of seizing three-dimensional and latent (two-dimensional) shoeprints, described in the forensic scientific literature, which are used in Ukraine and abroad. Attention is drawn to the fact that methods of seizing traces that have been used for a long time are a subject to minor changes, despite the development of scientific and technological progress. The author names a reason for such a phenomenon: the lack of exchange in experience with countries that use modern tools and techniques for forensic analysis, one of which is a crime scene fingerprint film lift pad. The crime scene fingerprint lift pad is most often used when seizing latent (two-dimensional) shoe prints during inspection of a crime scene. However, attention is drawn to the problem of further suitability of seized traces for carrying out forensic examination as well as to peculiarities of storing seized materials.

According to the author, trace damage is associated with two groups of factors: removal of a trace with violation of a technique and removal of a trace by means of poor-quality material. The author describes several types of crime scene fingerprint lift pad which is used to seize evidence of trace evidence nature.

The author notes that along with the development of technology, trace evidence methods should be advanced as well. There is an urgent need to analyze the market of imported fingerprints, its efficiency, specificity of forensic situations, weather conditions, etc. There is also a need to share experiences in the use of such materials by forensic expert subdivisions. The question as to improving domestic production of fingerprint products, increasing the cost for purchasing high-quality materials also arises. Such an approach will fix the situation with quality of a crime scene processing and collection of evidence which will have a positive impact on detection of crimes and identification of perpetrators. The author emphasizes the relevance of this study and need for new theoretical and practical developments.

Keywords: trace seizure, crime scene fingerprint lift pad, evidence, layering, trace, trace evidence.

© O. P. Necheporenko, 2020

Formulation of Research Problem. Traseology occupies one of the leading places in forensic technology. This is due to the importance of processing the trace picture left by the offender at the crime scene, and by recording it during the inspection of the scene, it is possible to get information about the person who left traces to prove his guilt. Among the traces found by law enforcement agencies at the scene, footwear impressions, footprints, traces of stockings (i.e. Traseological traces) are not at the last place. Among researchers there is a thought that footwear impressions are more common than fingerprints and DNA traces, but are often neglected, ignoring a proper research. There are a variety of methods to remove footwear impressions, but each case of such a removal is unique, specific, so the methods of removal should be improved, using a new scientific and practical basis to increase the productivity of modern forensic activity. The relevance of the study is related to the need to promote an appropriate level of work at the scene in order to qualitatively remove traces of criminal acts. The problem of removing and researching footwear impressions is global and relevant not only for Ukraine.

Analysis of Essential Researches and Publications. Scientific and practical aspects of Traceology were studied by such scientists as R. S. Belkin, V. I. Boiarov, T. V. Varfolomeieva, I. F. Herasymov, V. H. Honcharenko, S. V. Honcharenko, L. Ya. Drapkin, V. O. Markus, E. O. Razumov, M. V. Saltevskyi, M. I. Skryhoniuk, V. Yu. Shepitko and others. However, the conducted researches need further development, as forensic technology is improved under the influence of scientific and technical process, so there is a need to outline new areas of extraction and study of evidence and to introduce systematic scientific analysis, using foreign experience.

The **Article Purpose** is the coverage of new knowledge in the field of forensic technical support of operational units that process the trace picture during the inspection of the scene, as well as the systematization of means of removing traces in order to improve the collection of evidence.

Main Content Presentation. One of the theories of Criminalistics is to record evidentiary information. Recording procedure itself is the subject of scientific discussions, because it plays one of the leading roles in the process of proving. Recording procedure of evidences is the system of actions to reflect in the forms prescribed by law the facts that are relevant to criminal proceedings, as well as the conditions, means and methods of detecting and consolidating such evidence. R. S. Belkin defines four types of recording procedure: verbal (in words), graphic, objective and visual. Characterizing the technical means of recording, they can be divided into the following: means of making minutes and audio recordings, creating ideal models (recordings, drawings, diagrams), creating material models (molds, means of displaying traces) [1].

[1] Белкин Р. С. Криминалистика: проблемы, тенденции, перспективы. Общая и частные теории. Москва, 1987. P. 222—223.

Problems with object recording, carried out with the help of technical means to create material models, most often arise during the inspection of the scene in the work with traceological information (in particular, with footware impressions). In practice, technicians face the problem of qualitative removal of traces that should be suitable for identification research. Most often forensic experts deal with the problem of damage to the trail, scattering from the sticky surface, destruction of the material that was recorded, which makes it impossible to qualitatively and completely further study and provide objective answers to questions asked by the investigator (or court) in order to appoint the examination. Some scientists refer to the fact that even a vaguely reflected trace can contain evidence, be informative, suitable for research and to obtain specific answers to questions. The destruction of the removed trace can be related to two groups of factors: violation of the method of removing and poor-quality material for such removing.

The rules for detecting and removing footware impressions include: photographing with a scale, indicating the information about the detected trace in the inspection report, as well as direct removal by technical means. Photographing sometimes plays a crucial role in the study of an imprint in the event of its destruction.

In the educational and methodical literature, the study of footware impressions is considered differently by theorists and practitioners.

Thus, E. P. Ishchenko notes, if the object with traces can not be taken in kind because of its large size or value, then from the traces should be made copies (especially photographic), and from the three-dimensional traces of shoes to make molds (plaster, plasticine, polymeric) [1].

E. O. Razumov recommends removing the trace with the trace carrier, if it is superficial, and the volume trace can be removed with the help of gypsum and various casting masses [2]. The scientist does not specify the processing of surface traces.

V. O. Markus and V. Yu. Shepitko describes three ways to remove bulky traces: filling, bulk and combined. For the filling method, a mixture of 2 glasses of water and 500 g of gypsum is made. The bulk method involves the treatment of a trace filled with liquid or wet snow with dry gypsum powder, which is sifted on the surface of the trace in several layers. The combined method involves firstly creating a layer of gypsum powder, which is moistened with water, and then covered with the layer of gypsum (powder mixed with water to the consistency of sour cream) [3].

---

[1] Герасимов И. Ф., Драпкин Я. Л., Ищенко Е. П. и др. Криминалистика: учеб. для вузов/под ред. И. Ф. Герасимова, Л. Я. Драпкина. Москва, 1994. P. 117.

[2] Разумов Э. А., Волкова А. Э. Криминалистика: курс лекций: учеб.-метод. пособ. Сумы, 2008. P. 117.

[3] Маркусь В. О. Криміналістика: навч. посіб. Київ, 2007. P. 103 ; Шепитько В. Ю. Криминалистика: курс лекций. 3-е изд. Харьков, 2009. P. 74—75.

M. V. Saltevskyi determines that duct tapes, fixed photographic films and photographic paper, adhesive tapes such as scotch tape, sticking plaster, etc. are used for copying. As plaster materials, dental plaster, pastes “K”, “Cielast” are used [1].

T. V. Varfolomeieva recommends removing traces-layers on the duct tape of the appropriate color or prepared photo paper. The copying film is pressed to the trace, rolled on it with a rubber roller, the film is carefully separated from the surface. Casts are made from three-dimensional traces (the best material for this is dried gypsum: medical, surgical, molding, sculptural). Building gypsum (alabaster) is not recommended to use due to its rapid hardening (3-5 minutes) [2].

M. I. Skryhoniuk describes the fixation of the trace with silicone pastes “B” and “K”, to which a filler of a certain color is added. The paste and filler are mixed to a homogeneous mass and add the catalyst № 18, to the paste “K” — 15%, to the paste “У” — 6%). The prepared paste-compound is used by analogy with gypsum solution, the curing of which lasts about 30 minutes and under a temperature of + 20…– 20 °C. To copy the surface traces, sticky paper or sheet rubber is used, which is tightly pressed into the imprint for 2—3 minutes [3].

In the practical manual “Participation of the specialist in the inspection of the scene”, which is widely used in everyday activities, it is recommended to remove the traces-layers together with the object — the trace carrier or part of it. Castings are made of relief traces with the help of gypsum, polymeric materials, silicone compounds and plastics in volumetric, bulk and combined way. The surface traces of shoes are treated by specialists with dactopod powders, chemical reagents for detecting traces, copied on a dactyloscopic film or a film with a gelatin layer. Dust marks on porous surfaces are removed using an electrostatic device, and fixed by treatment with iodine vapor. The authors of the handbook did not specify the name and type of electrostatic device. The surface traces of shoes are treated by specialists with dactopod powders, chemical reagents for detecting traces, copied on a dactyloscopic film or a film with a gelatin layer. What these sources have in common is that they distinguish between methods of removing volumetric and surface traces. Filling, bulk and combined methods predominate among the methods of removing volumetric traces, but the authors do not specify which substances are used for this purpose today and which will be used in the future. Detailed information about this is contained in the methodological literature addressed to the participants of the scene review. It is recommended, for example, to use gypsum, but gypsum traces can not always be stored properly, because they are fragile and do not have the ability to change shape. In modern conditions of operational work, it is advisable to use polymeric

[1] Салтевський М. В. Криміналістика: підручник: у 2 ч. Ч. 1. Харків, 1999. P. 181.

[2] Варфоломеєва Т. В., Гончаренко В. Г., Бояров В. І., Гончаренко С. В., Попелюшко В. О. Криміналістика. Академічний курс: підручник. Київ, 2011. P. 108.

[3] Скригонюк М. І. Криміналістика: підручник. Київ, 2007. P. 51—52.

materials that do not break during falling or transportation, do not deteriorate during storage from moisture or direct sunlight and can be bent.

A common method of removing footware impressions from the scene is to use recording film. The tape contains two layers — trace-sensitive (having a sticky base on one side) and protective (covering the sticky layer). To remove the footware impression, use a film at least 48 mm wide.

For today, law enforcement agencies in Ukraine and other countries often use Ukrainian-made *Ronik* tape to copy footware impressions. Rerording film is a complex composite material containing a set of polymer films, a sticky coating of varying degrees of stickiness and a protective film. So, for example, DP-124122-1111 is a white rerording film intended for removal, in particular, of footware impressions using dactopod powder of black color.

During the study of films from this manufacturer, it was determined that they preserve the recorded image of the trace of air temperature -50… +70 °C, while the image is not destroyed. The disadvantage of this manufacturer's tape is the insufficient storage time of the removed traces of footware impressions.

Some experts prefer *VDA* film tapes (USA). They have a high-quality gelatin layer, which (unlike domestic films) does not lose its shape and does not blur, the film itself is flexible, not too sticky, which allows you to take prints from uneven and uneven surfaces without air bubbles. Sometimes it is necessary to use silicone mixtures to remove molds, the only disadvantage of such mixtures is their high cost.

FOMA products (Czech Republic) — light-sensitive materials (in particular, recording film) — are purchased not only by Ukraine, but also by Germany, Great Britain, Denmark, China and other countries. The advantages of this manufacturer's tape are a layer of foil that can maintain a constant temperature and prevent the destruction of the removed material. The product contains a base, a gelatin emulsion layer and a protective foil, which is produced in several variants. Depending on the base on which the gelatin emulsion is applied, the films are divided into transparent, black and white. The advantage of this manufacturer is a high-quality gelatin layer that does not deform during contact with the trace-forming surface, while maintaining the shape and strength and quality of the base, which are significantly inferior to domestic bases-substrates (footboard).

TRITECHFORENSICS recording film (USA), which is used to remove footware impressions, contains a vinyl substrate (footboard), which helps to store the removed trace and prevents its destruction and deformation.

SIRCHIE recording films (China) for removing handprints and footware impressions are available in several types. One of them is lifters containing a stripper (acrylic glue applied to a transparent acetate base, 0.125 mm thick) and a back substrate made of transparent acetate or opaque vinyl. An asterisk indicates the outside.

The transparent *Rubber-Jell*™ (USA) tape is a multifunctional film for removing handprints and footware impressions from various surfaces, in which rubber and gel are combined.

It should be noted that in recent years no new scientific literature on forensic removal of traces has been published. The technique itself is presented either in theory or in general. Some issues need to be reviewed at all. Given the list of analyzed substances and materials that experts use to remove footware impressions during the inspection of the scene, it should be noted that the forensic examination lacks information about the characteristics of each material (reaction to temperature, humidity, storage time, etc.). makes it impossible to make the right choice when processing traces at the scene. Among the materials, experts usually prefer domestic products - due to their low price, but not high quality, so reviews of modern world products for forensic expert work would be useful to specialists in this field.

In our opinion, preference should be given to quality material that fully reflects the evidence and allows to form an evidence base to expose the perpetrator. Such a film is a product of the Czech manufacturer *FOMA*, which uses foil.

When removing footware impressions (in addition to copying materials), dactyloscopic powder is also used for fixing, to which an alternative can also be chosen. The information letter of the SRFC of Ukraine in 2018 on the use of magnetic powder "Trifolin" states that this substance can be used to detect handprints as affordable and free of harmful substances that precipitate in the human body when working with most magnetic powders. However, it is not known whether "Trifolin" can be used to remove footware impressions: this issue requires further study. One of the methods of obtaining high-quality molds is biofoam blocks, which make it possible to obtain a mold left in the snow. To do this, specialists attach cardboard to one side of the block, biofoam allows you to well reflect the individual and group characteristics [1].

It should also be noted that foreign experience shows the use of 2D- ans 3D- laser scanning devices as analogues of chemicals for further casting of detected footware impressions (for example, laser scanner *NextEngine* to obtain shoe molds), as well as photometric stereo. For the use of the latter two methods is important lighting, temperature and substrate materials, the advantage is the low price and ease of use.

[1] Baiker-Sørensen M., Herlaar K., Keereweer I., Pauw-Vugts P., Visser R. Interpol review of shoe and tool marks 2016—2019//*Forensic Science International: Synergy.* 2020. 2 apr. URL: https://www.sciencedirect.com/science/article/pii/S2589871X20300164 (date accessed: 16.06.2020).

Conclusions. In summary, it should be noted that operational units are not always equipped with technically high-quality materials that would allow to obtain the most effective results when removing traces from the scene. This is due to the lack of proper exchange of experience with specialists from other countries, the material support of forensic units which is constantly improving. Samples of recording films coming to Ukraine also need experimental research to identify their problematic characteristics and specific applications. Another problem is the need to improve the funding of operational units and the constant introduction of modern technologies for a successful proof process.

References

Baiker-Sørensen, M., Herlaar, K., Keereweer, I., Pauw-Vugts, P., Visser, R. (2020). Interpol review of shoe and tool marks 2016—2019. *Forensic Science International: Synergy.* URL: https://www.sciencedirect.com/science/article/pii/S2589871X20300164; https://doi.org/10.1016/j.fsisyn.2020.01.016 (data zvernennia: 16.06.2020).

Belkin, R. S. (1987). *Kriminalistika: problemy, tendentcii, perspektivy. Obshchaia i chastnye teorii.* Moscow [in Russian].

Gerasimov, I. F., Drapkin, Ia. L., Ishchenko, E. P. i dr. (1994). *Kriminalistika*: ucheb. dlia vuzov. Eds.: I. F. Gerasimova, L. Ia. Drapkina. Moscow [in Russian].

Markus, V. O. (2007). *Kryminalistyka:* navch. posib. Kyiv [in Ukrainian].

Razumov, E. A., Volkova, A. E. (2008). *Kriminalistika: kurs lektcii:* ucheb.-metod. posob. Sumy [in Russian].

Saltevskyi, M. V. (1999). *Kryminalistyka:* pidruchnyk: u 2 ch. Ch. 1. Kharkiv [in Ukrainian].

Shepitko, V. Iu. (2009). *Kriminalistika*: kurs lektcii. 3-e izd. Kharkiv [in Russian].

Skryhoniuk, M. I. (2007). *Kryminalistyka*: pidruchnyk. Kyiv [in Ukrainian].

Uchast spetsialista v ohliadi mistsia podii (2018): dovidnyk. Kyiv [in Ukrainian].

Varfolomeieva, T. V., Honcharenko, V. H., Boiarov, V. I., Honcharenko, S. V., Popeliushko, V. O. (2011). *Kryminalistyka. Akademichnyi kurs*: pidruchnyk. Kyiv [in Ukrainian].

О. П. Нечепоренко

ПРОБЛЕМНІ АСПЕКТИ ВИЛУЧЕННЯ СЛІДІВ ВЗУТТЯ З МІСЦЯ ПОДІЇ
(оглядова стаття)

Автор проаналізував інформацію, пов'язану з використанням сучасних криміналістичних технічних засобів під час огляду місця події, за

допомогою яких здійснюється вилучення слідів взуття. У статті досліджено переваги використання вітчизняних та імпортних дактилоскопічних матеріалів, проаналізовано склад дактилоскопічних матеріалів, які застосовують оперативні підрозділи України. Також розглянуто питання модернізації й удосконалення технічних криміналістичних засобів, пов'язаних із трасологією, необхідності обміну досвідом щодо застосування сучасних дактилоскопічних матеріалів закордонних виробників.

Ключові слова: вилучення слідів, дактилоскопічна плівка, доказ, інформація, нашарування, слід, трасологія.

О. П. Нечепоренко

ПРОБЛЕМНЫЕ АСПЕКТЫ ИЗЪЯТИЯ СЛЕДОВ ОБУВИ С МЕСТА ПРОИСШЕСТВИЯ
(обзорная статья)

Автор проанализировал существующие методы изъятия объёмных и поверхностных следов обуви, описанные в криминалистической научной литературе, которые используют в Украине и за рубежом. Внимание привлекает тот факт, что методы изъятия следов, используемые в течение длительного времени, изменяются крайне медленно, несмотря на развитие научно-технического прогресса. Причиной этого автор считает отсутствие обмена опытом со специалистами других стран, использующими современные технико-криминалистические средства, одним из которых является дактилоскопическая плёнка. Дактилоскопическую плёнку специалисты чаще всего используют при изъятии поверхностных следов обуви при осмотре места происшествия. Обращает на себя внимание проблема дальнейшей пригодности изъятых следов для проведения судебно-экспертного исследования, а также особенности хранения изъятого материала.

Разрушение следа, по мнению автора, связано с двумя группами факторов: нарушением методики и некачественными материалами. Автор описывает несколько видов дактилоскопической плёнки, которые эксперты используют для извлечения доказательств трасологического содержания.

Автор отмечает, что трасологические методики должны совершенствоваться вместе с развитием техники. Существует насущная необходимость в анализе рынка импортной дактилоскопической продукции, её эффективности, специфики в зависимости от криминалистической ситуации, погодных условий и т. п. Существует также необходимость обмена опытом относительно использования криминалистическими подразделениями таких материалов. Также возникает вопрос о совершенствовании отечественного производства дактилоскопической продукции, увеличении расходов на закупку качественных

материалов. Подобный подход исправит ситуацию с качеством обработки места происшествия и сбора доказательственной информации, что положительно скажется на раскрытии преступлений и установлении виновных лиц. Автор подчёркивает актуальность данного исследования и необходимость новых теоретических и практических разработок в этой области.

Ключевые слова: изъятие следов, дактилоскопическая плёнка, доказательство, наслоение, след, трасология.

Received by Editorial Board: 26.05.2020

Necheporenko O. P. Problematic aspects of shoeprints seizure from the crime scene (Review Article)//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: Pravo Publishing House, 2020. 22nd Issue. P. 73—81. DOI: https://doi.org/10.32353/khrife.2.2020.06.

DOI: https://doi.org/10.32353/khrife.2.2020.07
UDC 343.982.4

L. S. Talyanchuk,
PhD in Law, Head of Sector of Handwriting examination, Technical Examination of Documents and Accounting at Vinnytsia Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine,
Vinnytsia, Ukraine,
ORCID: https://orcid.org/0000-0002-4949-2283,
e-mail: lesichka302015@gmail.com

Types of identity documents inspection while crossing the state border of Ukraine (Review Article)

Inspection of passport documents is divided into types according to the following criteria: 1) by entities (the first category includes employees of the State Border Guard Service of Ukraine who possess special knowledge and have undergone appropriate training; the second one comprises of prosecutors, units of the Ministry of Internal Affairs, the Security Service of Ukraine; the third one includes only forensic experts with corresponding forensic qualifications; the fourth category comprises of other employees who have the right to inspect documents (representatives of travel agencies, banking institutions, notaries, judges and others)); 2) by inspection sites (at checkpoints: a) at border checkpoints (specially selected buildings with equipment), b) in vehicles and at the places of foreign vehicles parking; c) in specially designated control areas: in ports, fishing enterprises, berths, in the territory of neighboring states; d) outside checkpoints at places where persons are being examined (in a train car, in buses); in workrooms, offices or outside).

During inspection, entities should undertake the following procedure: a) determine the type of passport document; b) examine general appearance; c) check its details; d) examine photo cards; e) pages are studied; e) establish the validity of existing visas; g) use appropriate technical equipment to detect signs of complete or partial forgery in passport documents.

The peculiarities of studying these documents were also systematized and considered above in order to identify signs of forgery, such as: time and place, professional qualification of survey participants, technical support, purpose and result of inspection, procedure for detecting and fixing signs of forgery. The study of documents requires possessing special knowledge, practical skills of checking passport documents which is extremely important in investigation and prevention of criminal offenses related to forgery of identity documents when crossing the state border of Ukraine.

Keywords: passport, entity, inspection, border crossing, detection of forgery signs, forensic expert, research.

© L. S. Talyanchuk, 2020

Documents inspection that certifies a person at the crossing of the state border of Ukraine is special documents. And this speciality consists in their legal status. Thus, precisely such documents not only certify a person, as well as confirmation of citizenship; not only provide exiting and entering the boundaries of the State, as well as indicate the person's type of activity. These distinctive opportunities can be explained by rather frequent changes of samples of forms during the years of the independence of Ukraine with updating special elements of protection in them. Perhaps, that is why the identity documents at the crossing of the state border, unfortunately, are often the objects of criminal encroachments.

According to the statistics of State Border Guard Service of Ukraine, the number of detected forged passport documents increases every year. Thus, for example, in 2014, 320 forged documents, allowing to cross of the state board of Ukraine, were detected; in 2015 — 681 such a document: in 2016 their number was 486; in 2017 — 950 documents; 2018 — approximately 1000 [1].

Nowadays, when Ukraine has problems with the protection of the eastern borders, expansion in the number of refugees in connection with hostilities, the urgency of checking documents entitling to cross the state border of Ukraine has increased, not only at relevant points on the state border, but also at near-border and in places controlled by Ukraine.

The most typical types of the forging of documents are full forging, use of stolen passports with amendments to them (substitution of the data page, removing and providing with new information, etc.). Also, in these documents also visas and information in them are forged, fictitious invitations from travel agencies, educational institutions, public and private companies are used, etc.

Formulation of Research Problem. In Art. 358 of the Criminal Code of Ukraine provides amenability to forgery of documents, seals, stamps and forms, their sale, use of forged documents [2].

To detect criminal offenses and prevent committing other offenses, using forged documents, is possible only by studying their content and verifying. According to this, P. H. Kulahin believes that to exclude a possibility of the use of forged documents, and thus, prevent the crime is possible not only by technological protection of forms, complicating the technology of their manufacture, the use of special paints and dyes, as well as the detection of each forged document during checking and inspection [3]. So, in order to prevent

[1] Статистика по кількості осіб, які правомірно перетинали державний кордон України та по виявленню підроблених документів під час спроби перетинання державного кордону України/Офіційний сайт Державної прикордонної служби. URL: www.pvu.gov.ua (date accessed: 20.04.2020).

[2] Кримінальний кодекс України: Закон України від 05.04.2001 р. № 2341-III (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 2001. № 25—26. Ст. 131.

[3] Кулагин П. Г. Проверка и осмотр документов//*Труды научно-исследовательского института милиции МВД СССР.* Москва, 1959. № 1. P. 5—39.

the commission of socially dangerous acts related to the use of forged identity documents and give the right to cross the state border, it is necessary to determine the procedure and features of their inspection with the purpose of identifying signs of forgeries [1].

Analysis of Essential Researches and Publications. Identification of signs of forgeries in documents was the object of attention the following scientists, such as: T. A. Bieievoi [2], I. V. Biba [3], O. V. Vorobei [4], O. L. Kobylianskyi [5], P. H. Kulahin [6], O. A. Lievi [7], M. P. Molyboh, I. M. Melnykova [8], L. L. Patyk [9], E. O. Razumova, N. P. Yablokov [10] and others. However, the specificity of identity documents at the crossing of the state border of Ukraine, in particular, the peculiarities of the inspection of such documents, the subject, and place of its conduct was not taken into account.

The Article Purpose is to characterize the main types of documents inspection that certify the person at the crossing of the state border of Ukraine in order to determine their validity, belonging to the relevant person and detect signs of forgery based on the definition of the term: *documents inspection*.

Main Content Presentation. In current Criminalistics, the documents inspection is proposed to understand the investigative (search) action, which consists in the study of documents, their investigation in order to identify and record the signs that give them the value of physical evidences [11]. In the glossary

[1] Тальянчук Л. С. Криміналістичне дослідження документів, що посвідчують особу при перетині державного кордону України: дис. … канд. юрид. наук. Київ, 2016. 250 р.

[2] Беева Т. А. Криминалистическое исследование поддельных иностранных паспортов: автореф. дис. … канд. юрид. наук. Волгоград, 2003. 22 р.

[3] Біб І. Б. Криміналістичне дослідження паспортів іноземних держав щодо виявлення підроблення//*Техническая экспертиза документов: проблемы и развитие:* сб. материалов Междунар. науч.-практ. конф. (Киев, 20—21.10.2005)/сост. К. Н. Ковалев, Т. В. Тимофеева; ИПЦ МВД Украины. Киев, 2006. Р. 195—205.

[4] Воробей О. В. Криміналістичне дослідження паперових грошей України: дис. … канд. юрид. наук. Київ, 2004. 235 р.

[5] Кобилянський О. Л. Криміналістичне дослідження документів із спеціальними засобами захисту: дис. … канд. юрид. наук. Київ, 2007. 255 р.

[6] Кулагин П. Г. Криминалистическое исследование документов, удостоверяющих личность/под. общ. ред. В. Н. Рощина. Москва, 1959. 89 р.

[7] Леви А. А. Средства и методы защиты документов от подделки. Статья вторая// *Вопросы борьбы с преступностью:* сб. науч. тр. Москва, 1969. Вып. 10. Р. 150—173.

[8] Мельников І. М. Актуальні п итання криміналістичного дослідження та перспективи захисту українських паспортів і посвідчень особи нового зразка// *Техническая экспертиза документов: проблемы и развитие:* … . Р. 191—194.

[9] Патик Л. Л. Криміналістичне дослідження підробленого паспорта громадянина України: дис. … канд. юрид. наук. Київ, 2010. 210 р.

[10] Яблоков Н. П. Техническая экспертиза документов в криминалистике: автореф. дис. … канд. юрид. наук. Москва, 1954. 14 р.

[11] Пясковський В. В., Чорноус Ю. М., Іщенко А. В., Алєксєєв О. О. та ін.

the inspection is determined as the examination in order to check, control, detect something unauthorized, etc. [1].

Legislatively the documents inspection is regulated by Art. 237 of the Criminal Code of Ukraine: it is conducted by an investigator, prosecutor in order to detect and record information on the circumstances of the criminal offense, including an inspection of the area, premises, things, and documents [2]. At the same time, documents inspection that certifies a person at the crossing of the state border of Ukraine has certain peculiarities relating to the specifics of the object under the study. First of all, these are documents of strict accounting and reporting which are endowed with means of protection, have different from the general for all documents rules of registration, issuance, subsequent entry of personal data, imprints of seals and stamps, additional information, validity, etc. [3].

The importance of such an inspection insists, first of all, in detecting signs of forgery of this category of documents which in the future is a warning about the commission of other criminal offenses of state and interstate level. The features of the inspection of these documents are followed from this specificity. Such features are subjects of the inspection, place, purpose, means of inspection, result. Some of these features should be considered in more detail.

In their time, R. S. Belkin and other scientists indicated the difference between the inspection which consists only in the circle of participants and the form of recording the course and results of this action [4]. The classification of subjects of documents inspection, which give the right to cross the state border of Ukraine is also significant.

In our opinion, it is relevant to single out **four categories** of the subjects of such documents inspection:

1) the first category includes the employees of the State Border Guard Service of Ukraine (hereinafter referred to as — *SBGSU*)*;*

Криміналістика: підручник. Київ, 2015. 544 р. ; Біленчук П. Д., Лисиченко В. К., Клименко Н. І. та ін. Криміналістика: підручник/за заг. ред. П. Д. Біленчука. 2-ге вид., випр. і доп. Київ, 2001. 544 р. ; Разумов Э. А., Молибога Н. П. Осмотр места происшествия: методика и практика: справ.-метод. изд. Киев, 1994. 672 р. ; Воробей О. В., Мельников І. М., Волошин О. Г. Техніко-криміналістичне дослідження документів: навч.-метод. посіб. Київ, 2008. 304 р.

[1] Великий тлумачний словник сучасної української мови/уклад. і голов. ред. В. Т. Бусел. Київ; Ірп, 2007. 1440 р.

[2] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/4651-17 (date accessed: 09.03.2020).

[3] Тальянчук Л. С. Op.cit. P. 112.

[4] Аверьянова Т. В., Белкин Р. С., Корухов Ю. Г., Россинская Е. Р. Криминалистика: учебник: в 2 т./под ред. Р. С. Белкина. Москва, 1998. 990 р. ; Патик Л. Л. Op. cit. 210 р.

2) the second category — employees of the Prosecutor's Office, subdivisions of the Ministry of Internal Affairs, Security Service of Ukraine;
3) the third category includes forensic experts of the Ministry of Internal Affairs, Security Service of Ukraine, and the Ministry of Justice of Ukraine, having the appropriate expert qualification;
4) the fourth category — other employees, who deal with inspection of identity documents at the crossing of the state border of Ukraine (representatives of travel agencies, banking institutions, notaries, judges, etc.).

The first category of employees includes officials of subdivisions of state border protection who have gained special training in SBGSU educational institutions and have practical skills on documents inspection. During their training, special attention was paid to the ability to identify a person by a photograph (photo image) in the passport documents of a bearer and to identify signs of changes in them. Also, noted category of subjects receives admission to self-service in the border patrol *Documents inspection* [1].

The inspection of the documents, by mentioned-above subjects, is also differ by venue: 1) on border posts (certain buildings with equipment); 2) in transports and parking for the foreign direction; 3) in specially defined control zones in ports, fishing enterprises, berths, on the territory of neighboring states; 4) outside the border posts in places of control of persons (on board the train, in buses).

Most often, the detection of signs of forgery is carried out at border posts across the state border of Ukraine. Depending on the type of the direction, border guards inspect the documents: at the airport, mostly verify all proper passport data (passport of a citizen of Ukraine for crossing the border, diplomatic and consular passports, crew member's certificates, documents of refugees and stateless persons, less — seaman's identity card); harbour border crossing pointy — the seaman's identity card is verified, rarer — passport; at automobile, railway and pedestrian crossing points the passport of the citizen of Ukraine for border crossing is inspected [2].

The system and steps of the documents inspection were set in the Instruction on an organization and applying the inspection of the documents of the citizens of Ukraine, foreigners, and stateless persons who cross the state border [3]: 1) a standard inspection, containing simplified and repeated one; 2) an in-depth inspection; 3) an expert research.

---

[1] Про затвердження Інструкції з організації і здійснення перевірки документів громадян України, іноземців та осіб без громадянства, які перетинають державний кордон: наказ Адміністрації Держприкордонслужби України від 05.06.2012 р. № 407. URL: https://zakon.rada.gov.ua/laws/show/z1083-12 (date accessed: 12.03.2020).

[2] Тальянчук Л. С. Op.cit. 250 p.

[3] Про затвердження Інструкції з організації і здійснення перевірки документів громадян України … . URL: https://zakon.rada.gov.ua/laws/show/z1083-12 (date accessed: 12.03.2020).

Let's focus our attention on the first three levels of verification of the passport documents in more details. The standard inspection is conducted by inspecting of the passport documents of all persons, without exception, who intend to cross the state border of Ukraine, so far as, this inspection is carried out to the extent necessary to determine the legal grounds for crossing the border by citizens of Ukraine, foreigners and stateless persons. The beginning of such an inspection is the moment when a person submits the relevant passport document.

During the inspection the employees of state border guard: a) first of all, determine the type of the passport document by inspection of lettering on a cover; b) compare a general form with the corresponding defined sample of the passport document; c) verify its reference details, comparing with the information in the machine-reading area and personal data entered in the passport document; d) while inspecting a photo (image) in the visa stickers of passports they are compared with the person of the owner (the image of the person on the photo (image) should be displayed according to certain rules [1], in particular, with the correct position of the head, proper lights, no hats, dark glasses, etc.); e) determine the validity of existing visas; f) employees of the first category pay special attention to the absence of obvious signs of complete or partial forgery in the provided documents. Appropriate technical equipment is used to perform these tasks more efficiently [2].

Such means are: lighting devices (flashlights with white light and with ultra-violet rays), compacted mobile devices with magnifying glasses and ultra-violet rays (magnifiers *Regula Magnifier* 10^x, *Regula Profession* 10^x etc.), devices for stationary research (operational control "Euro-post", "Euro-post" TB, video spectral comparators *Regula*, *Foster+freeman*), automatic reading of the machine-readable zone of passport documents, etc. [3]

Selection of these technical means depends on the place of documents inspection, quantity of willing to cross the border and their presence in the entry point.

While inspecting documents during the standard inspection the employees of state border guard making notes relevant information to the database of persons who have crossed the state border of Ukraine [4].

However, the reinspection of the passport documents can be conducted by the order of the head. It is carried out in order to identify persons who have

[1] Пчеліна О. В. Правила огляду паспортів та основні прийоми виявлення їх підробки//*Право і Безпека.* Харків, 2010. № 4. P. 191—194. URL: http://nbuv.gov.ua/UJRN/Pib_2010_4_43 (date accessed: 12.03.2020).

[2] Тальянчук Л. С. Op.cit.

[3] Про затвердження Положення про базу даних «Відомості про осіб, які перетнули державний кордон України»: наказ Адміністрації Держприкордонслужби України від 25.06.2007 р. № 472 (as amended and supplemented). URL: http://zakon3.rada.gov.ua/laws/show/z0765-07 (date accessed: 12.03.2020).

[4] Про прикордонний контроль: Закон України від 05.11.2009 р. № 1710-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/1710-17 (date accessed: 12.03.2020).

entered the border post or on transports without passing border control (buses, ships, etc.), without a document or with a document belonging to another person.

The peculiarity of such an inspection is that it is conducted in a limited time because it should not delay shipment [1]. Thus, the officials of SBGSU, who conduct reinspection, need to have practical experience in studying passport documents and identifying signs of changes to them.

During such an inspection the employees of state border guard more carefully: a) study the general form of the document, paying the attention to the cover, paper, their thickness and structure, correspondence of pages, their numbering, presence of perforation and quality of the image on pages [2]; b) verify and compare the details of the document, paying attention to the textual part of the data on the correctness of the passport, compliance with the style of presentation, the presence of grammatical errors and contamination; the presence of a watermark, protective fibers, connecting seam, imprints of seals, stamps and other special means of protection (during the verification of information the contents of the machine-readable area and personal data available in the passport document are also studied) [3]; c) carefully compare with the identity of the owner, inspecting the photos (photo images) in passport documents (comparing the age of the bearer with the specified date of birth and the document issue date), nationality, religion and signatures in appearance; d) study the pages where the information about persons indicated there, additionally may inspect other documents (birth certificate, invitation, etc.), and may ask questions the owner of the document about the specified information for clarification; e) determining the validity of visas, study the content of the imprints of seals and stamps, their sequence and compliance with the method of application; f) draw attention to the absence of signs of total or partial forgery [4]. Appropriate technical equipment is used to increase efficiency of work [5].

The Head of the subdivision of the state border protection has the right to temporarily establish a simplified inspection procedure due to the unpredictable increase in traffic intensity when the waiting time at the port of entry becomes excessive and all personnel, logistical and organizational possibilities for its reduction are exhausted [6]. This type of inspection consists in a temporary refusal to perform certain actions and measures of standard inspection (for example,

---

[1] Про затвердження Інструкції з організації і здійснення перевірки документів громадян України … . URL: https://zakon.rada.gov.ua/laws/show/z1083-12 (date accessed: 12.03.2020).

[2] Пчеліна О. В. Op.cit.

[3] Кулагин П. Г. Op.cit.

[4] Беева Т. А. Op.cit.

[5] Тальянчук Л. С. Op.cit. P. 116.

[6] Про затвердження Положення про базу даних … . URL: http://zakon3.rada.gov.ua/laws/show/z0765-07 (date accessed: 12.03.2020).

questioning or review of an additional document (birth certificate, death certificate, invitation, etc.).

Inspection of the passport documents at the control entry points across the state border, regardless of its level is not careful work with documents, but also communication with their owners. To create a positive environment during the certification of these documents, government officials have to communicate culturally, have a neat appearance, clearly and competently process documents, justify the results of the inspection, etc. [1].

Completion of the standard inspection of the passport documents is a permit for crossing of the state border of Ukraine or a rejection of its crossing. The result of one of these decisions is the marks in the passport document in the form of a stamp [2].

In case of doubts on the validity or belonging of the passport document to the relevant person and the detection of signs of forgery, the in-depth inspection of identity documents when crossing the state border of Ukraine is conducted.

The in-depth inspection of documents — the study of passport and other documents of citizens of Ukraine, foreigners and stateless persons, which is carried out to confirm or refute the signs of their forgery (falsification) [3]. It is carried out by the officials of the SBGS of Ukraine, who have been admitted to perform the standard document inspection and have improved their qualification on issues relating to documents protection. These persons are on the appropriate register of specialists of the Administration of the SBGS of Ukraine for in-depth inspection of passport documents [4].

Grounds for such an inspection are: 1) an application of a person who previously studied the passport document; 2) instructions of SBGS bodies (Administration, regional departments, heads of state border protection bodies); 3) information on the possible use of forged, invalid documents, or those that belong to other persons [5].

Specialists in the in-depth inspection repeatedly: 1) determine the validity of the passport document, visa and other documents by comparing them with the information contained in the information and reference materials, in the descriptions of samples of passports and other documents; 2) study the affiliation of passport documents to a citizen of Ukraine, a foreigner or a stateless person

[1] Про прикордонний контроль: … . URL: https://zakon.rada.gov.ua/laws/show/1710-17 (date accessed: 12.03.2020).

[2] Ibid.

[3] Про затвердження Інструкції з організації і здійснення перевірки документів громадян України … . URL: https://zakon.rada.gov.ua/laws/show/z1083-12 (date accessed: 12.03.2020).

[4] Тальянчук Л. С. Op.cit.

[5] Про затвердження Інструкції з організації і здійснення перевірки документів громадян України … . URL: https://zakon.rada.gov.ua/laws/show/z1083-12 (date accessed: 12.03.2020) 12.03.2020).

by means of a survey of these persons; 3) clarify information on the absence of orders of law enforcement and intelligence agencies of Ukraine to a presenter, using operational databases; 4) pay special attention to the definition of signs of forgery in the document presented by the person [1].

The documents inspection during inspection is conducted in the building of international and interstate ports of entry, equipped with special forensic equipment for document examination and microscopes, video spectral comparators *Regula*, *Foster+freeman*, which provide research and recording in different lighting modes, etc.

In comparison with the standard inspection, in accordance with the results of the in-depth one, the specialist conclusion is made. The conclusion is made in writing on the back of the sheet with the application on carrying out in-depth inspection of the document or in electronic form. A doer sends thit conclusion the initiator to perform the necessary actions [2].

The passport document, in which the signs of forgery or belonging to another person were revealed, after the in-depth inspection the specialist seizes minutes and sends to the next level of passport documents inspection — expert examination by forensic experts, which we will consider below.

The employees of the second category may inspect the passport documents during patrols, criminal investigations, detention and arrest, search for persons hiding from the authorities, as well as during the inspection of the scene, search, interrogation and other investigative and operational actions.

In the commented Criminal Procedural Code of Ukraine, the inspection is defined as investigative (search) action that consists in У коментованому Кримінально-процесуальному кодексі direct observation and investigation by its participants of material objects that are related to the circumstances of the criminal offense [3]. The inspection of the passport documents can be an independent investigative action or be part of another investigative action.

The algorithm of actions during the inspection of identity documents by these employees during the crossing of the state border of Ukraine is close to the standard inspection of such documents at ports of entry. These are: a) determining the type of the passport document; b) inspection of its details on the page containing information about the owner and other marks on the pages of the document; c) inspection of the photo (photo image) in the passport or on visa stickers is compared; d) determine the availability and validity of visas; e) also inspect such documents for signs of forgery. The probability of the use of the second category, mentioned by us, of technical means by the subjects is minimal, therefore in necessary cases the specialist t can be invited for rendering of the

[1] Тальянчук Л. С. Op.cit.

[2] Ibid.

[3] Кримінальний процесуальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/4651-17 (date accessed: 09.03.2020).

help in the form of consultations, in detection, recording, fixing and seizing of passport documents.

If the document inspection is conducted as an investigative action, then its result will be formed as the minutes of inspection including containing the signatures of the officials who conducted it and the signatures of witnesses [1]. It is obligatory in the minutes of documents inspection, certifying a person at the crossing of the state border of Ukraine, to specify the name of the document, its series and number, when and in whose name it was issued, by which body, validity period, availability of visas, imprints of seals and stamps Detected signs of forgery in such documents may be recorded in the minutes, indicating the place of detection and methods, means used for this purpose [2]. The latter may be grounds for opening a new criminal proceeding in accordance with Art. 358 of the Criminal Code of Ukraine.

One of the types of documents inspection, carried out by forensic experts from various departmental ministries, is an examination. This is a familiarization the forensic expert with the document to be studied, and the provided samples before the study in order to verify the submitted documents and samples (according to the specified ones in the appointment of the examination) and clarify the nature of the tasks for the forensic expert [3].

We consider the opinion of O. V. Vorobei quite reasonable that the forensic expert completes the documents inspection after familiarization with the circumstances of the case and issues specified in the decision on the appointment of examination of documents, as well as after studying the general inspection of the passport document and sample (if the latter is provided). It is impossible to give answer to the questions, specified in the resolution, only on the results of the expert examination in the office. The expert examination involves the use of a number of techniques and methods to detect material features, as well as modern complex techniques and scientific and technical means and aims to determine the inconsistency of the passport document, method of forgery and direct detection of signs of forgery, etc. Thus, it should be noted that expert

[1] Кримінальний процесуальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/4651-17 (date accessed: 09.03.2020).

[2] Патик Л. Л. Особливості огляду паспорта громадянина України під час розслідування злочинів, учинених організованими злочинними угрупованнями//*Боротьба з організованою злочинністю і корупцією (теорія і практика):* наук.-практ. журн. Київ, 2008. № 19. Р. 273—280.

[3] Колмаков В. П. Следственный осмотр оттисков печатей и штампов, подготовка и направление их на экспертизу//*Советская криминалистика*. Москва, 1951. Вып. 1. Р. 129—150 ; Терзиев Н. В. Криминалистическое исследование документов: учеб. пособ. по спецкурсу. Москва, 1966. 41 р. ; Петряєв С. Ю. Криміналістичне дослідження підроблених іноземних паперових грошей: автореф. дис. … канд. юрид. наук. Київ, 1998. 17 р.

examination is a broader concept, however, the beginning of its conduct is an expert inspection [1].

The considered documents very rarely fall into the hands of the fourth category of the subjects of inspection. However, in the case of inspection of passport documents by these entities, it is mandatory to aware and know the rules of detection of forgery. This will not only prevent other criminal offenses related to the use of forged documents, but also protect against material damage. For example, bank employees can issue a loan to a person on a forged document, notaries — to issue a power of attorney, certify documents, etc. [2].

Conclusions. Thus, the types of documents inspection that certifies a person at the crossing of the state border of Ukraine require from the entities of inspection special knowledge in the field of document science, practical skills of verification of passport documents, which is important in the investigation and prevention of criminal offenses related to forgery documents.

References

Averianova, T. V., Belkin, R. S., Korukhov, Iu. G., Rossinskaia, E. R. (1998). *Kriminalistika*: uchebnik: v 2 t. Ed.: R. S. Belkin. Moscow [in Russian].

Beeva, T. A. (2003). *Kriminalisticheskoe issledovanie poddelnykh inostrannykh pasportov.* (Abstract of candidates thesis: 12.00.09). Volgograd [in Russian].

Bib, I. B. (2006). Kryminalistychne doslidzhennia pasportiv inozemnykh derzhav shchodo vyiavlennia pidroblennia. *Tekhnicheskaia ekspertiza dokumentov: problemy i razvitie:* sb. materialov Mezhdunar. nauch.-prakt. konf. (Kiev, 20—21.10.2005). Eds.: K. N. Kovalev, T. V. Timofeeva; IPTc MVD Ukrainy. Kiev [in Ukrainian].

Bilenchuk, P. D., Lysychenko, V. K., Klymenko, N. I. ta in. (2001). *Kryminalistyka:* pidruchnyk. Ed.: P. D. Bilenchuk. 2-he vyd., vypr. i dop. Kyiv [in Ukrainian].

Iablokov, N. P. (1954). *Tekhnicheskaia ekspertiza dokumentov v kriminalistike.* (Abstract of candidates thesis: 12.00.09). Moscow [in Russian].

Kobylianskyi, O. L. (2007). *Kryminalistychne doslidzhennia dokumentiv iz spetsialnymy zasobamy zakhystu*. (Candidates thesis: 12.00.09). Kyiv [in Ukrainian].

Kolmakov, V. P. (1951). Sledstvennyi osmotr ottiskov pechatei i shtampov, podgotovka i napravlenie ikh na ekspertizu. *Sovetskaia kriminalistika.* Moscow. Vyp. 1 [in Russian].

Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 r. № 2341-III (zi zminamy ta dopovnenniamy). Vidomosti Verkhovnoi Rady Ukrainy (VVR). 2001. № 25—26. St. 131. [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zminamy ta dopovnenniamy). URL: https://zakon.rada.gov.ua/laws/show/4651-17 (data zvernennia: 09.03.2020). [in Ukrainian].

Kulagin, P. G. (1959). *Kriminalisticheskoe issledovanie dokumentov, udostoveriaiushchikh lichnost.* Ed.: V. N. Roshchina. Moscow [in Russian].

Kulagin, P. G. (1959). Proverka i osmotr dokumentov. *Trudy nauchno-issledovatelskogo instituta militcii MVD SSSR.* Moscow. № 1 [in Russian].

[1] Воробей О. В., Мельников І. М., Волошин О. Г. Op.cit. P. 38.

[2] Тальянчук Л. С. Op.cit.

Levi, A. A. (1969). Sredstva i metody zashchity dokumentov ot poddelki. Statia vtoraia. *Voprosy borby s prestupnostiu:* sb. nauch. tr. Moscow. Vyp. 10 [in Russian].

Melnykov, I. M. (2006) Aktualni pytannia kryminalistychnoho doslidzhennia ta perspektyvy zakhystu ukrainskykh pasportiv i posvidchen osoby novoho zrazka. *Tekhnicheskaia ekspertiza dokumentov: problemy i razvitie:* sb. materialov Mezhdunar. nauch.-prakt. konf. (Kiev, 20—21.10.2005). Eds.: K. N. Kovalev, T. V. Timofeeva; IPTc MVD Ukrainy. Kiev [in Ukrainian].

Patyk, L. L. (2008). Osoblyvosti ohliadu pasporta hromadianyna Ukrainy pid chas rozsliduvannia zlochyniv, uchynenykh orhanizovanymy zlochynnymy uhrupovanniamy. *Borotba z orhanizovanoiu zlochynnistiu i koruptsiieiu (teoriia i praktyka):* nauk.-prakt. zhurn. Kyiv. № 19 [in Ukrainian].

Patyk, L. L. (2010). *Kryminalistychne doslidzhennia pidroblenoho pasporta hromadianyna Ukrainy.* (Candidates thesis: 12.00.09). Kyiv [in Ukrainian].

Pchelina, O. V. (2010). Pravyla ohliadu pasportiv ta osnovni pryiomy vyiavlennia yikh pidrobky. *Pravo i Bezpeka.* Kharkiv. № 4. URL: http://nbuv.gov.ua/UJRN/Pib_2010_4_43 (data zvernennia: 12.03.2020) [in Ukrainian].

Petriaiev, S. Yu. (1998). *Kryminalistychne doslidzhennia pidroblenykh inozemnykh paperovykh hroshei.* (Abstract of candidates thesis: 12.00.09). Kyiv [in Ukrainian].

Piaskovskyi, V. V., Chornous, Yu. M., Ishchenko, A. V., Alieksieiev, O. O. ta in. (2015). *Kryminalistyka*: pidruchnyk. Kyiv [in Ukrainian].

Pro prykordonnyi kontrol: Zakon Ukrainy vid 05.11.2009 r. № 1710-VI (zi zminamy ta dopovnenniamy). URL: https://zakon.rada.gov.ua/laws/show/1710-17 (data zvernennia: 12.03.2020) [in Ukrainian].

Pro zatverdzhennia Instruktsii z orhanizatsii i zdiisnennia perevirky dokumentiv hromadian Ukrainy, inozemtsiv ta osib bez hromadianstva, yaki peretynaiut derzhavnyi kordon: nakaz Administratsii Derzhprykordonsluzhby Ukrainy vid 05.06.2012 r. № 407. URL: https://zakon.rada.gov.ua/laws/show/z1083-12 (data zvernennia: 12.03.2020) [in Ukrainian].

Pro zatverdzhennia Polozhennia pro bazu danykh «Vidomosti pro osib, yaki peretnuly derzhavnyi kordon Ukrainy»: nakaz Administratsii Derzhprykordonsluzhby Ukrainy vid 25.06.2007 r. № 472. URL: http://zakon3.rada.gov.ua/laws/show/z0765-07 (data zvernennia: 12.03.2020) [in Ukrainian].

Razumov, E. A., Moliboga, N. P. (1994). *Osmotr mesta proisshestviia: metodika i praktika:* sprav.-metod. izd. Kyiv [in Russian].

Statystyka po kilkosti osib, yaki pravomirno peretynaly derzhavnyi kordon Ukrainy ta po vyiavlenniu pidroblenykh dokumentiv pid chas sproby peretynannia derzhavnoho kordonu Ukrainy. *Ofitsiinyi sait Derzhavnoi prykordonnoi sluzhby.* URL: www.dpsu.gov.ua (data zvernennia: 20.04.2020) [in Ukrainian].

Talianchuk, L. S. (2017). *Kryminalistychne doslidzhennia dokumentiv, shcho posvidchuiut osobu pry peretyni derzhavnoho kordonu Ukrainy.* (Candidates thesis: 12.00.09.) Kyiv [in Ukrainian].

Terziev, N. V. (1966). *Kriminalisticheskoe issledovanie dokumentov: ucheb. posob. po spetckursu.* Moscow [in Russian].

Velykyi tlumachnyi slovnyk suchasnoi ukrainskoi movy. (2007). Ed.: V. T. Busel. Kyiv [in Ukrainian].

Vorobei, O. V. (2004). *Kryminalistychne doslidzhennia paperovykh hroshei Ukrainy* (Candidates thesis: 12.00.09). Kyiv [in Ukrainian].

Vorobei, O. V., Melnykov, I. M., Voloshyn, O. H. (2008). *Tekhniko-kryminalistychne doslidzhennia dokumentiv:* navch.-metod. posib. Kyiv [in Ukrainian].

Л. С. Тальянчук

ВИДИ ОГЛЯДУ ДОКУМЕНТІВ, ЩО ПОСВІДЧУЮТЬ ОСОБУ ПІД ЧАС ПЕРЕТИНУ ДЕРЖАВНОГО КОРДОНУ УКРАЇНИ

(оглядова стаття)

Підроблені документи для перетину державного кордону є предметом низки кримінальних правопорушень. Це такі кримінальні правопорушення, як: торгівля людьми або інша незаконна угода щодо передачі людини; контрабанда; виготовлення, зберігання, придбання, перевезення, пересилання, ввезення в Україну з метою збуту або збут підроблених грошей, державних цінних паперів чи білетів державної лотереї, шахрайство; зловживання службовим становищем тощо.

Євроінтеграція, запроваджений безвізовий режим, політичні й військові конфлікти в Україні та інших державах світу, економічна нестабільність та збільшення кількості біженців і мігрантів пришвидшили введення в обіг і видачу зразків бланків документів із безконтактним електронним носієм інформації. Водночас в обігу залишаються деякі паспортні документи старих зразків, які підробляють злочинці для подальшого використання під час вчинення кримінальних правопорушень.

Ключові слова: паспорт, суб'єкт, перевірка, перетин кордону, виявлення ознак підроблення, експерт, дослідження.

Л. С. Тальянчук

ВИДЫ ОСМОТРА ДОКУМЕНТОВ, УДОСТОВЕРЯЮЩИХ ЛИЧНОСТЬ ПРИ ПЕРЕСЕЧЕНИИ ГОСУДАРСТВЕННОЙ ГРАНИЦЫ УКРАИНЫ

(обзорная статья)

Осмотр паспортных документов делится на виды по следующим критериям:

1) по составу участников:

а) сотрудники Государственной пограничной службы Украины, обладающие специальными знаниями и прошедшие соответствующую подготовку;

б) сотрудники прокуратуры, подразделений МВД, Службы безопасности Украины;

в) судебные эксперты, имеющие соответствующую экспертную квалификацию;

г) другие работники, имеющие право изучать документы (представители туристических агентств, банковских учреждений, нотариусы, судьи и другие);

2) по месту осмотра:

а) в пунктах пропуска: через государственную границу (в специально оборудованных зданиях); в транспортных средствах и на местах стоянок иностранных транспортных средств; в специально

отведённых зонах контроля в портах, на рыболовецких предприятиях, причалах, территории соседних государств; за пределами контрольно-пропускных пунктов в местах проверки людей (в вагонах, в автобусах);

б) в рабочих помещениях, офисах или за их пределами.

Во время осмотра субъекты должны следовать следующей процедуре:

1) определить тип паспортного документа;

2) осмотреть общий вид;

3) проверить его данные;

4) изучить фотографию;

5) изучить страницы документа;

6) установить действительность существующих виз;

7) использовать соответствующее техническое оборудование для выявления признаков полной или частичной подделки паспортных документов.

Систематизированы и рассмотрены особенности изучения этих документов с целью выявления признаков подделки — такие, как: время и место, профессиональная квалификация участников опроса, техническая поддержка, цель и результат проверки, процедура обнаружения и исправления. Изучение документов требует от специалистов специальных знаний, практических навыков проверки паспортных документов, что крайне важно при расследовании и предупреждении уголовных преступлений, связанных с подделкой документов, удостоверяющих личность при пересечении государственной границы Украины.

Ключевые слова: паспорт, субъект, проверка, пересечение границы, выявление признаков подделки, эксперт, исследования.

Received by Editorial Board: 27.04.2020

Talyanchuk L. S. Types of identity documents inspection while crossing the state border of Ukraine (Review Article)//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 82—95. DOI: https://doi.org/10.32353/khrife.2.2020.07.

DOI: https://doi.org/10.32353/khrife.2.2020.08
UDC 343.98.067

A. O. Hryhorenko,
postgraduate student of the Department of Criminalistics
of Yaroslav Mudryi National Law University, Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-7563-3660,
e-mail: andreigrigorenko96@gmail.com

Problems of using the method of reconstruction while legal activity

The peculiarities of using the method of reconstruction as a forensic method not only while pre-trial investigation of crimes, but also in the process of carrying out other types of legal activity are considered. The forensic essence of investigative, prosecutorial, advocacy and judicial activity is analyzed. Peculiarities of execution of forensic method of reconstruction while implementation of these types of legal activity are determined.

The conclusion as to inter-branch nature of criminalistics as a science has been drawn. On the example of implementation of the method of reconstruction, it is determined that application of criminalistics provisions is the basis for other types of legal activity.

The importance of the method of reconstruction in investigative activity is substantiated which is due to its retrospective nature. The process of reproduction serves as the basis for the possibility to discover the events of a criminal offense by investigators.

Application of the method of reconstruction while implementation of prosecutorial activity is studied. Its pervasive nature during participation in criminal proceedings which are conditioned by the need for a prosecutor to exercise both procedural guidance and support for public prosecution in court has been established.

The problems of advocacy implementation from forensics perspective are analyzed. The need for constant implementation of the process of reproduction of corresponding processes, phenomena, actions and events while implementation of this type of activity has been established.

Peculiarities of application of the reconstruction method during implementation of judicial activity are considered. The process of reproduction is defined as the basis for administrating justice by considering legal disputes, criminal charges, and issuing court's judgement.

The impossibility of implementation of investigative, prosecutorial, lawyer and judicial activities without application of the method of reconstruction is highlighted. The definition of the method of reconstruction as a basis for discovering events, phenomena, processes that existed in the past and are important for implementation of these types of legal activities is substantiated.

© A. O. Hryhorenko, 2020

Keywords: reconstruction method, reproduction, investigative activity, prosecutorial activity, advocacy, judicial activity.

Formulation of Research Problem. Criminalistics as a science has cross-sectoral nature. This is due to that fact that the application of the provisions of Criminalistics is not limited to pre-trial investigation of criminal offenses, as criminalistic knowledge is also used in other (e.g., prosecutors, advocacy, judicial etc.) It is impossible to effectively implement legal activity without the application of the provisions of Criminalistics, that is Criminalistics develops methods, tactics, combinations and operations of relevant legally significant actions that are part of legal activity.

One of criminalistic methods that has leading value for legal activity is the method of reconstruction. In spite of a huge number of varieties, reconstruction is its end-to-end method: this is due to the fact that legal activity is mostly retrospective, i.e. aimed at reproducing the relevant objects, phenomena and processes. That is why it is relevant to study the reconstruction from a criminalistic point of view in order to effectively apply mentioned method not only in criminal proceedings, but also in the implementation of legal activities.

Analysis of Essential Researches and Publications. The problem of determining the essence of Criminalistics and its place in the system of legal science was studied by: V. Yu. Shepitko, V. O. Konovalova, V. M. Shevchyuk, V. A. Zhuravel [1]. They studied peculiarities of the implementation of investigative, prosecutors, advocacy and judicial activity: Yu. G. Arzamasov [2], I. V. Rohatiuk [3], A. V. Lapkin [4], T. B. Vilchyk [5], B. A. Skybitsky [6], Ye. A. Talykin [7].

---

[1] Шепітько В. Ю., Журавель В. А., Коновалова В. О. та ін. Криміналістика: підручник: у 2 т. Т. 1/за ред. В. Ю. Шепітька. Харків, 2019. 456 р.

[2] Арзамасов Ю. Г. Контроль судебной власти за ведомственными нормативными актами//*Российский судья*. Москва, 2005. № 1. Р. 30—33.

[3] Рогатюк І. В. Процесуальна діяльність прокурора на стадії досудового розслідування: монографія. Київ, 2016. 544 р.

[4] Лапкін А. В. Роль прокурора в забезпеченні прав і законних інтересів потерпілого у кримінальному судочинстві України: монографія. Харків, 2012. 264 р.

[5] Вільчик Т. Б. Інститут адвокатури України: нові підходи та тенденції розвитку//*Науковий вісник Міжнародного гуманітарного університету. Серія: Юриспруденція*. 2015. Вип. 16 (1). Р. 25—28. URL: http://nbuv.gov.ua/UJRN/Nvmgu_jur_2015_16%281%29__8 (date accessed: 25.11.2020).

[6] Скибіцький Б. А. Повноваження слідчого судді у кримінальному провадженні//*Вісник Львівського торговельно-економічного університету. Юридичні науки.* 2016. Вип. 3. Р. 209—216. URL: http://nbuv.gov.ua/UJRN/nvlkau_2016_3_21 (date accessed: 25.11.2020).

[7] Таликін Є. А. Господарсько-процесуальні запобіжні заходи в системі державного регулювання господарської діяльності//*Соціально-економічні проблеми сучасного періоду України*. 2008. Вип. 6. Р. 180—186. URL: http://dspace.nbuv.gov.ua/handle/123456789/12315 (date accessed: 25.11.2020).

The **Article Purpose** — to study of the peculiarities of application of the provisions of Criminalistics during the implementation of various types of legal activities. To find out the significance of implementing of reconstruction method during the investigating, prosecution, advocacy and judicial activities.

Main Content Presentation. The concept of legal activity contains several types of activity and is a wider concept than the activity, aimed at investigating crimes. Legal activity should be understood as conscious, volitional, authoritative legal actions and related organizational and legal events, carried out on the basis of the law by competent authorities and officials (in certain cases — citizens), aimed at achieving public goals or meeting corporate and individual legitimate interests [1]. In order to most fully study the features of the implementation of the reconstruction method in legal activity, it is necessary to explore the specifics of using this method in such legal activities as investigative, prosecutorial, advocacy and judicial activities.

To understand the peculiarities of the application of reconstruction in the investigative activities it should be determined which person is an investigator and what is the specifics of his activity. *According to Article 3 of the Criminal Procedure Code of Ukraine, an investigator is the official of the body of the National Police, security body, the body that controls compliance with tax legislation, the State Bureau of Investigation, the Main Detective Subdivision, subdivision of detectives, the Detective Unit, the Internal Control Unit of the National Anti-Corruption Bureau of Ukraine, authorized within the competence provided by this Code, to conduct pre-trial investigation of criminal offenses"* [2]. The activity of the investigator consists in actively implement the pre-trial investigation using powers provided by criminal procedure law, in legally permissible ways and methods aimed at detecting, stopping, preventing, uncovering, and investigating crimes in order to protect an individual, society, and the State from criminal offenses. Conventionally, in the activity of the investigator the following components can be distinguished: social, search (cognitive), reconstructive, communicative, organizational, and certifying activities [3]. The reconstruction in the investigator's activities is not only a criminalistic method (that is necessary for pre-trial investigation of a crime), but also as a separate component of the investigator's activity which determines the leading nature of reconstruction in this type of activity.

The main task of the investigator is to investigate criminal offenses. That is the reconstruction is a leading component in the activities of the investigator. The

[1] Арзамасов Ю. Г. Природа юридической деятельности//*Ленинградский юридический журнал*. 2007. № 3 (9) P. 33—52.

[2] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented)//*Відомості Верховної Ради України (ВВР)*. 2013. № 9—10, 11—12, 13. С?. 88.т. 88.

[3] Берназ П. Следственная деятельность как объект криминалистического обеспечения//*Legea şi viaţa*. 2016. № 1/3 (289). P. 7—11.

reconstruction can be used as a tactical approach while preparation and conduct investigative (search) actions. During investigative actions, various cognitive methods (observation, comparison, method of experiment, etc.) are used, one of which is the reconstruction method as a variation of a modeling method [1]. As a result of the reconstruction, it is possible to get information directly related to the crime that is investigated. The fact that the extraction of information is caused by the implementation of other investigative (search) actions, does not influence the essence of actions that are reconstructed [2]. The reconstruction is the way of collecting and checking evidence, and also the complex of cognitive and certifying methods, its implementation is accompanied by the means of coercion in the result of which the rights and freedoms of citizens can be limited. The reconstruction is the basis for conducting investigative (search) actions and pre-trial investigation in general. Due to the reproduction of subjects, phenomena, and processes evidence, that are significant for investigation of a criminal offense, are collected and checked.

The reconstruction is a weighty part of the investigator's activities because it is actually a research method of certain subjects, phenomena, and processes, which existed or happened in the past and are of importance for the investigation of socially dangerous acts. A crime is an event in history, that is why before the investigation and court trial many circumstances of its display, results of influence the society and separate objects or significantly modified, or even lose their original meaning. In this regard, to clarify all circumstances of a crime the investigator is quiet often needed to reproduce conditions of the original situation of the researched event, object, and in exceptional cases and to create a similar subject. In the process of investigating crimes, the investigator implements such actions independently, or on his instructions, a specialist does it [3]. Reconstruction is an integral part of the investigator's work, as the investigation of a crime that always takes place in the past against the investigator is possible only by reproducing the relevant objects that are relevant to the investigation of a criminal offense.

From a criminalistic point of view, it is also important that the reconstruction (as a variety and at the same time as the modeling method) is actually the driving force of the pre-trial investigation of crime. Models, which investigators produce during socially dangerous acts, as usual, have a retrospective character that is actually reproduce the certain object which existed in the past and are of importance for the case. It is the reconstruction that is the method of constructing

[1] Степанов В. В., Галушкин В. И. Реконструкция — эффективное средство исследования обстоятельств преступления//*Вестник Саратовской государственной юридической академии*. 2020. № 2 (133). P. 210—219.

2 Кримінальний процесуальний кодекс України: … .

[3] Лакомская М. Ю. Тактические операции группы «реконструкция» (операции планирования и организации отдельных следственных действий)//*Общество и право*. 2018. № 3 (65). P. 98—103.

these models. Special value during the investigative process has an ideal (cognitive) model. The cognitive criminalistic modeling helps to detect traces and the person who remained them, make a disclosure about staging and expose slander or self-slender, to facilitate the search for both indicative information and evidence, allows to gain positive and negative knowledge about the object to be studied, etc. [1]. The creation of the cognitive model provides a creating of image that reproduces with a certain degree of probability the corresponding object that the investigator investigates. To create the cognitive model, it is necessary to research and analyze materials of a case, which takes place in the form of reconstruction. In fact, the method of reconstruction is the basis for investigative activities. To build a mental model, it is necessary to research and analyze the materials of the case, which takes place in the form of reconstruction. In fact, the method of reconstruction is the basis for investigative activities.

So, reconstruction is one of the leading and integral components of investigative's activities. Implementation of the reconstruction during pre-trial investigation caused by the necessity to reproduce certain subjects, processes, and phenomena which are relevant to conducting the pre-trial investigation of crimes. Reconstruction forms a holistic view of the circumstances of the crime in the investigator, that (for its part) is a precondition for a comprehensive and objective investigation of crime, uncovering the truth in a case and brining the perpetrators to criminal liability.

The method of reconstruction is also actively used during prosecutor's activities. According to Article 2 of the Law of Ukraine: *On Prosecutor's Office*:

"1. The Prosecutor's Office is entrusted with the following functions:

1) maintenance of public prosecution in court;

2)representation of the citizens interests or the state in court in cases determined by this Law and chapter 12 of Section III of the Civil Procedure code of Ukraine;

3) supervision of adhering to the laws by bodies of operational search activities, confession, pre-trial investigation;

4) supervision of the observance of laws in the execution of court in criminal cases, as well as in the application of other coercive events related to restriction of personal freedom of citizens" [2].

The activities of the prosecutor are not limited only to the pre-trial investigation of a crime: it is also implemented on the stage of pre-trial review. The study of peculiarities of implementation of the criminalistic reconstruction method during the prosecutor's activities confirms the point of view that in the fact provisions of Criminalistics are cross-sectoral in nature and their application is not limited to the pre-trial investigation of criminal offenses.

[1] Густов Г. А. Проблемы методов научного познания в организации расследования преступлений: автореф. дис. … д-ра юрид. наук. Москва, 1993. 61 р.

2 Про прокуратуру: Закон України від 14.10.2014 р. № 1697-VII (as amended and supplemented)//*Відомості Верховної Ради України (ВВР)*. 2015. № 2—3. Р. 12.

The criminalistic reconstruction is a cross-cutting method of the prosecutor's professional activities, independently from the stage of criminal proceedings on which the prosecutor implements his powers. The reconstruction method has a significant value on the stage of preparation for pre-trial investigation: *"Preparation for the maintenance of public prosecution of specific criminal proceedings is creative and cognitive activities consisted of series of steps: studying materials of the criminal proceeding, their systematization, and recording; analysis of evidence available in the criminal proceeding, their verification, and assessment; planning the maintenance of public prosecution in the court and prediction situations that may arise while considering the indictment and materials of criminal proceedings"* [1]. It is at the stage of maintenance to the pre-trial review that the need for prosecutor to use the reconstruction method is most obvious, as there is necessity to mentally reproduce events of socially dangerous acts by researching and analyzing case materials and evidence to predict situations that may occur during the pre-trial review, and planning professional activities.

Application of criminalistic provisions are currently important for the prosecutor while implementing his powers during the pre-trial review of a case: *"Supplying substantiated, precociously thought-out, reasoned petition and proposals related to the procedure for the conduct of judicial examination by the prosecutor is extremely important in resonating criminal proceedings, when it is necessary to rate the questioning defendant, offended or witnesses for certain criminal activities or investigate evidence regarding defendants in that consequence that matches their role and the level of participation in committed criminal proceedings, but also their attitude to committed crime (pleads or does not plead his guilty)"* [2]. Planning and effective implementation of interrogation and other legally significant actions during the trial by the prosecutor is possible only through the application of provisions of criminalistic tactic: *"Defendant should remember that during direct interrogation it is not allowed to ask leading questions, that is, those questions that contain the answer in formulation, the part of the answer or prompt to it. After the direct interrogation, the opposite party to the criminal proceedings is given the opportunity for cross-examination. During this stage it is allowed to ask leading questions. The tactics of defendant during the interrogations, conducted by the defense consists in the repetition of questions based on the clarified circumstances, their incorrectness, attempts to distort the testimony given in court by the defense by filing motions to remove*

[1] Никитченко Н. В. Участь прокурора у кримінальному провадженні на стадії судового розгляду//*Міжнародний юридичний вісник: актуальні проблеми сучасності (теорія та практика)*. 2017. Вип. 4—5 (8—9). P. 132—137.

[2] Рогатюк І. В. Підтримання прокурором публічного обвинувачення в суді: процесуальна тактика в нестандартних умовах//*Юридичний часопис Національної академії внутрішніх справ*. 2017. № 1 (13). P. 87—98.

such issues" [1]. In fact, in order to successfully implement professional activities during the trial and bring the perpetrators to justice the prosecutor needs not only to comply with the law, but also use the provisions of criminalistic tactics. It is also important to use the method of criminalistic reconstruction, due to the need to recreate relevant objects that are significant for criminal proceedings, that is the basis for preparation for the stage of court proceedings and the effective implementation of the prosecutor's professional duties.

The peculiarity of prosecutor's legal status during criminal proceedings is due to the fact that the prosecutor is a cross-cutting body in fact, that is he who conducts procedural guidance during the pre-trial investigation and supports the state prosecution at the trial stage: *"A characteristic feature of the legal position of the prosecutor in criminal proceedings is a direct dependence of his status on the stage of the proceedings in which the prosecutor participates. Despite the introduction by the Criminal Procedure Code of Ukraine of the so-called "through" participation of the prosecutor in the criminal proceedings that ensured the personal invariability of the prosecutor at all stages of the proceedings, the status of such person undergoes fundamental transformations from one stage to another one (firstly during the ending of the pre-trial investigation and the beginning of judicial stages of criminal proceedings)"* [2]. The prosecutor, as a participant in the pre-trial investigation and trial, needs to apply the provisions of Criminalistics at all stages of the criminal proceedings. For example, *"given the peculiarities of the tactics of interrogation in the court hearing the, during its conduct the prosecutor should ensure clarity and consistency of questions; an accessible form of conversation; impartiality of position; patience, correctness, formality and tact; respect for the court and the rights of all other participants in the process; objective interest in the fate of respondents and approval of their behavior; prevention an uncomfortable situation for the respondents; completeness of clarification of all controversial issues"* [3]. Carrying out the professional activity at the stage of court proceedings, the prosecutor should apply the provisions of Criminalistics both during the analysis of case materials and preparation for trial, and in the process of its conduct. The basis for the analysis of case materials and planning of prosecutorial activities at the stage of court proceedings is the application of the reconstruction method. By mentally reproducing relevant objects, phenomena, and processes that are relevant to criminal proceedings, the prosecutor gets the opportunity to plan their activities taking into account situations that may occur during the trial and the preparation of an appropriate algorithm.

The reconstruction also has a significant meaning in the pre-trial investigation. This is due to the fact that in consequence of reproduction of

[1] Ibid.

[2] Колодчин В. В., Туманянц А. Р. Повноваження прокурора в судовому провадженні у першій інстанції: монографія. Харків, 2016. 228 p.

[3] Рогатюк І. В. Op.cit.

certain objects the prosecutor has the possibility to model the mechanism and algorithm of the conduct of socially dangerous actions mentally, which is under the pre-trial investigation and carry out his professional activities in the form of the procedural guide: *"A prosecutor — a procedural leader — appear in criminal proceedings after its beginning and after an appointment of the investigator. Thus, all the activities that preceded in latter "fall out" of his attention*: *adoption of criminal complaints and notifications of criminal offenses, response to them by the relevant law enforcement agency, inspection of the scene before providing information about criminal offense in the United register of pre-trial investigation, etc."* [1]. Application of the reconstruction method is the basis for the reproduction actions relevant criminal offense mentally by the prosecutor, that is actually because the prosecutor is appointed after the appointment of an investigator the entry of information in the Unified Register of pre-trial investigations: *"On the second stage, the procedural leader has to collect all the necessary information that characterizes certain criminal proceedings, in which he takes part: study materials of criminal proceedings, familiarize with legislation and judicial practice in this field. All this activity, that is covered under the meaning information and analytical support required for the formation of the prosecutor's full picture of the pre-trial investigation and its prospects, as well as the adoption of appropriate procedural and administrative decisions"* [2]. In fact, the prosecutor's activities in the early stages of the pre-trial investigation are related to the application of the reconstruction method. This is due to the fact that the creation of an ideal model of the past event, which is the basis for building versions and planning the investigation of a criminal offense, is possible only by reproducing objects, phenomena and processes based on analysis of case materials.

The provisions of Criminalistics (in particular, the method of reconstruction) are also actively used in advocacy. In accordance with Part 1 of Art. 1 of the Law of Ukraine: *On the Bar and Advocate's activity*, *"a lawyer is a natural person who performs advocacy on the grounds and in the manner prescribed by this Law. Advocacy is an independent professional activity of a lawyer in providing protection, representation and providing other types of legal assistance to a client"* [3]. In order to effectively implement it, the method of reconstruction should be used, as it is also due to the tasks of the lawyer: *"The tasks of the lawyer are defined, planned to perform the scope of work of the lawyer, which are performed by him in order to protect, plead and provide other types of legal assistance to a client"*

---

[1] Лапкін А. В. Прокурор як менеджер досудового розслідування//*Правовий часопис Донбасу*. 2018. № 1 (62). P. 197—202.

[2] Колодчин В. В., Туманянц А. Р. Op.cit.

[3] Про адвокатуру та адвокатську діяльність: Закон України в 05.07.2012 . 5076-VI (as amended and supplemented)//*Відомості Верховної Ради України (ВВР)*. 2013. № 27. Ст. 282.

[1]; *"such tasks of the lawyer can be distinguished as: providing legal information, consultations and explanations on legal issues; preparation of applications, complaints, procedural and other documents; protection of the rights, freedoms and legitimate interests of the client; representation of interests of individuals and legal entities"* [2]. The basis for the lawyer to perform his tasks is the use of reconstruction. The process of reproduction is the foundation for the analysis of the issue, which the client addressed, case materials to choose methods by which the goal will be achieved, to determine the tactics of professional activity. The importance of reconstructions is that the actions, events and facts that are the basis for advocacy have occurred in the past, so in order to provide legal assistance to the client the lawyer has to mentally recreate a situation (issue) through reconstruction on the basis of available information, for the solution of which the client addressed.

The reconstruction is also important during the implementation functions of the lawyer's functions: *"The functions of the lawyer should be understood as the main directions of the advocacy, carried out by him in order to protect"* [3]. Among the main functions of the lawyer is *educational (formation of citizens' correct idea of law and its role in civil society and the state), qualified professional and legal control over the system of public power of constitutional human rights and freedoms, rule-making (organizational issues of its internal advocacy) , educational (internships in the Bar, master classes and lectures by individual lawyers and scholars, training at the school of lawyers, etc.)"* [4], can also be called *"advisory (informational) and representative (part of which is sometimes allocated the function of defense)"* [5]. The performance of the lawyer's duties is always related to the need to reproduce the relevant objects. This is due to the fact that the information needed to perform the relevant functions exists in the past (in relation to the lawyer), which is why the lawyer needs to reproduce the relevant objects, phenomena, processes, facts and events mentally in order to carry out professional activities.

The application of the reconstruction method in judicial activity has greater importance. It should be understood as the professional activity of judges aimed at the delivering justice. According to Art. 124 of the Constitution of Ukraine, *"in Ukraine justice is administered exclusively by courts. Delegation of court functions, as well as assignment of these functions to other bodies or officials are not allowed. The jurisdiction of the courts extends to any legal dispute and any criminal charge. In cases provided by*

[1] Єфіменко М. Ю. Завдання та функції адвоката в адміністративному процесі// *Форум права*. 2012. № 4. P. 343—348.

[2] Ibid.

[3] Єфіменко М. Ю. Op.cit.

[4] Вільчик Т. Б. Функції інституційної адвокатури//*Форум права*. 2017. № 2. P. 24—29.

[5] Єфіменко М. Ю. Op.cit.

law, courts also consider other cases" [1]. According to Art. 1 of the Law of Ukraine *"On the Judiciary and the Status of Judges"*, *"judicial power is implemented by judges and, in cases specified by law, jurors through the administration of justice in the relevant court proceedings"* [2]. The essence of the professional activity of judges is to administer justice by considering legal disputes and making appropriate decisions. Consideration of any case is possible only by reproducing the relevant event in order to provide it with a legal assessment and resolution of disputes. That is why the reconstruction is an integral part of judicial activity.

It should be noted that a judge (in addition to legal disputes) also carries out the activity aimed to ensure the inviolability of the rights and freedoms of individuals during the pre-trial investigation: *"An investigative judge is a judge authorized to ensure legitimacy and substantiation of limits of constitutional rights and freedoms of an individual on the pre-trial proceedings on the criminal case, the competence of which includes making decisions and applying means of criminal coercion, conduct investigation and other procedural actions restricting constitutional human rights, consideration of complains about actions (inactions) and the decision of the investigator or prosecutor, et. The main purpose of the investigating judge is to provide judicial protection of rights and legitimate interests of persons involved in criminal proceedings and to ensure the legality of the proceedings of the case in the pre-trial stages.* T*his determines the specific nature of the criminal procedural function performed by him, namely: ensuring the legality and validity of the restriction of constitutional human rights and freedoms in pre-trial proceedings in criminal cases"* [3]. The reconstruction is also an integral part of a judge's activity directed at control of the activities of entities authorized to conduct the pre-trial investigation of crimes. Thus, in order to make an appropriate decision on the expediency and possibility of restricting the constitutional rights and freedoms of a person, court should to study and analyze the grounds for such restriction, specified in the relevant petition. Making a substantiated decision the consideration of the petition is possible only after reconstruction of the relevant processes, phenomena and events by the judge mentally for their comprehensive study.

The application of the method of reconstruction in the implementation of judicial activity is also reflected in its result — the court decision: *"The court decision as an act of justice — a law enforcement act issued in the form of a procedural document that protects not only the subjective rights of parties the result of judicial activity on consideration and resolution of the case on the merits, in particular, on the study and evaluation of evidence, establishment of*

[1] Конституція України: Закон України від 28.06.1996 р. № 254к/96-ВР (as amended and supplemented)//*Відомості Верховної Ради України*. 1996. № 30. P. 141.

[2] Про судоустрій і статус суддів: Закон України від 02.06.2016 р. № 1402-VIII (as amended and supplemented)//*Відомості Верховної Ради України*. 2016. № 31. P. 7.

[3] Скибіцький Б. А. Op.cit.

legal facts, contains a state-specific individual order on the application of law to specific legal relations and their subjects" [1]. The court decision should comply with the following requirements: *"be legal and reasonable, extremely complete, clear, should contain an introductory, descriptive, motivating and operative part in the specified sequence, unconditional, unalterable, and accessible"* [2]. "There are subjective and objective boundaries of a court decision. *Subjective is that it applies to participants in civil proceedings and cannot affect the rights and interests of persons who did not participate in it. Objective boundaries are determined only by the range of relations that have been established by the court, i.e. the subject of the trial"* [3]. The court's decision is the result of the administration of justice. In fact, the court decision recorded the essence of the case under consideration, examined the evidence and rules of law taken into account by the court, the legal position of the court and the decision in the case. The court decision is in fact a form of recording the reconstructive activity carried out by the court, as the legal position and court decisions are based on the analysis of the case, the ideal image of which the judge formed mentally by reproducing phenomena, processes, actions and events. Therefore, the reconstruction is the basis for the trial and decision in the case.

Thus, the reconstruction as a forensic method is the basis for the administration of justice: *"The most reasonable is the position that connects the concept of "justice" only with the activities of the court to resolve disputes (conflicts) in society. The essence of the conflict, its subject, the parties determine the differentiation of methods of resolution and lead to the division of justice into types that are realized in different types of proceedings, which, in turn, are divided into proceedings and others. At the same time, justice retains its unity as an activity and its result aimed at the implementation of law (in the broadest sense of the term) in society through dispute resolution. As the law enforcement process is quite complex and long, intermediate aspects and control over the correctness of decisions are inevitable"* [4]. During the administration of justice, a case is heard that has occurred in the past against a judge who conducts a trial, so the reconstruction is crucial for a judge to carry out his or her professional activities. The reproduction of certain phenomena, processes, actions and events is the basis for the administration of justice through a full, objective and comprehensive study of the substance of the case and providing it with legal analysis. In fact, the method of reconstruction is

[1] Самолюк Ю. М. Судове рішення у цивільному процесі: спірні питання// *Судова апеляція*. 2009. № 1 (14). P. 91—98.

[2] Розум І. О. Судове рішення у справах адміністративної юрисдикції: спектральний аналіз дискусійних теоретичних аспектів сутності та правової природи//*Юридичний вісник*. 2017. № 3 (44). P. 54—60.

[3] Ibid.

[4] Таликін Є. А. Зміст поняття «правосуддя» у контексті функцій господарського суду//*Університетські наукові записки*. 2011. № 4 (40). P. 164—169.

a tool by which the court has the opportunity to investigate the materials of the legal dispute under consideration and make an appropriate decision (i.e. to administer justice).

Conclusions. Criminalistics as a science has a cross-sectoral nature, as a sphere of its individual provisions is not limited to pre-trial investigation of crimes. The active application of criminalistic knowledge in the implementation of other types of legal activities is due to the fact that this type of activity often cannot be implemented without the use of the achievements of Criminalistics. The reconstruction method is one of the methods that is the basis not only for the pre-trial investigation of a criminal offense, but also for the implementation of prosecutorial, legal and judicial activities.

The method of reconstruction as a kind of modeling method is actually a cross-cutting method of the investigator. This is due to the fact that the main task of the investigator is to investigate a socially dangerous act, which always occurs in the past in relation to the entity authorized to investigate the crime. By recreating objects, phenomena and processes that are important for the pre-trial investigation, the investigator mentally reconstructs the events of the crime, which is the basis for building appropriate versions, obtaining new facts and evidence. The method of reconstruction is the driving force of the pre-trial investigation, the method by which it becomes possible to know and investigate the events of the crime by creating their models (both ideal and real) to identify those guilty of a crime and bring them to justice.

The Reconstruction is the leading method in the implementation of prosecutorial activity, due to its essence: the professional activity of the prosecutor is not limited to the implementation of procedural guidance during the pre-trial investigation, but continues at the trial stage by maintaining public prosecution in court. In order to provide procedural guidance, the prosecutor has mentally to reconstruct the events of the criminal offense. The very reproduction of the events of the crime is the basis for the correct legal assessment of the actions of the investigator, aimed at investigating a socially dangerous act, and the implementation of effective procedural guidance. The reconstruction is also the basis for maintaining the state prosecution in court, as the reproduction of the events of the crime is the basis for determining the tactics of the prosecution during the trial, forecasting the situation that may arise, planning the presentation of evidence, etc.

The reconstruction is also actively used in advocacy, due to its retrospective nature (especially in the initial stages). Regardless of the form of implementation of the specified type of activity (protection, representation or provision of other types of legal assistance), the starting point of advocacy is the client's application. Usually, a lawyer needs to provide legal assessment, advice or other legal services regarding facts and / or situations that existed in the past (before the client's application). Therefore, reconstruction is the basis for advocacy, as it is its initial stage.

The method of reconstruction is of paramount importance for the implementation of professional judicial activities aimed at the administration of justice through the consideration of legal disputes and criminal charges. The importance of the process of reproduction in judicial activity is that the case is submitted to the court, which is always retrospective in nature and its study is possible only through reconstruction. Therefore, reconstruction is a method of full and comprehensive investigation of the circumstances of the case, the basis for providing a proper legal assessment of the situation under consideration, as well as for identifying and examining evidence relevant to the case (to resolve it and make a decision).

References

Arzamasov, Iu. G. (2005). Kontrol sudebnoi vlasti za vedomstvennymi normativnymi aktami. *Rossiiskii sudia*. Moscow. № 1 [in Russian].

Arzamasov, Iu. G. (2007). Priroda iuridicheskoi deiatelnosti. *Leningradskii iuridicheskii zhurnal.* № 3 (9) [in Russian].

Bernaz, P. (2016). Sledstvennaia deiatelnost kak obekt kriminalisticheskogo obespecheniia. *Legea şi viaţa.* № 1/3 (289) [in Russian].

Gustov, G. A. (1993). *Problemy metodov nauchnogo poznaniia v organizatcii rassledovaniia prestuplenii.* (Abstract of candidates thesis). Moscow [in Russian].

Kolodchyn, V. V., Tumaniants, A. R. (2016). *Povnovazhennia prokurora v sudovomu provadzhenni u pershii instantsii:* monohrafiia. Kharkiv [in Ukrainian].

Konstytutsiia Ukrainy: Zakon Ukrainy vid 28.06.1996 r. № 254k/96-VR (zi zmin. ta dopov.). Vidomosti Verkhovnoi Rady Ukrainy. 1996. № 30. St. 141 [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* 2013. № 9—10, 11—12, 13. St. 88 [in Ukrainian].

Lakomskaia, M. Iu. (2018). Takticheskie operatcii gruppy «rekonstruktciia» (operatcii planirovaniia i organizatcii otdelnykh sledstvennykh deistvii). *Obshchestvo i pravo.* № 3 (65) [in Russian].

Lapkin, A. V. (2012). *Rol prokurora v zabezpechenni prav i zakonnykh interesiv poterpiloho u kryminalnomu sudochynstvi Ukrainy:* monohrafiia. Kharkiv [in Ukrainian].

Lapkin, A. V. (2018) Prokuror yak menedzher dosudovoho rozsliduvannia. *Pravovyi chasopys Donbasu.* № 1 (62) [in Ukrainian].

Nykytchenko, N. V. (2017). Uchast prokurora u kryminalnomu provadzhenni na stadii sudovoho rozghliadu. *Mizhnarodnyi yurydychnyi visnyk: aktualni problemy suchasnosti (teoriia ta praktyka).* Vyp. 4—5 (8—9) [in Ukrainian].

Pro advokaturu ta advokatsku diialnist: Zakon Ukrainy vid 05.07.2012 r. № 5076-VI (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* 2013. № 27. St. 282 [in Ukrainian].

Pro prokuraturu: Zakon Ukrainy vid 14.10.2014 r. № 1697-VII (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* 2015. № 2—3. St. 12 [in Ukrainian].

Pro sudoustrii i status suddiv: Zakon Ukrainy vid 02.06.2016 r. № 1402-VIII (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy.* 2016. № 31. St. 545. S. 7 [in Ukrainian].

Rohatiuk, I. V. (2016). *Protsesualna diialnist prokurora na stadii dosudovoho rozsliduvannia:* monohrafiia. Kyiv [in Ukrainian].

Rohatiuk, I. V. (2017). Pidtrymannia prokurorom publichnoho obvynuvachennia v sudi: protsesualna taktyka v nestandartnykh umovakh. *Iurydychnyi chasopys Natsionalnoi akademii vnutrishnikh sprav.* № 1 (13) [in Ukrainian].

Rozum, I. O. (2017). Sudove rishennia u spravakh administratyvnoi yurysdyktsii: spektralnyi analiz dyskusiinykh teoretychnykh aspektiv sutnosti ta pravovoi pryrody. *Iurydychnyi visnyk.* № 3 (44) [in Ukrainian].

Samoliuk, Yu. M. (2009). Sudove rishennia u tsyvilnomu protsesi: spirni pytannia. *Sudova apeliatsiia.* № 1 (14) [in Ukrainian].

Shepitko, V. Yu., Zhuravel, V. A., Konovalova, V. O. ta in. (2019). *Kryminalistyka:* pidruchnyk: u 2 t. T. 1. V. Yu. Shepitko (ed.). Kharkiv [in Ukrainian].

Skybitskyi, B. A. (2016). Povnovazhennia slidchoho suddi u kryminalnomu provadzhenni. *Visnyk Lvivskoho torhovelno-ekonomichnoho universytetu. Yurydychni nauky.* Vyp. 3. URL: http://nbuv.gov.ua/UJRN/nvlkau_2016_3_21 (data zvernennia: 25.11.2020) [in Ukrainian].

Stepanov, V. V., Galushkin, V. I. (2020). Rekonstruktciia — effektivnoe sredstvo issledovaniia obstoiatelstv prestupleniia. *Vestnik Saratovskoi gosudarstvennoi iuridicheskoi akademii.* № 2 (133) [in Russian].

Talykin, Ye. A. (2008). Hospodarsko-protsesualni zapobizhni zakhody v systemi derzhavnoho rehuliuvannia hospodarskoi diialnosti. S*otsialno-ekonomichni problemy suchasnoho periodu Ukrainy.* Vyp. 6. URL: http://dspace.nbuv.gov.ua/handle/123456789/12315 (data zvernennia: 25.11.2020) [in Ukrainian].

Talykin, Ye. A. (2011). Zmist poniattia «pravosuddia» u konteksti funktsii hospodarskoho sudu. *Universytetski naukovi zapysky.* № 4 (40) [in Ukrainian].

Vilchyk, T. B. (2015). Instytut advokatury Ukrainy: novi pidkhody ta tendentsii rozvytku. N*aukovyi visnyk Mizhnarodnoho humanitarnoho universytetu.* Seriia: Yurysprudentsiia. Vyp. 16 (1). URL: http://nbuv.gov.ua/UJRN/Nvmgu_jur_2015_16%281%29__8 (data zvernennia: 25.11.2020) [in Ukrainian].

Vilchyk, T. B. (2017). Funktsii instytutsiinoi advokatury. *Forum prava.* № 2 [in Ukrainian].

Yefimenko, M. Yu. (2012). Zavdannia ta funktsii advokata v administratyvnomu protsesi. *Forum prava.* № 4 [in Ukrainian].

А. О. Григоренко

ПРОБЛЕМИ ВИКОРИСТАННЯ МЕТОДУ РЕКОНСТРУКЦІЇ ПІД ЧАС ЗДІЙСНЕННЯ ЮРИДИЧНОЇ ДІЯЛЬНОСТІ

Розглянуто особливості використання реконструкції як криміналістичного методу не лише під час реалізації досудового розслідування злочинів, а й у процесі здійснення інших видів юридичної діяльності. Проаналізовано криміналістичну сутність слідчої, прокурорської, адвокатської та судової діяльності. Визначено особливості реалізації криміналістичного методу реконструкції під час здійснення цих видів юридичної діяльності.

Зроблено висновок про міжгалузевий характер криміналістики як науки. На прикладі реалізації методу реконструкції визначено, що положення криміналістики є підставою для здійснення решти видів юридичної діяльності. Обґрунтовано визначення методу реконструкції як основи для пізнання подій, явищ, процесів, що існували в минулому та мають значення для здійснення інших видів юридичної діяльності.

Ключові слова: метод реконструкції, відтворення, слідча діяльність, прокурорська діяльність, адвокатська діяльність, судова діяльність.

А. А. Григоренко

ПРОБЛЕМЫ ИСПОЛЬЗОВАНИЯ МЕТОДА РЕКОНСТРУКЦИИ ПРИ ОСУЩЕСТВЛЕНИИ ЮРИДИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ

Рассмотрены особенности использования реконструкции как криминалистического метода не только при реализации досудебного расследования преступлений, но и в процессе осуществления других видов юридической деятельности. Проанализирована криминалистическая сущность следственной, прокурорской, адвокатской и судебной деятельности. Определены особенности реализации криминалистического метода реконструкции при осуществлении этих видов юридической деятельности.

Сделан вывод о межотраслевом характере криминалистики как науки. На примере реализации метода реконструкции определено, что применение положений криминалистики является основой для осуществления других видов юридической деятельности.

Установлено важное значение метода реконструкции при осуществлении следственной деятельности, что обусловлено её ретроспективным характером. Процесс воспроизводства является основой для познания следователем событий уголовного преступления.

Исследовано применение метода реконструкции при осуществлении прокурорской деятельности. Установлен её сквозной характер для участия в уголовном производстве, что обусловлено необходимостью осуществления прокурором как процессуального руководства, так и поддержания государственного обвинения в суде.

Проанализированы проблемы реализации адвокатской деятельности с криминалистической точки зрения. Определена необходимость

в постоянном воспроизведении соответствующих процессов, явлений, действий и событий при осуществлении этого вида деятельности.

Рассмотрены особенности применения метода реконструкции в процессе реализации судебной деятельности. Процесс воспроизведения определён как основа для осуществления правосудия путём рассмотрения судом юридических споров, уголовных обвинений и вынесения соответствующих решений.

Отмечена невозможность реализации следственной, прокурорской, адвокатской и судебной деятельности без применения метода реконструкции. Обосновано определение метода реконструкции как основы для познания прошедших событий, явлений и процессов, что имеет значение для осуществления указанных видов юридической деятельности.

Ключевые слова: метод реконструкции, воспроизведение, следственная деятельность, прокурорская деятельность, адвокатская деятельность, судебная деятельность.

Received by Editorial Board: 01.12.2020

Hryhorenko A. O. Problems of using the method of reconstruction while legal activity//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 96—111. DOI: https://doi.org/10.32353/khrife.2.2020.08.

DOI: https://doi.org/10.32353/khrife.2.2020.09
UDC 343.98(477)

O. M. Kliuiev,
Doctor of Law, Professor, Honored Lawyer of Ukraine, Director of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-8722-4781, e-mail: hniise@hniise.gov.ua

Achievements and development prospects of the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"

The article considers main issues of improving forensic activity and promising courses for the development of expert support of justice field in Ukraine, as well as achievements and intended prospects for the development of the National Scientific Center "Hon. Prof. M. S Bokarius Forensic Science Institute" of the Ministry of Justice of Ukraine. Based on the analysis of main directions of forensic science institute activity in accordance with the requirements of Ukrainian legislation, compliance with provisions of international agreements, modern European trends in expert provision of justice, basic steps forward on the path of institution development are outlined. It is has been analyzed that the National Scientific Center "Hon. Prof. M. S Bokarius Forensic Science Institute" of the Ministry of Justice of Ukraine became the main forensic science institute in the state since its establishment. It has been established that at the initiative of specialists of the National Scientific Center "Hon. Prof. M. S Bokarius Forensic Science Institute", new directions of forensic examinations and a number of new types of expert specializations have been introduced which have not been carried out at any forensic science institute of the Ministry of Justice of Ukraine until that time. It has been concluded that rapid development of forensic activity necessiates the need for theoretical understanding and detailed analysis of new forms of activity in this area. It is argued that the scientific potential laid down from the time of its foundation up to these days demonstrates the Center's ability to solve complex problems of justice expert provision in Ukraine.

Keywords: expert provision of justice, forensic science institutes, forensic activity.

Formulation of Research Problem. For many years in Ukraine, the issue of improving forensic expert activity and identifying promising areas for the development of the field of expert ensuring has remained urgent.

© O. M. Kliuiev, 2020

Integration to European Forensic Science Area, European Higher Education Area, and European Research Area promotes the consolidation of scientific, technical, and human resources to solving questions of common interest and relating to different fields of science and the functioning of public institutions [1].

The **Article Purpose** is to describe the main areas of activity of the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" of the Ministry of Justice of Ukraine (hereinafter referred to as the *Center*), and prospects of the development of forensic expert activity in Ukraine taking into account current trends of the activity of such institutions in condition of globalization and European integration, to establish effective cooperation and introduce the latest achievements of science and technology into the judiciary.

Analysis of Essential Researches and Publications. The issue on the improvement of forensic expert activity in Ukraine and international cooperation in the field of the expert ensuring of justice were considered by such domestic scientists: V. Galunko, L. Golovchenko, I. Hora, V. Zhuravel, O. Kliuiev, O. Lopata, I. Petrova, I. Pyrih, E. Simakova-Yefremian, O. Uhrovetskyi, H. Strilets, V. Shepitko, M. Shepitko, M. Shcherbakovskyi and others [2]. K. Palkova, J. Gracis, A. Zile have made a significant contribution to improving the understanding of the basis of forensic expert and international activities. The theoretical basis of the study of certain aspects of effective management of forensic expert activity were also works of such scientist as N. Tkachenko [3], L. Golovchenko, V. Goncharenko, O. Kliuiev, N. Klymenko, A. Lozovyi, E. Simakova-Yefremian, V. Shepitko and others [4].

---

[1] Kliuiev O., Agapova O., Palkova K. International projects as a new form of collaboration in the sphere of expert ensuring of justice//*Архів кримінології та судових наук*. 2020. №. 2. P. 24—32.

[2] E.g., Клюєв О. М. До питання міжнародного співробітництва в галузі судової експертизи//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2018. Вип. 18. P. 154. URL: https://doi.org/10.32353/khrife.2018.17 (date accessed: 01.12.2020) ; Сімакова-Єфремян Е. Б., Дереча Л. М., М'ясоєдов В. В. Актуальні проблеми співробітництва з організаціями іноземних держав у сфері судово-експертної діяльності//*Ibid*. P. 176. URL: https://doi.org/10.32353/khrife.2018.19 (date accessed: 01.12.2020).

[3] Ткаченко Н. М. Особливості державного управління в сфері судово-експертної діяльності (на прикладі Міністерства юстиції України)//*Ibid*. 2019. Вип. 20. P. 121—138. URL: https://doi.org/10.32353/khrife.2018.17 (date accessed: 01.12.2020).

[4] 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 p. ; Експертизи у судочинстві України: наук.-практ. посіб./за заг. ред. В. Г. Гончаренка, І. В. Гори. Київ, 2015. 504 p. ; Клюєв О. М. Правове регулювання судової експертизи в справах про адміністративні правопорушення: сучасний стан і перспективи розвитку//*Теорія та практика судової експертизи і криміналістики*: зб. наук. пр. Харків, 2016. Вип. 16. P. 142—148 ; Idem. До питання міжнародного співробітництва

At the same time, the analysis of the results of previous activities of forensic institutions requires a coordinated and holistic understanding of the essence, significance and prospects of forensic activities in modern conditions. Given the rapid development of forensic science, there is an objective need for theoretical understanding and detailed analysis of new forms of activity in this area.

Main Content Presentation. On August 28, 2020, the president of Ukraine signed the Decree № 366/2020: *On assigning the status of National Scientific Center to Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations of the Ministry of Justice of Ukraine* [1]. Significant intellectual potential of the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", unique research opportunities and gifted researchers contribute to the focus of the staff of this institution on the priority areas of research in the field of forensic science and criminalistics. Thanks to continuous development, active scientific research activity, high-quality forensic expert activity, fruitful international cooperation, year-on-year the Center reaches greater heights, consequently, the assigning of the new status became another step, worthy of recognition of the achievements of several generations of forensic experts and criminalists, those who devoted their lives to the establishment and strengthening of the scientific foundations of forensic science and criminalistics, development and promotion of modern knowledge in our country and abroad.

The National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" is a state specialized scientific institution that belongs to the area of management of the Ministry of Justice of Ukraine and conducts scientific, forensic-expert, scientific-technical, scientific-organizational and educational

в галузі судової експертизи//*Ibid.* 2018. Вип. 18. Р. 154—162 ; Клименко Н. І. Судова експертологія: курс лекцій: навч. посіб. для студент. юрид. спец. вищ. навч. закл. Київ, 2007. 528 р. ; Лозовий А. І., Сімакова-Єфремян Е. Б. Актуальні питання реформування законодавства у сфері судово-експертної діяльності в Україні//*Теорія та практика судової експертизи і криміналістики*: зб. наук. пр. Харків, 2014. Вип. 14. Р. 157—166 ; Сегай М. Я. Судебная экспертология: объект, предмет, природа и система науки// *Ibid.* 2003. Вип. 3. Р. 25—32 ; Сімакова-Єфремян Е. Б. До питання про нормативно-правове регулювання судово-експертної діяльності в умовах судової реформи в Україні//*Актуальні питання судової експертизи і криміналістики:* мат-ли круглого столу з нагоди 100-річ. від дня народж. проф. М. В. Салтевського (Харків, 30.10.2017). Харків, 2017. Р. 68—70 ; Шепітько В. Ю. Проблеми використання спеціальних знань крізь призму сучасного кримінального судочинства в Україні// *Судова експертиза:* наук.-практ. журн. 2014. № 1. Р. 11—18 ; Щербаковський М. Г. Проведення та використання судових експертиз у кримінальному провадженні: монографія. Харків, 2015. 560 р.

[1] Про надання Харківському науково-дослідному інституту судових експертиз ім. Засл. проф. М. С. Бокаріуса Міністерства юстиції України статусу національного наукового центру: Указ Президента України від 28.08.2020 р. № 366/2020. URL: https://www.president.gov.ua/documents/3662020-34881 (date accessed: 01.12.2020).

activities in the field of forensic science, criminalistics and law in accordance with the legislation of Ukraine.

The Center has long-standing traditions coherently combined with modern tasks: performing forensic examinations and expert researches at a high professional level, conducting scientific researches in the field of forensic examination and implementing results in the expert practice, professional development and training of highly qualified scientific personnel.

The goal of activities of the Center is to meet the demand of pretrial investigation bodies, judicial and other state bodies, as well as legal entities and individuals in providing them with independent, qualified and objective expertise using modern achievements in science and technology.

Over the past five years, the Center has become a powerful center of science, strengthened its stuff and technological potential, improved professional development and reached the European level of implementation of scientific works and forensic examinations.

The staff of the Center works fruitfully on topical issues of expert ensuring of justice: they conduct forensic examination in more than 90 specializations, most of which are distinguished by complexity and carried out in the cases of attracting increasing public attention. Professionalism, high level of qualification and unquestionable professional competence of employees promote in the disclosure of a significant number of high-profile crimes.

The Center is one of the oldest specialized forensic institutions in Ukraine that conducts comprehensive scientific researches of national importance, recognized worldwide. An indicator of the strong scientific potential of the Center is the largest number of scientific topics developed by its scientists among other forensic institutions of Ukraine.

Thus, in 2017 scientists of the Center prepared 25 topics of scientific papers, in 2018 — 43, 2019 — 52, this year — 67 topics of the thematical plan of the scientific research institutions of forensic examinations of the Ministry of Justice of Ukraine. Starting from 2018, scientific research works on 7 topics are performed by the staff of the Center jointly with the staff of the National Center of Forensic Expertise of the Republic of Moldova and the National Bureau of Expertise of the National Academy of Sciences of the Republic of Armenia.

The results of scientific researches are fundamental developments in the field of expertology and methods of expert researches of national importance, which have gained international recognition. Significant scientific achievements of the Center as a result of research and innovative activities, integration of education and science in the institution, participation in international projects and programs, training of highly qualified scientific personnel (doctors of philosophy in the field of law in forensic science), introduction of scientific achievements into expert practice. This is not a complete list of activities to develop the scientific and technical potential of the institution and ensure its effective use to solve the most important tasks of state development.

Among similar institutions of Ukraine, the Center is a leader in organizing international scientific and practical conferences, round tables, etc. on the methodology of forensic examination and normative and legal regulation of the forensic expert activities. Thus, in 2017, two international scientific and practical conferences were held, organized by KhRIFE (currently, *National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"*): On *Topical issues of forensic examinations and Criminalistics*, dedicated to the 100th anniversary of the birth of M. V. Saltevskyi, Doctor of Law, Professor, Honored Worker of Science and Technology of Ukraine (November 7—8, 2017); *Arocker readings* dedicated to the 90th anniversary of the birth of the outstanding scientist-criminalist, Doctor of Law, Professor, L. Yu. Arocker (May 25, 2017). The staff of the institution took part in 15 more scientific and practical events (including international ones). In 2018, on the basis of KhRIFE, a round table meeting: *Improvement of legal regulation of Valuation of Property and Property Rights. Land Valuation. Professional examination and evaluation activities* (April 27, 2018); lecture-discussion: *Problematic issues of appointment and conduct of forensic examination in criminal proceedings* (students of Juridical Personnel Training Institute for the Security Service of Ukraine) was organized and held with the participation of specialists in linguistic, computer, phonoscopic, photo-portrait and military forensic examinations (October 25, 2018); International research and practice conference: *Topical issues of forensic examination and Criminalistics*, dedicated to the 95th anniversary of Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations (October 10—11, 2018), in which representatives of the scientific community in the field of forensic examination of almost all ministries and Departments of Ukraine participated, the management of which includes forensic institutions, as well as scientists and forensic experts from 10 countries of the world.

On the occasion of the 150th anniversary of the birth of the institute founder M. S. Bokarius in April 2019, the International Scientific and Practical Conference: *Topical issues of forensic examination and Criminalistics* was held, reports and speeches were sent to this conference of over 200 scientists and practitioners in the field of Criminalistics and forensic activities of Ukraine and abroad.

In 2020, the Center began organizing a round table meeting: *Problems of reforming the basic legislation of Ukraine on expert ensuring of justice* in pursuance of the Decree of the President of Ukraine dated on 08.11.2019 № 837/2019: *On urgent measures for reform and strengthening of the state* (which stipulates the development and submission to the Verkhovna Rada of Ukraine draft laws on amendments to some legislative acts of Ukraine on the establishment of a system of self-government of forensic experts by 31.12.2020, the introduction of reviewing the forensic expert's conclusion and setting deadlines for forensic examinations conduct): specialists of the National Scientific Center having discussed their proposals during this round table meeting, prepared the relevant draft amendments to the legislation.

The research and production, innovation and intellectual potential of the institution's employees is undeniable: from 2016 the Center has signed cooperation agreements with Instytut Ekspertyz Sądowych im. Prof. dra Jana Sehna of the Republic of Poland, Central Forensic Laboratory of the Police (Poland), Forensic Science Centre of Lithuania, Law Institute of Lithuania, National Institute of Forensic Expertise of the Republic of Romania, National Center for Judicial Expertise under the Ministry of Justice of the Republic of Moldova, National Bureau of Expertises of the National Academy of Sciences of the Republic of Armenia, Scientific and Practical Center of the State Forensic Examination Committee of the Republic of Belarus, Forensic Examinations Centre of the Ministry of Justice of the Republic of Kazakhstan, Center of Forensic Science of the Republic of Montenegro, Mykolas Romeris University of the Republic of Lithuania, Rīga Stradiņš University of the Republic of Latvia and others. There is a fruitful exchange of experience between these organizations, mutual internships are conducted; within the limits of the legislation the exchange of the newest methods, monographs, periodicals is carried out, common scientific subjects are discussed. The preparation for the conclusion of international agreements continued with institutions of forensic examinations of the Republics of Colombia and Uzbekistan, etc. is correctly continuing.

A significant event in the development of modern forensic institutions of Ukraine is international cooperation. One of the important stages of work in this direction is entry of the Center to one of the biggest forensic science organizations: European Network of Forensic Science Institutes, ENFSI. On May 17, 2018, the Center obtained the certificates indicating its permanent membership in *ENFSI*. Leading specialists of the Center are members of *ENFSI* working groups, where they solve topical issues of forensic activity.

In accordance with *ENFSI* requirements, all forensic institutions of the European community have to obtain accreditation in accordance with international standard *ISO* 17025. On January 23, 2018, our Center received the certificate of accreditation from the National Accreditation Agency of Ukraine. In 2020, after verification by the relevant accreditation body, the competence of the Center for a wide range of expert researches was confirmed. In addition to this, in 2020 the national Accreditation body of Ukraine certified the competence and provided the certificate in accordance with requirements of DSTU *EN ISO/IEC* 17020:2014 that enables to create conditions for recognition of the results of institution's activities at the international level, improves the dynamics of methodological support by differentiating scientific researches and organizing extensive information exchange on based on the common methodological basis. The standards ensure technical competence, independence and impartiality of conducted forensic examinations and expert researches.

Since 2001, the Center jointly with Yaroslav Mudryi National Law University has been publishing the periodical professional collection of scientific papers: *Theory and Practice of Forensic Science and Criminalistics:* one of the leading professional publications in legal sciences in the field of Criminalistics and Forensic Science. In November 2018, the Collection was included in the International scientometrical database *Index Copernicus*, and the Center receives the relevant certificates after publication of each issue of this Collection. The number of scientific papers of the Center's staff has recently exceeded 300 publications annually. In addition, since 2020, the institution has resumed the publication of the scientific journal: *Archives of Criminology and Forensic Sciences*, founded at the beginning of the 20th century by the founder of the Office of Scientific and Forensic Examination at that time, M. S. Bokarius, but it was forbidden by then authorities due to political reasons in 1926.

The Center is the only forensic institution in Ukraine with postgraduate and doctoral programs for the preparation of thorough scientific papers in the forensic profile, which the state especially needs. By order of the Ministrty of Education of Ukraine № 1218 dated on 07.11.2018, K 64.896.01 Specialized Academic Counsil was created in KhRIFE with the right to take for consideration and conduct dissertations defence for oblaining the degree of PhD in Law at the third educational and qualification level of higher education (in specialization: 12.00.07 — administrative law and process; finance law; information law; 12.00.09 — criminal process and criminalistics; science; crime detection and investigation).

Specialists of the Center develop scientific schools of well-known scientists: Honored Professor M. S. Bokarius; Professors M. M. Bokarius, V. P. Kolmakov, L. Yu. Arocker, M. V. Saltevskyi, O. M. Kliuiev and others. Over the past years, 12 employees of the institute have defended their dissertations for the degree of Doctor and Candidate of Science (Doctor of Philosophy).

In accordance with Order of the Ministry of Education and Science of Ukraine № 1253-l: *On licensing of the educational activity* dated on 13.06.2018, Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations of the Ministry of Justice of Ukraine has been licensed to conduct educational activities at the third educational and scientific level (training of graduates to obtain the degree of Doctor of Philosophy) with a license capasity of 25 people in the spetialization 081: *Law*.

For the purpose of training foreigners and stateless persons (considering the term of study), by Order of the Ministry of Education and Science of Ukraine № 2320-l dated on 30.11.2018, KhRIFE has been increased the licensing amount for the specialty in the field of higher education at the third educational and scientific level up to 40 people.

By the Order of Ministry of Education and Science of Ukraine № 1218 dated on 07.11.2018, KhRIFE received permission to open a postgraduate training program and establish a relevant department. The Academic Council of the Center annually confirms topics of dissertations. For the first time in the history of Ukraine, on the basis of the scientific research institution of forensic examinations, the training of highly qualified scientific personnel in the field of forensic activity — Doctors of Philosophy in the field of Law has been started. Over the last three year, 19 people (employees of Public Prosecutor's Office and courts, lawyers and others) have been undertaking postgraduate studies and 19 researches have been obtaining degrees on postgraduate school. For the first time in the history of Ukraine, on the basis of the forensic science institution, training of highly qualified scientific personnel in the field of forensic activity: Doctors of Philosophy in the field of Law has been initiated. The Academic Counsil of the Center approves the topics for dissertations annually.

A new stage in the development of scientific activity at National Scientific Center **"**Hon. Prof. M. S. Bokarius Forensic Science Institute**"** is opening here by the Ministry of Justice of Ukraine of the Doctorate school for obtaining the degree of Doctor of Law.

Annually the Center develops and implements scientific research works into the forensic expert practice for the State program under the code of program classification of expenses of the State Budget 3601070: *Conducting of forensic examination and development of the methodology for carrying out the forensic examinations.*

The Centre employs highly qualified professionals and with substantial practical experience, including 12 Doctors of Sciences and 36 PhDs (Doctors of Philosophy), who have Academic rank of Professor, Docent, Senior researcher, and provide significant achievements for the institution in the scientific field. An effective implementation of scientific activity is related to proper training of highly qualified scientific personnel both for state specialized institutions of the Ministries of Justice of Ukraine and for specialized institutions of other Ministries and Departments, as well as forensic experts who are not employees of these institutions; university teachers, etc. This ensures the continuity of their professional education, creates the most favorable conditions for obtaining the third educational and scientific level of higher education in the field of forensic science in its various areas at the level of state and international standards.

On the initiative of the Center specialists, new areas of forensic examination have been introduced and new types of specializations have been established, which have not been yet performed in any forensic scientific institution of the Ministry of Justice of Ukraine.

There is the museum study of the distinguished professor M. S. Bokarius at the Center, the collection of which includes 100 exhibited objects (personal effects of the Professor, original paintings, manuscripts and unique publications

related to multilateral activities of the outstanding scientist). Attending the Office museum became a tradition while performing any scientific and practical events at the Center, as well as for postgraduate students, forensic experts who undertake an internship, and during official visits, etc.

The Center has an Applied Research museum of the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", the grand opening of which took place on July 3, 2020.

The Center has modern facilities which have been significantly replenished recently. For example, there is a hardware-software complex: *UFED Touch 2*, detector: *ПИК-9/Video Expert Pro*, gas chromatograph: *Crystal-2000M*, a measuring wholesale-electronic complex: *IBH-2*, a hardware complex: *Regula* (model 5001M), a comparison microscope: *Peleng MC-3* 6073.00.00.000, metallographic microscope: *METAM LV 34* completed with optical-mechanical adapter and video camera, gas chromatograph with mass spectrometric detector: *GCMS-QP2020*, comparison forensic microscope: *Discovery-Z*, computer polygraph: *Rubikon P-01*, a modern laboratory for the analysis of road surface and road materials, etc.

Prospects for further development of the Center:

- over 5 years it is planned to prepare more than 200 scientific papers (in particular, with the involvement of scientists from other countries);
- development of new methods and means of forensic expert research of both traditional and new objects of forensic examination;
- approbation and implementation of scientific papers of the Center in the practice of state forensic institutions, as well as involvement of specialists who do not work in state forensic institutions;
- introduction of best practices developed by the Center to the Register of methodologies for conducting forensic examinations in Ukraine;
- increasing activity of the Center on signing international contracts with foreign colleagues (conclusion of international cooperation agreements in the field of forensic science; joint scientific papers, participation in international symposiums, scientific-practical conference, seminars, round tables, sharing of expert experience, studying and internship at forensic institutions, communication with foreign forensic institutions on forensic examination issue, joint publications, etc.);
- development of the training system and professional development of forensic experts with integration of scientific knowledge;
- introduction of scientifically substantiated proposals to the drafts of current laws of Ukraine and by-laws;
- implementation of scientific and methodological support of forensic science support in Ukraine;
- further development of postgraduate training program and doctoral program;

- obtaining a license from the Ministry of Education and Science of Ukraine to carry out professional development activities of forensic expert staff, etc.

Conclusions. Taking into consideration presentable traditions and significant achievements of the whole staff, the leadership of the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" defined the following prospects of the development of the forensic institution.

1. Writing scientific topics on the development of theoretical and methodological provisions of forensic science.
2. Coordination of work related to the participation of representatives of Ukraine in conducting international scientific researches on forensic science (Scientific Papers on topics: *Development of guidelines for determining the economic efficiency of forensic examinations in terms of court decisions to return funds to the State Budget*, *Development of methods for the study of binary and complex mixtures of petroleum products, Development of methods for the study of binary and complex mixtures of petroleum products, Development of guidelines for expert research of the parameters of braking freight trains in different road conditions (dry, wet road surface)*; introducing of science papers results: *Development of a scientific report. Improvement of the classification of forensic examinations, Development of a methodology for handwriting research on handwritten notes, made in Latin*).
3. Improvement of the available equipment for solving forensic examination tasks (recently the staff of the Center has been repeatedly receiving patents for useful models and inventions).
4. Creation and publication of special scientific and educational literature (manuals, textbooks, guidelines, etc.).
5. Preparation of materials and publication of a professional periodical: the *Theory and Practice of Forensic Science and Criminalistics* collection of scientific papers (mixed languages and parallel issues in English), which belongs to category: *B* and is included in the *Index Copernicus* international scientometric database (target is implementation of actions for inclusion in the international scientific-metric databases: *Scopus* and *Web of Science*), as well as the scientific journal: *Archives of Criminology and Forensic Sciences* (published in 5 languages; target — implementation of actions for inclusion in the list of scientific professional publications of Ukraine of the *B* category).
6. Further development of training of highly qualified scientific personnel in the forensic specialization (Doctors of Philosophy and Doctors of Sciences in the field 08: *Law*, specialization 081: *Law*).
7. Development of scientific and methodological basis for the introduction of new types of forensic examinations and expert specialization (in particular,

only in 2019 at the initiative of the institute 10 new expert specializations were introduced; the target is to introduce a new expert specialization: *Historic Archaeological Research*).

8. Development and improvement of legislative and other normative-legal acts on the issues of forensic activity (proposals prepared for the draft Law of Ukraine: *On expert support of justice in Ukraine* and some by-law legal acts of our State).
9. Accreditation by the National Accreditation Agency of Ukraine in conformity with international standard DSTU *ISO/IEC* 17025:2017, DSTU *EN ISO/IEC* 17020:2014 on a wide range of expert researches (the target is to expand the area of accreditation according to international standards and the sphere of expert researches to be assessed for conformity).
10. Development of professional development activities of expert staff on the basis of the license of the Ministry of Education and Science of Ukraine on theoretical, organizational and procedural issues of forensic science. In the system of specialized institutions of Ukraine, the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" is the only subject of forensic activity that has a license for educational activities in the field of postgraduate education for people with higher education (the target is to expand the area of licensing, in particular, for foreigners).
11. Improving the system of advanced training of expert staff in Ukraine and abroad in more than 80 expert specializations.
12. Expansion of international cooperation in the field of forensic science by concluding agreements (memoranda) with foreign forensic institutions and institutions of higher education (the target task is to sign agreements with forensic institutions of the USA, Israel, Colombia, Uzbekistan, etc.).
13. Providing implementation of Ukrainian legislation in the field of forensic expert activity to the standards of the European Union in order to achieve common approaches in the drafting of regulatory legal acts.
14. Development of museums in the field of forensic science; expansion of the expositions in the museum study of the distinguished professor M. S. Bokarius and the scientific Applied Museum of the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" in order to preserve the historical heritage of outstanding scientists and use exhibited objects to train and improve skills of forensic experts in Ukraine and abroad, as well as to promote forensic science among students, postgraduate students, teachers of higher education, scientists and others.

The National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" has a unique research and experimental equipment, the scientific institution employs scientists and forensic experts of the highest qualification, the results of their scientific researches have national importance and have gained international recognition. The center has significant scientific achievements, conducts research and innovative activities, ensures the integration of education

and science, participates in the implementation of international projects and programs, trains highly qualified scientific personnel, puts into practice scientific achievements, developments, implements joint programs with other specialized institutions by priority areas of applied scientific researches to solve important problems in the field of forensic science and criminalistics and is the only organization in the system of forensic institutions of Ukraine which provides training of highly qualified scientific personnel (Doctors of Philosophy, Doctors of Sciences), etc.

Since its establishment, the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" of the Ministry of Justice of Ukraine became the leading forensic science institution of the country. The scientific potential laid down since its foundation still demonstrates the ability of the Center to solve complex problems of forensic expert ensuring of justice in Ukraine.

References

Ekspertyzy u sudochynstvi Ukrainy: nauk.-prakt. posib. (2015). V. H. Honcharenko, I. V. Hora (eds.). Kyiv [in Ukrainian].

Kliuiev, O. M. (2016). Pravove rehuliuvannia sudovoi ekspertyzy v spravakh pro administratyvni pravoporushennia: suchasnyi stan i perspektyvy rozvytku. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 16 [in Ukrainian].

Kliuiev, O. M. (2018). Do pytannia mizhnarodnoho spivrobitnytstva v haluzi sudovoi ekspertyzy. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky*: zb. nauk. pr. Kharkiv. Vyp. 18. URL: https://doi.org/10.32353/khrife.2018.17 (data zvernennia: 01.12.2020) [in Ukrainian].

Kliuiev, O., Agapova, O., Palkova, K. (2020). International projects as a new form of collaboration in the sphere of expert ensuring of justice. *Arkhiv kryminolohiï ta sudovykh nauk.* №. 2 [in Ukrainian].

Klymenko, N. I. (2007). *Sudova ekspertolohiia: kurs lektsii:* navch. posib. dlia stud. yuryd. spets. vyshch. navch. zakl. Kyiv [in Ukrainian].

Lozovyi, A. I., Simakova-Yefremian, E. B. (2014). Aktualni pytannia reformuvannia zakonodavstva u sferi sudovo-ekspertnoi diialnosti v Ukraini.*Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky.* Vyp. 14 [in Ukrainian].

Osnovy sudovoi ekspertyzy: navchalnyi posibnyk dlia fakhivtsiv, yaki maiut namir otrymaty abo pidtverdyty kvalifikatsiiu sudovoho eksperta. (2016). Avt.-uklad.: L. M. Holovchenko, A. I. Lozovyi, E. B. Simakova-Yefremian ta in. Kharkiv [in Ukrainian].

Pro nadannia Kharkivskomu naukovo-doslidnomu instytutu sudovykh ekspertyz im. Zasl. prof. M. S. Bokariusa Ministerstva yustytsii Ukrainy statusu natsionalnoho naukovoho tsentru: Ukaz Prezydenta Ukrainy vid 28.08.2020 r. № 366/2020. URL: https://www.president.gov.ua/documents/3662020-34881 (data zvernennia: 01.12.2020) [in Ukrainian].

Segai, M. Ia. (2003). Sudebnaia ekspertologiia: obekt, predmet, priroda i sistema nauki. *Teoriia ta praktika sudovoï ekspertizi i kriminalistiki:* zb. nauk-prakt. mat-liv. Kharkiv. Vip. 3 [in Russian].

Shcherbakovskyi, M. H. (2015). *Provedennia ta vykorystannia sudovykh ekspertyz u kryminalnomu provadzhenni:* monohrafiia. Kharkiv [in Ukrainian].

Shepitko, V. Yu. (2014). Problemy vykorystannia spetsialnykh znan kriz pryzmu suchasnoho kryminalnoho sudochynstva v Ukraini. *Sudova ekspertyza:* nauk.-prakt. zhurn. № 1 [in Ukrainian].

Simakova-Yefremian, E. B. (2017). Do pytannia pro normatyvno-pravove rehuliuvannia sudovo-ekspertnoi diialnosti v umovakh sudovoi reformy v Ukraini. *Aktualni pytannia sudovoi ekspertyzy i kryminalistyky:* mat-ly kruhloho stolu z nahody 100-rich. vid dnia narodzh. prof. M. V. Saltevskoho (Kharkiv, 30.10.2017). Kharkiv [in Ukrainian].

Simakova-Yefremian, E. B., Derecha, L. M., Miasoiedov, V. V. (2018). Aktualni problemy spivrobitnytstva z orhanizatsiiamy inozemnykh derzhav u sferi sudovo-ekspertnoi diialnosti. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 18. URL: https://doi.org/10.32353/khrife.2018.19 (data zvernennia: 01.12.2020) [in Ukrainian].

Tkachenko, N. M. (2019). Osoblyvosti derzhavnoho upravlinnia v sferi sudovo-ekspertnoi diialnosti (na prykladi Ministerstva yustytsii Ukrainy). *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky*: zb. nauk. pr. Kharkiv. Vyp. 20. URL: https://doi.org/10.32353/khrife.2018.17 (data zvernennia: 01.12.2020) [in Ukrainian].

О. М. Клюєв

ДОСЯГНЕННЯ ТА ПЕРСПЕКТИВИ РОЗВИТКУ НАЦІОНАЛЬНОГО НАУКОВОГО ЦЕНТРУ «ІНСТИТУТ СУДОВИХ ЕКСПЕРТИЗ ІМ. ЗАСЛ. ПРОФ. М. С. БОКАРІУСА»

У статті досліджено основні досягнення й окреслено перспективи розвитку Національного наукового центру «Інститут судових експертиз ім. Засл. проф. М. С. Бокаріуса» Міністерства юстиції України. На підставі аналізу провідних напрямів діяльності судово-експертної установи відповідно до вимог законодавства України, положень міжнародних договорів і сучасних європейських тенденцій експертного забезпечення правосуддя окреслено основні кроки розвитку Центру.

Ключові слова: експертне забезпечення правосуддя, судово-експертні установи, судово-експертна діяльність.

А. Н. Клюев

ДОСТИЖЕНИЯ И ПЕРСПЕКТИВЫ РАЗВИТИЯ НАЦИОНАЛЬНОГО НАУЧНОГО ЦЕНТРА «ИНСТИТУТ СУДЕБНЫХ ЭКСПЕРТИЗ ИМ. ЗАСЛ. ПРОФ. М. С. БОКАРИУСА»

В статье исследованы основные вопросы усовершенствования судебно-экспертной деятельности и перспективные направления развития экспертного обеспечения правосудия в Украине, а также достижения и планы развития Национального научного центра «Институт судебных экспертиз им. Засл. проф. Н. С. Бокариуса» Министерства юстиции Украины. На основе анализа основных направлений деятельности судебно-экс-

пертного учреждения в соответствии с требованиями законодательства Украины, соблюдения положений международных договоров, современных европейских тенденций экспертного обеспечения правосудия очерчены основные шаги на пути развития Центра. Проанализировано, что за время своего существования ННЦ «ИСЭ им. Засл. проф. Н. С. Бокариуса» Минюста Украины стал ключевым научным экспертным учреждением в государстве. Отмечено, что по инициативе специалистов Центра открыты новые направления судебных экспертиз и введён ряд новых видов экспертных специальностей, которые до этого не проводили ни в одном научно-исследовательском учреждении судебных экспертиз Министерства юстиции Украины. Сделаны выводы, что стремительное развитие судебно-экспертной деятельности объективно нуждается в теоретическом осмыслении и детальном анализе новых форм деятельности в этой сфере. Аргументировано, что научный потенциал Центра, существовавший с момента его основания и активно развиваемый в настоящее время, демонстрирует возможности этого учреждения решать самые сложные проблемы судебно-экспертного обеспечения правосудия в Украине.

Ключевые слова: экспертное обеспечение правосудия, судебно-экспертные учреждения, судебно-экспертная деятельность.

Received by Editorial Board: 01.12.2020

Kliuiev O. M. Achievements and development prospects of the National Scientific Center “Hon. Prof. M. S. Bokarius Forensic Science Institute”//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 112—125. DOI: https://doi.org/10.32353/khrife.2.2020.09.

DOI: https://doi.org/10.32353/khrife.2.2020.10
UDC [343.98:347.77/.78](477)

V. L. Fedorenko,
Doctor of Law, Professor, Honored Lawyer of Ukraine,
Director of the Scientific Research Center for Forensic Examination
on Intellectual Property, Kyiv, Ukraine,
ORCID: https://orcid.org/0000-0001-5902-1226,
e-mail: fedorenko900@gmail.com
V. V. Kovalenko,
Doctor of Law, Professor, Corresponding member of the National Academy
of Legal Sciences of Ukraine, Honored Lawyer of Ukraine, Leading Researcher
of Laboratory for Information Technology and Intellectual Property
at the Scientific Research Center for Forensic Examination
on Intellectual Property, Kyiv, Ukraine,
ORCID: https://orcid.org/0000-0002-2041-250X,
e-mail: Kovalenko1505@gmail.com
O. D. Gaidai,
Senior Researcher of Laboratory of Industrial Property Rights
at the Scientific Research Center for Forensic Examination on Intellectual
Property, Kyiv, Ukraine,
ORCID: https://orcid.org/0000-0002-0800-2524,
e-mail: 0674707733@ukr.net

Prehistory of formation of forensic intellectual property analysis in the context of forensic activity genesis in Ukraine (from the time of Kievan principality to the First World War) (Review Article)

Preconditions for emergence of forensic intellectual property analysis in Ukraine and abroad in the period from the 10th to the beginning of 20th century in the context of forensic science genesis are comprehensively analyzed in the article. The following sources of court proceedings of the Kyivan Principality (Russia) Epoch and the so-called "Dark ages" (in the 12th/14th centuries), as "Russkaya Pravda", treaties of appanage princes with grand princes and between each other, charters and letters patent of princes, sudebniky, etc., along with the Statutes of Lithuania (16th century) and others are considered. It is argued that emergence of forensic science in Europe was linked to origin and nature of evidence in court proceedings. Forensic experts are involved when their findings become legitimate evidence for court in criminal and civil proceedings. It is emphasized that for the first time the procedural status of a forensic expert as the "third party expert" is regulated in the Statute of Criminal Procedure of the Russian Empire of 1864 (Articles 112, 690, 691, 692, 698, etc.).

© V. L. Fedorenko, V. V. Kovalenko,
O. D. Gaidai, 2020

It is noted that the establishment of forensic activities in the field of intellectual property was preceded by legitimization of intellectual property rights in Austria-Hungary, England, Spain, the Netherlands, Germany, Russia, the USA, France in the 18th century, as well as the establishment of administrative and judicial mechanisms for its protection. At the same time, the practice of involving experts in consideration of copyright disputes over scientific, literary and artistic works, inventions, etc., was uncommon in the 19th century.

In 1913, offices of forensic science under the prosecutors of the Kyiv and Odessa Judicial Chambers, which contributed to institutionalization of forensic activities and professionalism of forensic experts were established. These circumstances created conditions for initiation of forensic intellectual properrty analysis. However, the First World War pushed the litigation over the right to intellectual property to the background.

Keywords: forensic science, forensic expert, "third party experts", intellectual property, forensic intellectual properrty analysis, genesis of forensic commodity examination.

Formulation of Research Problem. Knowledge about formation and development of forensic examination of intellectual property rights is significant for understanding of causal relationships between past, present and future not only this type of examination, but the development of methods, forms and mechanisms of legal protection of objects of intellectual property rights both in Ukraine and abroad. Despite the rather short official age of forensic examination in the field of intellectual property, which falls at the beginning of the 21st century, the right to intellectual property and the mechanisms of its legal regulation appeared three centuries earlier.

Firstly, Scientific Revolution of the 16th and 17th centuries and then the Age of Enlightenment in Europe promoted respect for works of science, literature, and art. This is evidenced by the fact that Voltaire, in the 4th part of his work "The Age of Louis XIV and Louis XV…", described for him contemporary sovereigns, ministers of state, chancellors, secretaries of state and comptroller-general of revenues, provided a comprehensive "Dictionary of all famous French men: ministers, commanders, writers and artists who glorified the reign of these emperors", the list of "glorious musicians", painters, architects and representatives of other creative professions.[1]

Over time, the protection of objects of intellectual property rights was no longer limited to by Monarchy's privileges to engage creative activities. Authors and owners started to defend their rights to works of science, literature, art, inventions, etc. in courts since XVIII cent. At the same time, the procedural and legal status of so-called *knowledgeable people* (experts) who were engaged to legal proceedings is formed.

[1] Вольтер Ф. М. История царствования Людовика XIV и Людовика XV, королей французских, с присовокуплением словаря всех знаменитых Французских мужей: министров, полководцев, писателей и художников, прославивших царствование сих государей: в 4 ч./пер. с фр. А. Воейков. Ч. 4. Москва, 1809. Р. 200—440.

Given that in the late XIX cent. Subjects of litigation were also disputes over copyright and industrial property rights, it can be assumed that people who were versed in works of art and science, technical drawing, etc., were involved in their solution.

The study of the preconditions for the approval of forensic examination of objects of intellectual property rights and their periodization is quite a difficult task. As a well-known scientist-civilist, native of Odessa, S. V. Pakhman in his work "On judicial evidence on ancient Russian law, mostly civil, in their historical development" (1851), noted "*the development of any historical subject overcomes known stages, each of which embodies a special idea, has a special beginning in its base. But this development (as well as life itself) does not contain so many contrasting stages and transitions that it might to mark them with chronological accuracy and correctness, to distinguish one day from another. One beginning still exists and continues to operate when its place is replaced by another, new beginning; appearance of the latter rarely occurs calmly, carefree; usually this is accompanied by painful symptoms: the new beginning begins to struggle with the old one and only after winning over him, declares itself sharply, deliberately. Therefore, marking the degree of development of this subject is the most difficult task for a researcher"* [1].

Analysis of Essential Researches and Publications. The issues of the genesis of forensic expert activity are given sufficient attention in the field of expertise, history of the state and law, criminal, civil and administrative proceedings, international law and others. In addition to contemporaries, this issue was studied by such jurists of the second part of XIX — the beginning of XX centuries, as M.V.Varadinov [2], L.E. Vladimirov [3], I. A. Vladyslavliev [4], I. Ye. Engelman [5], P. E. Kazanskiy [6], V. A. Linovskiy [7], S. V. Pakhman [8],

[1] Пахман С. В. О судебных доказательствах по древнему русскому праву, преимущественно гражданскому, в историческом их развитии: Рассуждение Семена Пахмана. Москва, 1851. P. 1.

[2] Варадинов Н. В. Исследование об имущественных или вещественных правах по законам русским. Статья I: о праве собственности. Санкт-Петербург, 1855. 149 p.

[3] Владимиров Л. Е. Учение об уголовных доказательствах. Особенная часть. Книга первая: Личный судейский осмотр и заключения экспертов. Харьков, 1886. 144 p.

[4] Владиславлев И. А. Общие основания гражданского судопроизводства. Санкт-Петербург, 1857. 121 p.

[5] Энгельман И. Е. Курс русского гражданского судопроизводства: учебник. 3-изд., испр. и доп. Юрьев, 1912. 632 p.

[6] Казанский П. Е. Всеобщие административные союзы государств: монография. Т. 3. Одесса, 1897. 573 p.

[7] Линовский В. А. Опыт исторических разысканий о следственном уголовном судопроизводстве в России. Одесса, 1849. 262 p.

[8] Пахман С. В. Op.cit. VI p., 212 p.

O. O. Pylenko [1], V. K. Sluchevskyi [2], V. D. Spasovych [3], K. Ye. Trotsyna [4], I. J. Fojnickij [5], O. P. Chebyshov-Dmytriiev [6] and others.

In recent years, domestic scıentists actively study the issues of formation and devolopment forensic examination of the intellectual property rights and its legal and expert ensurance (in particular, the authors of this publication [7]). However, the issues raised in this publication are still relevant to the theory and history of forensic examination of the intellectual property rights in Ukraine.

The **Article Purpose** is to scientifically substantiate the prerequisites that contributed to the formation of forensic examination of objects of intellectual property rights in Ukraine, in the context of the genesis of domestic forensic expert activity from the XI to the beginning of the XX centuries.

Main Content Presentation. Forensic examination of objects of intellectual property rights is enough a new but already famous type of forensic expert activity

---

[1] Пиленко А. А. Право изобретателя: Привилегии на изобретения и их защита в русском и международном праве: Историко-догматическое исследование. Кн. 1: Очерк истории привилегий на изобретения (в связи с эволюцией доктрины). Кн. 2: Право на патент. Т. 1. Санкт-Петербург, 1902. 511 р.

[2] Случевский В. К. Учебник русского уголовного процесса. Судоустройство-судопроизводство. 3-е изд., передел. и доп. Санкт-Петербург, 1910. 664 р.

[3] Спасович В. Д. Права авторские и контрафакция. Санкт-Петербург, 1865. 106 р.

[4] Троцина К. Е. История судебных учреждений в России. Санкт-Петербург, 1851. 387 р.

[5] Фойницкий И. Я. Курс уголовного судопроизводства. Том II. 2-е изд., перераб. Санкт-Петербург, 1899. 697 р.

[6] Чебышёв-Дмитриев А. П. Русское уголовное судопроизводство по судебным уставам 20 ноября 1864 г. Санкт-Петербург, 1875. IX р. 756 р.

[7] Федоренко В. Л. Становлення та розвиток Науково-дослідного центру судової експертизи з питань інтелектуальної власності Міністерства юстиції України (2004—2017 рр.)//*Проблеми теорії та практики судової експертизи з питань інтелектуальної власності*: мат-ли наук.-практ. конф. (Київ, 21.12.2017)/за заг. ред. проф. В. Л. Федоренка. Київ, 2017. Р. 8—14 ; Федоренко В. Л., Тимощик Л. П. Судова експертиза з питань інтелектуальної власності: генезис, поняття, класифікація та система//*Експерт: парадигми юридичних наук та державного управління*. 2019. № 1 (3). Р. 11—52 ; Федоренко В. Л., Тимощик Л. П., Собин А. К. Судебная экспертиза объектов права интеллектуальной собственности в Украине: понятие, виды и система//*Армянский журнал судебной экспертизы и криминалистики.* 2019. № 1. Р. 39—52 ; Федоренко В. Л. Становлення та розвиток судової експертизи об'єктів інтелектуальної власності в Україні//*Актуальні питання судової експертології, криміналістики та кримінального процесу*: мат-ли Міжнар. наук.-практ. конф. (Київ, 05.11.2019)/за заг. ред. О. Г. Рувіна, В. В. Нестор; уклад. О. І. Жеребко, А. О. Полтавський, О. В. Юдіна. Київ, 2019. Р. 557—561 ; Федоренко В. Л., Коваленко В. В. Судова експертиза об'єктів права інтелектуальної власності як важлива функція Української держави: генезис і перспективи розвитку//*Експерт: парадигми юридичних наук і державного управління*. 2020. № 2. Р. 11—28 ; та ін.

in Ukraine, as well as abroad. The history of this type is closely connected with the genesis of entire forensic examination.

We believe, that in domestic forensic science the origin of forensic examination has been sufficiently studied. The Ukrainian researchers of the genesis of expertise consider that prototypes of forensic examination were first described in "Rus' Justice" (Russkaya Pravda) (1016) [1]. This historical source drew considerable attention of jurists in the first part of the XVIII cent., after S. S. Uvarov, the Minister of National Education called on universities of Russian empire to use the historical method in legal science as soon as possible. [2] On the influence of the mentioned source on the formation of forensic examination A. Kaminskiy noted, that *"roles of a judge and forensic expert were not distinguished from the very beginning, for example, determining traces of beatings according to Russkaya Pravda is intrusted to the judge himself"* [3].

Obviously, the indivisibility of the functions of a judge and a forensic expert during the period of Kievan Rus (Rus, Kyiv Principality) in the X—XII centuries it is quite logical to explain the lack of not only forensic experts but also courts (in the usual institutional sense for contemporaries). In addition, as K. Ye. Trotsyna noted, in the middle of XIX centuries, on the peculiarities of the judiciary of that time "*in times of princes there were no judicial institutions, separated from the administration, among the Slavs, while in our country the Tiuns were actually government officials — princes and boyars"* [4].

According to jurists' evidences "Rus' Justice" itself "has been come to us in many lists varying in form, in more or less complete content, in the order of presentation, in the time of their compilation, and in other features. <…> We do not have the original authentic text of Russkaya Pravda. In the same form in which it has come down to us in the lists, it cannot be called *an official* document: it is nothing more than *a private collection of laws*" [5].

Although, the mentioned does not diminish the importance of such a source as "Rus' Justice", an important role in the development of justice in the Slavic principalities of the XI—XII centuries (in particular, Kyiv Principality) had agreements of independent princes with grand dukes and among themselves, charter and gift certificates of princes, court books etc. [6]. Thus, in the above-

[1] Судові експертизи в процесуальному праві України: навч. посіб.//за заг. ред. О. Г. Рувіна. Київ, 2019. P. 8.

[2] Станиславский А. Г. Исследование начал имущественных отношений в древнейших памятниках русского законодательства. Казань, 1855. P. 1—2.

[3] Камінський А. М. Теорія судової експертизи в Україні//*Теорія та практика судової експертизи і криміналістики*: зб. мат-лів III Всеукр. наук.-практ. конф. (Київ, 27.02.2020). Київ — Маріуполь, 2020. P. 132.

[4] Троцина К. Е. Op.cit. P. 11.

[5] Пахман С. В. Op.cit. P. 7.

[6] Собрание важнейших памятников по истории древнего русского права/сост. И. Лазаревский, Як. Утин. Санкт-Петербург, 1859. 428 p. ; Хрестоматия по истории русского права/сост. М. Ф. Владимирский-Буданов. Вып. 2. 4-е изд. Киев, 1901. 262 p.

mentioned work by S. V. Pakhman on the next page after the given quote it is said that "Rus' Justice" only in form has the character of a private law, but "in content it has *official meaning*, because for several centuries it was for our ancestral leadership in court affairs and it was *officially* recognized as a source of law" [1].

It should be noted that "Rus' Justice" was not a unique court book for Europe at that time. In the period from VIII to XII centuries many well-known to modern researchers "leges barbarorum" appeared in Europe*: Lex Burgundiorum, Lex Salica et Ripuariorum, Formulae, Capitularia, Assises de Jerusalem, Couyumes, Ordonances, Arrets Repertoires* and others. [2] They (as well as "Rus' Justice") were characterized by simplicity, embodiment of folk customs and traditions, consolidation of values of freedom and equality, and absence of procedural law (sanctions were determined and announced not by special officials or judges, but by the National Assembly; in public, but orally).

In the above-mentioned and other "leges barbarorum" the exclusive right of the National Assembly to consider the most important public-legal issues was enshrined: the beginning of war and the conclusion of peace, election and overthrow of kings (for example, the overthrow of King Chilperic and the election of Sigebert in 580 year), handling of complaints against kings and royal families (in particular, the People's Court on the initiative of King Chlothar II over Queen Brunhilde, who was executed), the election of authorized persons, etc. [3]. It may be assumed that in cases wnen the National Assembly considered disputes, which required special knowledge, they turned to artisans, doctors, etc.

Decisions of the National Assembly had public-legal nature and combined both political and public law (in particular, criminal) sanctions. At the same time, in *Pactus legis Salicae*, or *Lex Salica*, the first edition, which is dated in 424 year, as well as in "Rus' Justice", even the death penalty was rarely mentioned. Instead, for then proceedings the institute of so-called compositions (lat. *compositio* — reconciliation) — reconciliation through the payment of ransoms for the committed crime ("insult" according to "Rus' Justice") was distinctive.

Before the standardization of the institute of examination in 1864 year, in the court statutes of 1864 year, the forensic examination, as a separate area of judicial activity, was directly provided by state bodies that had the right to judge (chambers, princes, tiuns, orders, etc.), and only later by the courts themselves in

[1] Пахман С. В. Op.cit. P. 8.

[2] Хрестоматия памятников феодального государства и права стран Европы. Государство древних франков, Англо-Саксонское государство, Англия, Германия, Испания, Италия, Франция, Албания, Болгария, Венгрия, Польша, Румыния, Чехия, Югославия/под ред. В. М. Корецкого. Москва, 1961. 950 р.

[3] Кольб Г. Ф. История человеческой культуры с очерком форм государственного правления, политики, развития свободы и благосостояния народов/пер. с 3-го перераб. из нач. доп. нем. изд. под ред. А. А. Рейнгольдта. Кн. 2. Киев — Харьков, 1896—1899. Р. 9—11.

their modern sense. Although, the development of courts, which had a monopoly on the judiciary in society and the state, spread in Europe for a century.

Undoubtedly, the formation of forensic examination was significantly influenced by the process of establishing courts and the judiciary in their modern meaning during the Middle Ages. Thus, according to I. J. Fojnickij, the origins of the examination should be found in in the canonical process as the strengthening of the Catholic Church resulted in its implementation of "investigative procedures: in cases of murder and injury, which were considered most important, first of all the events of the crime, without which the court should not have started the investigation, and this certificate was entrusted to doctors; it is a question of *piretorim medicorum ludicium*" [1].

So, it was the doctors who became the first well-known experts in criminal cases, who solved the following tasks: "1) presenting a report on the features they found during the examination or admission; 2) presentation of his conclusion or opinion (*parere, avis, Kunsturtheil*), i.e., answers about the essence of the detected on the basis of this specialty" [2]. In the Middle Ages (in particular, during the Reformation) doctors, who determined the fact of human death from poison, were most in demand.

The Lithuanian statutes, approved in 1529, 1566 and 1588 years, had a significant impact on the development of the judiciary in Ukraine during the Lithuanian-Russian state, radically changed the judiciary *"on the basis of customs, royal decrees and according to the wisdom and conscience of the judges themselves"* [3]. These statutes were in force until the middle of the XVIII century. and had a universal nature of legal regulation and regulated state-government, military-feudal, criminal, financial, and procedural, aristocratic, land, marital, hereditary and guardianship, civil law and civil procedure relations in the Grand Duchy of Lithuania, much of which were Ukrainian lands. Chapter 4 of the Lithuanian Statute, approved by the Coronation Seimas in 1588, was entitled "On Judges and Courts" and concerned, above all, the order of courts organization, the detection of elements of crimes ("insults"), the administration of justice and punishment. However, the Lithuanian Statutes did not contain clear references to forensic experts.

The emergence of forensic examination in Europe, in our opinion, connected with the origin and nature of evidences in the proceedings. Forensic experts appeared when their conclusions became legitimate evidences for the court. As it is known, first of all, the most important evidences of medieval secular and canonical trials were testimony of witnesses, ordeal (Trial by ordeal, etc.). Since then, as S. V. Pakhman wrote, *"the improvement of the evidentiary system, as well as judicial system were largely influenced by the beginning of the State*

[1] Фойницкий И. Я. Op.cit. P. 310.

[2] Ibid.

[3] Статути Великого Князівства Литовського: репр. вид. 1854 р. Передмова І. Бондарука. Київ, 2008. P. 1.

theory. From this beginning, on the one hand, the administrative nature of the proceedings was formed, and on the other hand, the separation of the criminal process from the civil one followed, which first of all had a practical meaning; a torture was a part of the criminal process, and the oath and duel were part of the civil process" [1]. It is perceived that only after Reformation and implementation the principles of humanism and the rule of law in the judiciary the preconditions for the initiation of forensic expert activity were created (in particular, that forensic expert activity related to works of science, literature, art, etc.).

From the XVI to the XVII centuries the functions of forensic examinations were performed by guild organizations (for example, the Paris Corporation of Master Writers (1570) examined signatures on documents; Apothecary Order (1620) studied medical issues in the case of bodily injuries, etc.). In 1699 the Royal Decree "On the Procedure for Examining Signatures on Serfdom Acts in case of disputes or doubts concerning them" was issued [2]. Relevant researches, which required special knowledge and skills, contributed to the formation of forensic examination, as an independent type of special professional activity, within the judiciary.

The institutionalization of the courts and regularization of the judiciary (in particular, in the statutes of the Russian Empire on criminal and civil proceedings in 1832 and 1864 yrs.) separated the functions of forensic examination of *knowledgeable people* from the functions of judges. It should be noted that as early as 1832 yr. the Digest of Laws of the Russian Empire for the first time established the procedural status of knowledgeable persons as witnesses who had special knowledge in the fields of science, art and craft. Subsequently, subparts, dedicated to the procedural status of *knowledgeable people,* were appeared in in textbooks. Scientists from the imperial universities and lyceums of Ukrainian cities (Odessa, Kharkiv and Kyiv) made a significant contribution to these improvements.

Thus, V. A. Linovskyi, the professor of the Richelieu Lyceum in Odessa in the work "Experience of historical researches on investigative criminal proceedings in Russia" (1849) noted: *"Not rare to study the subject, that is known by feelings, requires special knowledge in art, that is lacking in investigators and judges, so the laws are proved by the source of evidence reviews of knowledgeable people. <…> Such a source of proof of truth in our laws can be considered resolutions on the comparison of handwriting in case of doubts on the part of secretaries presented on the places"* [3].

In the Statute of Criminal Procedure and the Statute of Civil Procedure, adopted in the Russian Empire as a result of the judicial reform of 1864 yr., were regulated such categories as special knowledge and researches, which (according to the opinion of modern Ukrainian researchers of the genesis of expertise)

[1] Пахман С. В. Op.cit. P. 210.

[2] Судові експертизи в процесуальному праві України: … P. 8—9.

[3] Линовский В. А. Op.cit. P. 88.

directly relate to forensic examination [1]. Indeed, such types of expertise as forensic chemistry and microscopic examinations were distinguished in these statutes [2].

The provisions of the above-mentioned procedural statutes of 1864 yr., were extending to Ukrainian lands and Bessarabia (they were applied here before the occupation by Romania, despite the "Criminal Code" of 1903 yr., which applied only in case of persecution for treason and riots) [3].

Statute of Criminal Procedure of the Russian Empire in 1864 yr. in Arts. 112, 690—692, 698 and some others to some extent regulated the regulatory and legal tasks and procedural status of knowledgeable people. In particular, Art. 112 of this Statute stipulates: "In the event that for accurate understanding of the conditions encountered in the case, special evidence or knowledge in science, art, craft, craft or any occupation is required, knowledgeable people are invited" [4]. O. P. Chebyshov-Dmytriiev noted that *"expert's conclusions are not binding on the court, which if it needed to verify its research, is not ashamed neither in choice of rites and methods nor in appointment the number and choice of forensic experts, nor in determining the defined time frame of the research"* [5]. Thus, in the second half of the XIX cent. *knowledgeable people*, who were called *experts* in scientific commentaries to the procedural legislation of the time, became full participants in criminal and civil proceedings.

Later, L. E. Vladimirov, the Professor of the Kharkiv university in work *"Doctrine of criminal evidence"* (1886) substantiated special procedural status of experts who *"base their conclusions on any science, in fact — scientific judges, whose verdict is the decision of a special question in a case"* [6]. At the same time, he clearly defined that forensic experts are "*not witnesses, but people of science, called to resolve special questions",* and forensic examination he called *"an independent type of criminal evidence"* [7].

The most comprehensive and integrated issue of the activities of forensic experts in criminal proceedings is covered in the 2nd Volume in the textbook by I. J. Fojnickij "The Course of Criminal Procedure", which has been published several times. In particular, in Chapter V "Evidences in criminal procedure" the author called the conclusions of forensic examination as evidences and distinguished between compulsory (prescribed by law) and optional (at the discretion of judges) examinations [8]. Simultaneously, the scientist devoted

[1] Судові експертизи в процесуальному праві України: ... P. 9.

[2] Чебышёв-Дмитриев А. П. Op.cit. P. 567.

[3] Новосівський І. М. Нариси історії права Буковини і Басарабії. Нью-Йорк, Париж, Сідней, Торонто, 1986. P. 111.

[4] Учреждение судебных установлений. Судебные уставы 20 ноября 1864 года. Москва, 1864. P. 15.

[5] Чебышёв-Дмитриев А. П. Op.cit.

[6] Владимиров Л. Е. Op.cit. P. 12.

[7] Ibid. P. 19.

[8] Фойницкий И. Я. Op.cit. P. 252.

a separated section IV "Examination" to the nature of forensic examination, where he defined knowledgeable people (experts) as follows: *"Knowledgeable people (periti, experts, scientific, witness, Sachverständige) are understood a person summoned to an investigation or court to observe and determine the circumstances, the knowledge of which requires special awareness in science, art, craft or in any other field, and to provide the court with such circumstances of his conclusion or opinion, which they obtain on the basis of the special knowledge they have"* [1]. I. J. Fojnickij noted the duties of knowledgeable people are similar to the duties of witnesses and have a formal and financial nature, but knowledgeable people *"have the right to remuneration but in increased amounts*" [2].

Exactly the same as L.E. Vladimirov, I. J. Fojnickij substantiated that the results of forensic examination are an independent evidence. However, he noted that: *"Being neither a court decision, nor a type of examination, nor, in the end, a special type of witness testimony, the examination is a special judicial evidence. It is evidence, because the examination partly provides a new view at the circumstances known to the court, clarifies their true meaning, partly even with the help of its characteristic techniques reveals and discloses to the court circumstances that would remain unknown to it"* [3].

In addition to the above-mentioned works of contemporaneous researches, the procedural status of experts is mentioned in most educational publications on criminal procedural law, published in the imperial universities of the Russian Empire in the late XIX — early XX cent. (in particular, in Kyiv, Odessa and Kharkiv). It should be noted that contemporaneous experts also distinguished the status of knowledgeable people (experts) and witnesses in criminal proceedings. Thus, V. K. Sluchevskyi stated that the practice of interrogation of experts in court session is getting widespread. But (unlike witnesses) *"experts as persons are obliged to provide the court only with their conclusions based on the conclusions of sciences, art, employment or craft, can be left in the courtroom for the whole time of the trial investigation, not being succumb to external, harmful influences on them"* [4].

The formation of forensic examination on intellectual property rights was preceded by the approval and standardization of this type of property in national and international law. Copyright has become the primary object of intellectual property rights. V. D. Spasovich, a well-known jurist of the past, believed that copyright was first recognized and protected in 1491 in the Venetian Republic on the work *Phoenix* by the master *Pietro da Ravenna* [5].

---

[1] Ibid. P. 310.
[2] Ibid. P. 325.
[3] Ibid. P. 314.
[4] Случевский В. К. Op.cit. P. 363.
[5] Спасович В. Д. Op.cit. P. 3.

Instead, most jurists believe that Instead, most jurists believe that intellectual property rights were first enshrined in the English *Statute of Anne* (1710), which prohibited the publication and reprinting of books without the consent of the authors and set a 14-year term for copyright protection [1]. Although V. D. Spasovich noted that the mentioned Statute (*for the encouragement of learned men to compose and write useful books*), at the suggestion of Wortley, was published in 1709 [2]. 1774 yr., the court implemented the provisions on copyright protection on the case Donaldson v. Beckett, protected Donaldson's 14-year copyright term [3].

At the end of the XVIII century countries of Western Europe began to legally enshrined copyright protection. Thus, the protection of copyright is mentioned in the Saxon Mandate (1773). In France, on the basis of the laws of 1791 and 1793 yrs., the right of the French authors was defended. 1817 yr., 20th term of copyright protection was adopted in Belgium and the Netherlands, and in 1837 in Denmark. In 1857, the Canton of the Swiss Confederation concluded Concordat, which consolidated the copyright for 30 years after publishing the print of the first work or to the end of the author's life [4]. In 1870 in Germany was adopted a law on literary property, which determined the lifetime property for the writing for the author and his descendants for 30 years after the death of the author.

If the right to the work of literature, science or art in the XVIII century some scientists were considered personal, and others as the property rights of the author and publisher, then in the XIX century the copyright was identified as "the author's right to exceptional reproduction by printing of his literary work" [5]. At this time, in the administrative and judicial practice of the states of Europe and America t such types of copyright violations were started to be separated, as counterfeiting and plagiarism. In the first case, the victims were considered to be book publishers, in the second one — authors of works.

Over time, the issue on uniting the efforts of the international community to protect the right to the objects of intellectual property was raised. In particular, the first reliably known bilateral interstate conventions on copyright protection to literary works were concluded between France and the Netherlands, as well as between Austria and Sardinia (1840).

Later, such agreements were concluded by France and Sardinia (1843), Prussia and England (1846), France and England (1852), France and Baden (1854) and others. The first multilateral International Convention on Literary Works (according to F. F. Martens) became a resolution of the Brussels International

[1] Мартенс Ф. Ф. Современное международное право цивилизованных народов: в 2 т. Т. 2. Санкт-Петербург, 1883. P. 139.

[2] Спасович В. Д. Op.cit. P. 5.

[3] Бетелл Т. Собственность и процветание: уроки истории/пер. с англ. Б. Пинскера. Москва; Челябинск, 2018. P. 353.

[4] Спасович В. Д. Op.cit. P. 10—11.

[5] Мартенс Ф. Ф. Op.cit. P. 139—141, 143.

Literary Congress (1858), which admitted literary ownership, determined parity in the rights to the literary work of national and foreign authors, called for the unification of the legislation to protect to protect copyrights [1].

In addition to copyright, during the XVIII-XIX centuries, legal protection was distributed on the industrial property right. In particular, in the work of O. O. Pylenko "The right of an inventor" (1902) were studied certain disadvantages of patent law in the United States (1790), France (1791), Germany (1896), Austria-Hungary (1852), was noted the contradictory of the second law of the Russian Empire is noted dated on May 20, 1896: Regulations on privileges for inventions and improvement in the part of activity of free experts. [2] The presence of patent legislation in the states of Europe and the Russian Empire, which then belonged to Ukrainian lands, did not exclude disputes regarding the rights of industrial property in accordance with the procedure established by the judicial statutes of 1864 yr. Those statutes, as noted, normalized the status of knowledgeable people (experts).

In 1883, the right to intellectual property objects was consolidated in one of the first international treaties in this area — Paris Convention for the Protection of Industrial Property. Since then, in 1886 yr., copyright was consolidated in the Berne Convention for the Protection of Literary and Artistic Works [3]. These Convention contributed to the dissemination of protection of the right to intellectual property objects in Europe and the United States and became the subject of research of that time jurists.

Thus, P. Ye. Kazanskyi, a Ukrainian international jurist, in a 3-volume work "Main administrative unions of states" (1897) has comprehensively researched the "International unions for the protection of literary and artistic works" (Book 6) [4]. In particular, in Chapter IV scientist identified the peculiarities of "*international literary and artistic property*", as well as mechanisms for its legal protection.

For his part, V. D. Spasovych wrote about the creation of "international unions for the protection of literature and art works" with exciting, to whom Switzerland, France, Great Britain, Spain, Italy, Germany, Belgium joined, whose population (along with colonies) was almost 450 million people. At the same time, he criticized the provisions of the Berne Convention, which recognized the copyright to translations for only 10 years since his disclosure [5]. V. D. Spasovych also hoped that the activities of international unions in this area

[1] Мартенс Ф. Ф. Op.cit. P. 148—149, 156—157.

[2] Пиленко А. А. Op.cit. P. 480—486.

[3] Бернська конвенція про охорону літературних і х удожніх творів: Паризький Акт від 24.07.1971 р. (змін. 02.10.1979 р.)//*Зібрання чинних міжнародних договорів України*. 2006. № 5 (кн. 2). Ст. 1247.

[4] Казанский П. Е. Op.cit. P. 1—148.

[5] Спасович В. Д. О праве собственности в литературе/Сочинения. Т. 3: Статьи, диссертации, лекции юридического содержания. Санкт-Петербург, 1890. P. 395, 399.

in the XX century will contribute to the establishment copyright, *"eternal in time and world-wide space"* [1].

Regarding the genesis of judicial expertise on intellectual property issues in the second half of the XIX century, then direct guidelines for aware of people and their procedural status in the temporary civil proceedings are not enough. A similar situation took place in the then educational literature. Even in basic educational publications on civil proceedings, there are no provisions on judicial examination [2]. Instead, research on issues of the right to objects of intellectual property and the ways of their legal protection did not lack up to this day.

Thus, in the work "Research on property or proprietary rights according to the laws of Russian" (1855) by M. V. Varadynov, a scientist and statesman of the Russian Empire of Ukrainian Origin, a separate subdivision is devoted to the study of "Manufacturing and artistic, scientific or literary property" [3]. The author noted that *"the general property of manufactory and artistic, scientific and literary property consists in the fact that disputes about them are first considered in arbitration courts. Cases about privileges may, in the event of disagreement with the arbitral tribunal, to conduct a conventional civilian and even a criminal court"* [4]. Mention of forensic disputes concerning objects of intellectual property rights with combined jurisdiction hypothetically did not exclude opportunities for the development of evidence-base of knowledgeable people with special knowledge in science, technology and art, but reliable information about such facts is unknown today.

At the same time in the second half of the XIX — at the beginning of the XX century forensic examination conducted by aware people on the base of the status of Civil Procedure in 1832 and 1864 years, also became widespread in a civil process, the subject of which is the dispute on copyright objects, industrial property rights, etc. Relevant legislative provisions contributed to the development of scientific thought of forensic examination in civil proceedings. For example, in the 30th paragraph of the textbook by I. A. Vladyslavliev "Main principles of Civil Proceeding" (1857) among the permissible evidence in controversial cases, "evidences of knowledgeable people" are determined [5].

One of the first significantly known types of forensic examination in civil proceedings became a handwriting examination. In particular, I. A. Vladyslavliev noted the peculiarity of the handwriting examinations, "made in Jewish on acts, letters and other documents" the verification of which

[1] Спасович В. Д. Вопрос о так называемой литературной собственности/Сочинения. Т. 3: … . P. 368.

[2] Гольмстен А. Х. Учебник русского гражданского судопроизводства. 2-е изд., испр. и д . оп. Санкт-Петербург, 1894. 391 p.

[3] Варадинов Н. В. Op.cit. P. 40—44.

[4] Ibid.

[5] Владиславлев И. А. Op.cit. P. 49.

had to be made by rabbis and two Jews deserving trust, after bringing them all to the oath, mandatory for witnesses [1].

The already mentioned jurist V. D. Spasovych in the work "Copyright and counterfeiting" (1865) noted that "issues on conducting cases of crimes against copyright is quite confused; they are solved unevenly on different provisions of the author's literary, artistic, musical" [2].

According to the views by M. V. Varadinov, this scientist defined on the peculiarities of legal proceedings in the field of copyright objects the following: "cases of copyright are solved by the arbitrational court. In case of disagreement of the parties to the verdict of arbitration, these cases are given to ordinary courts, starting with the civilian chamber of the province, where the defendant lives. The Civil Chamber, in case of doubt, requires *the conclusion of universities"* [3].

Instead, an honorary member of the Imperial Universities of St. Volodymyr (Kyiv) and Yurivskyi (now — *University of Tartu*, Estonia), Honored Professor I. Ye. Engelman in the "Course of Russian Civil Procedures" (1912) set a subdivision "Conclusions of knowledgeable people". *Their procedural status the scientists characterized as follows: "Knowledgeable people appear to the court in a double role: as witnesses and as assistants of a judge. As witnesses they are interrogated about their observations of mentioned objects. Their conclusions (evidences) serve as a material for discussing the case. The difference in their evidences from the testimony of witnesses is that the first declares direct perceptions of their impression during the controversial fact, and the knowledgeable people reach this phenomenon by conclusion on the basis of certain material traces remaining from it. As assistants of a judge knowledgeable people evaluate the importance of famous facts for solving controversial issues based on their special scientific, technical or economic knowledge"* [4]. From the content of this quote, it is possible to conclude that knowledgeable people became the prototype of forensic experts, but the information on their conclusions in cases relating to the intellectual property has not been found up today.

At the same time, in Ukraine, according to Law dated on 04.07.1913: *On the formation of offices of forensic science examination in Moscow, Kyiv and Odessa*, made by the State Duma and the State Council of the Russian Empire, the first state specialized forensic expert institutions were formed: offices of forensic science examination with prosecutors of Kyiv and Odesa court chambers [5]. All these circumstances have created the basis for the adoption of

[1] Владиславлев И. А. Op.cit. P. 49, 52.

[2] Спасович В. Д. Права авторские и контрафакция. … P. 88.

[3] Ibid. P. 89.

[4] Энгельман И. Е. Op.cit. P. 318.

[5] Богатырь В. Судебная экспертиза: вчера и сегодня//*Судебно-юридическая газета*. 22.02.2010. URL: https://sud.ua/ru/news/publication/35721-sydebnaya-ekspertiza-vchera-i-segodnya (date accessed: 01.08.2020).

forensic examination in the field of intellectual property. However, World War I put aside judicial disputes on the right to intellectual property objects.

Conclusions. Summarizing the results of the study of the prerequisites for the formation of a forensic examination of objects of intellectual property rights in the context of genesis of legal proceedings, systems and procedural mechanisms of proof and forensic expert activity, we can reach such conclusions.

In the X—XVI centuries (as evidenced by the analysis of the agreements' texts between Rusyns and Greeks, by "Rus' Justice", agreements of separate principalities with grate princes and among themselves, letters, Sudebniks, Lithuanian Statutes, etc.), the professional forensic examination did not exist due to incompleteness of courts, judicial procedural legislation and archaism of evidentiary process based on oaths and rituals (ordalies, etc.) defendants and witnesses, and torture of suspects.

The need for special forensic expert activity in Europe occurred when the system and mechanisms of proof in secular and canonial trials suffered from a radical transformation, and forensic experts' conclusions (knowledgeable people) became legitimate evidence in criminal and civil processes. For the first time on the Ukrainian lands, the procedural status of a forensic expert as a knowledgeable person is reduced to the statute of the criminal justice of the Russian Empire in 1864 (Article 112, 690 — 692, 698, etc.).

The approval of forensic expert activity in the field of intellectual property also preceded the legitimization of the right to intellectual property objects in Austro-Hungary, England, Spain, the Netherlands, Germany, Russia, the USA, France in the XVIII century, as well as the formation of administrative and judicial mechanisms of its protection. At the same time, the practice of attracting knowledgeable people to consider disputes on copyrights for scientific, literary, and artistic works, inventions, etc. was not widespread until the XIX century.

After organizing the offices of scientific and forensic examination with the prosecutors of the Kyiv and Odessa forensic chambers in Ukraine (1913) institutionalization of forensic expert activity and professionalization of law experts took place. These circumstances laid the foundations for the adoption of forensic examination in the field of intellectual property. However, the institutionalization of forensic examination of objects of intellectual property rights was not completed through World War I.

This publication indicates but does not exhaust the main issues regarding the prehistory of forensic examination of objects of intellectual property rights. In particular, certain prototypes of forensic examination of objects of intellectual property rights in the XIX — at the beginning of the XX centuries may be a subject of further scientific developments during the study of archives of the arbitrative, civil and criminal courts, as well as archives of the Imperial Universities of Kyiv, Odessa, and Kharkiv of those days [1].

[1] Федоренко В. Л., Коваленко В. В. Op.cit. P. 19.

References

Bernska konventsiia pro okhoronu literaturnykh i khudozhnikh tvoriv: Paryzkyi Akt vid 24.07.1971 r. (zmin. 02.10.1979 r.). *Zibrannia chynnykh mizhnarodnykh dohovoriv Ukrainy.* 2006. № 5 (kn. 2). St. 1247 [in Ukrainian].

Betell, T. (2018). *Sobstvennost i protcvetanie: uroki istorii.* Per. s angl. B. Pinskera. Moscow; Cheliabinsk [in Russian].

Bogatyr V. Sudebnaia ekspertiza: vchera i segodnia. *Sudebno-iuridicheskaia gazeta.* 22.02.2010. URL: https://sud.ua/ru/news/publication/35721-sydebnaya-ekspertiza-vchera-i-segodnya (data zvernennia: 01.08.2020) [in Russian].

Chebyshev-Dmitriev, A. P. (1875). *Russkoe ugolovnoe sudoproizvodstvo po sudebnym ustavam 20 noiabria 1864 g.* Sankt-Peterburg, IX s. [in Russian].

Engelman, I. E. (1912). *Kurs russkogo grazhdanskogo sudoproizvodstva:* uchebnik. 3-izd., ispr. i dop. Iurev [in Russian].

Fedorenko, V. L. (2017). Stanovlennia ta rozvytok Naukovo-doslidnoho tsentru sudovoi ekspertyzy z pytan intelektualnoi vlasnosti Ministerstva yustytsii Ukrainy (2004—2017 rr.). *Problemy teorii ta praktyky sudovoi ekspertyzy z pytan intelektualnoi vlasnosti:* mater. nauk.-prakt. konf. (Kyiv, 21.12.2017). Ed.: prof. V. L. Fedorenkao. Kyiv [in Ukrainian].

Fedorenko, V. L. (2019). Stanovlennia ta rozvytok sudovoi ekspertyzy obiektiv intelektualnoi vlasnosti v Ukraini. *Aktualni pytannia sudovoi ekspertolohii, kryminalistyky ta kryminalnoho protsesu:* mat. Mizhnar. nauk.-prakt. konf. (Kyiv, 05.11.2019). Eds.: O. H. Ruvin, V. V. Nestor; uklad. O. I. Zherebko, A. O. Poltavskyi, O. V. Yudina. Kyiv [in Ukrainian].

Fedorenko, V. L., Kovalenko, V. V. (2020). Sudova ekspertyza obiektiv prava intelektualnoi vlasnosti yak vazhlyva funktsiia Ukrainskoi derzhavy: henezys i perspektyvy rozvytku. *Ekspert: paradyhmy yurydychnykh nauk i derzhavnoho upravlinnia* [in Ukrainian].

Fedorenko, V. L., Timoshchik, L. P., Sobin, A. K. (2019). Sudebnaia ekspertiza obektov prava intellektualnoi sobstvennosti v Ukraine: poniatie, vidy i sistema. *Armianskii zhurnal sudebnoi ekspertizy i kriminalistiki.* № 1 [in Russian].

Fedorenko, V. L., Tymoshchyk, L. P. (2019). Sudova ekspertyza z pytan intelektualnoi vlasnosti: henezys, poniattia, klasyfikatsiia ta systema. *Ekspert: paradyhmy yurydychnykh nauk ta derzhavnoho upravlinnia.* № 1 (3) [in Ukrainian].

Foinitckii, I. Ia. (1899). *Kurs ugolovnogo sudoproizvodstva.* Tom II. 2-e izd., pererab. Sankt-Peterburg [in Russian].

Golmsten, A. Kh. (1894). *Uchebnik russkogo grazhdanskogo sudoproizvodstva.* 2-e izd., ispr. i dop. Sankt-Peterburg [in Russian].

Kaminskyi, A. M. (2020). Teoriia sudovoi ekspertyzy v Ukraini. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. materialiv III Vseukr. nauk.-prakt. konf. (Kyiv, 27.02.2020). Kyiv — Mariupol [in Ukrainian].

Kazanskii, P. E. (1897). *Vseobshchie administrativnye soiuzy gosudarstv:* monografiia. T. 3. Odessa [in Russian].

Khrestomatiia pamiatnikov feodalnogo gosudarstva i prava stran Evropy. (1961). Gosudarstvo drevnikh frankov, Anglo-Saksonskoe gosudarstvo, Angliia, Germaniia, Ispaniia, Italiia, Frantciia, Albaniia, Bolgariia, Vengriia, Polsha, Rumyniia, Chekhiia, Iugosloviia. Ed.: V. M. Koretckii. Moscow [in Russian].

Khrestomatiia po istorii russkogo prava. (1901). Sost. M. F. Vladimirskii-Budanov. Vyp. 2. 4-e izd. Kyiv [in Russian].

Kolb, G. F. (1896—1899). *Istoriia chelovecheskoi kultury s ocherkom form gosudarstvennogo pravleniia, politiki, razvitiia svobody i blagosostoianiia narodov.* Per. s 3-go pererab. i znach. dop. nem. izd.: A. A. Reingoldt (ed.). Kn. 2. Kyiv — Kharkiv [in Russian].

Linovskii, V. A. (1849). *Opyt istoricheskikh razyskanii o sledstvennom ugolovnom sudoproizvodstve v Rossii.* Odessa [in Russian].

Martens, F. F. (1883). *Sovremennoe mezhdunarodnoe pravo tcivilizovannykh narodov:* v 2 t. T. 2. Sankt-Peterburg [in Russian].

Novosivskyi, I. M. (1986). *Narysy istorii prava Bukovyny i Basarabii.* Niu-York, Paryzh, Sidnei, Toronto [in Ukrainian].

Pakhman, S. V. (1851). *O sudebnykh dokazatelstvakh po drevnemu russkomu pravu, preimushchestvenno grazhdanskomu, v istoricheskom ikh razvitii: Rassuzhdenie Semena Pakhmana.* Moscow [in Russian].

Pilenko, A. A. (1902). *Pravo izobretatelia: Privilegii na izobreteniia i ikh zashchita v russkom i mezhdunarodnom prave: Istoriko-dogmaticheskoe issledovanie*. Kn. 1: Ocherk istorii privilegii na izobreteniia (v sviazi s evoliutciei doktriny). Kn. 2: Pravo na patent. T. 1. Sankt-Peterburg [in Russian].

Sluchevskii, V. K. (1910). *Uchebnik russkogo ugolovnogo protcessa. Sudoustroistvo-sudoproizvodstvo*. 3-e izd., peredel. i dop. Sankt-Peterburg [in Russian].

Sobranie vazhneishikh pamiatnikov po istorii drevnego russkogo prava. (1859). Sost. I. Lazarevskii, Iak. Utin. Sankt-Peterburg [in Russian].

Spasovich, V. D. (1865). *Prava avtorskie i kontrafaktciia.* Sankt-Peterburg [in Russian].

Spasovich, V. D. (1890). *O prave sobstvennosti v literature. Sochineniia.* T. 3: Stati, dissertatcii, lektcii iuridicheskogo soderzhaniia. Sankt-Peterburg [in Russian].

Stanislavskii, A. G. (1855). *Issledovanie nachal imushchestvennykh otnoshenii v drevneishikh pamiatnikakh russkogo zakonodatelstva.* Kazan [in Russian].

Statuty Velykoho Kniazivstva Lytovskoho (2008): repryntne vydannia 1854 r. Peredmova I. Bondaruka. Kyiv [in Ukrainian].

Sudovi ekspertyzy v protsesualnomu pravi Ukrainy (2019): navch. Posib. Ed.: O. H. Ruvin. Kyiv [in Ukrainian].

Trotcina, K. E. (1851). *Istoriia sudebnykh uchrezhdenii v Rossii.* Sankt-Peterburg [in Russian].

Uchrezhdenie sudebnykh ustanovlenii. Sudebnye ustavy 20 noiabria 1864 goda. (1864). Moscow [in Russian].

Varadinov, N. V. (1855). *Issledovanie ob imushchestvennykh ili veshchestvennykh pravakh po zakonam russkim.* Statia I: O prave sobstvennosti. Sankt-Peterburg [in Russian].

Vladimirov, L. E. (1886). *Uchenie ob ugolovnykh dokazatelstvakh.* Osobennaia chast. Kniga pervaia: Lichnyi sudeiskii osmotr i zakliucheniia ekspertov. Kharkiv [in Russian].

Vladislavlev, I. A. (1857). *Obshchie osnovaniia grazhdanskogo sudoproizvodstva.* Sankt-Peterburg [in Russian].

Volter, F. M. (1809). *Istoriia tcarstvovaniia Liudovika XIV i Liudovika XV, korolei frantcuzskikh, s prisovokupleniem slovaria vsekh znamenitykh Frantcuzskikh muzhei: ministrov, polkovodtcev, pisatelei i khudozhnikov, proslavivshikh tcarstvovanie sikh gosudarei:* v 4 ch. Per. s fr. A. Voeikov. Ch. 4. Moscow [in Russian].

В. Л. Федоренко, В. В. Коваленко, О. Д. Гайдай

ПЕРЕДІСТОРІЯ СТАНОВЛЕННЯ СУДОВОЇ ЕКСПЕРТИЗИ ОБ'ЄКТІВ ПРАВА ІНТЕЛЕКТУАЛЬНОЇ ВЛАСНОСТІ В КОНТЕКСТІ ГЕНЕЗИСУ СУДОВО-ЕКСПЕРТНОЇ ДІЯЛЬНОСТІ В УКРАЇНІ (ВІД КИЇВСЬКОГО КНЯЗІВСТВА ДО ПЕРШОЇ СВІТОВОЇ ВІЙНИ)

(оглядова стаття)

У публікації комплексно досліджено передумови започаткування судової експертизи об'єктів права інтелектуальної власності в Україні та за кордоном від X до початку XX ст. в контексті генезису судово-експертної діяльності. Проаналізовано джерела судочинства часів Київського князівства (Русі) і так званих темних століть (XII—XIV): «Руська Правда», договори удільних князів з великими князями й між собою, уставні й дарувальні грамоти князів, судебники та ін., а також Литовські статути (XVI). Обґрунтовано, що поява судової експертизи в Європі пов'язана з походженням і характером доказів у судочинстві. Необхідність у судових експертах виникла тоді, коли їхніх висновків (як легітимних доказів у кримінальному та цивільному процесах) потребував суд. Підкреслено, що вперше процесуальний статус судового експерта як обізнаної людини унормовано у Статуті кримінального судочинства Російської імперії 1864 р. (ст. 112, 690—692, 698 та ін.).

Зазначено, що утвердженню судово-експертної діяльності в царині інтелектуальної власності передували легітимізація права на об'єкти інтелектуальної власності в Австро-Угорщині, Англії, Іспанії, Нідерландах, Німеччині, Росії, США, Франції у XVIII ст., а також затвердження адміністративних і судових механізмів її захисту. Водночас у XIX ст. була малопоширеною практика залучення обізнаних людей до розгляду спорів про авторські права на наукові, літературні й мистецькі твори, винаходи та ін.

1913 р. в Україні створено кабінети науково-судової експертизи при прокурорах Київської й Одеської судових палат, що сприяло інституціоналізації судово-експертної діяльності та професіоналізації діяльності судових експертів. Ці обставини створили умови для становлення судової експертизи у сфері інтелектуальної власності. Проте, Перша світова війна відсунула судові спори щодо прав на об'єкти інтелектуальної власності на другий план.

Ключові слова: судова експертиза, судовий експерт, обізнані люди, інтелектуальна власність, судова експертиза об'єктів права інтелектуальної власності, генезис судової експертизи з питань інтелектуальної власності.

В. Л. Федоренко, В. В. Коваленко, А. Д. Гайдай

ПРЕДЫСТОРИЯ СТАНОВЛЕНИЯ СУДЕБНОЙ ЭКСПЕРТИЗЫ ОБЪЕКТОВ ПРАВА ИНТЕЛЛЕКТУАЛЬНОЙ СОБСТВЕННОСТИ В КОНТЕКСТЕ ГЕНЕЗИСА СУДЕБНО-ЭКСПЕРТНОЙ ДЕЯТЕЛЬНОСТИ В УКРАИНЕ (ОТ КИЕВСКОГО КНЯЖЕСТВА ДО ПЕРВОЙ МИРОВОЙ ВОЙНЫ)

(обзорная статья)

В публикации комплексно исследованы предпосылки зарождения судебной экспертизы объектов права интеллектуальной собственности в Украине и за рубежом в контексте генезиса судебно-экспертной деятельности с X до начала XX вв. Проанализированы такие источники судопроизводства эпохи Киевского княжества (Руси) и так называемых тёмных веков (XII—XIV), как «Русская Правда», договоры удельных князей с великими князьями и между собою, уставные и жаловальные грамоты князей, судебники и т. п., а также Литовские статуты (XVI). Обосновано положение о том, что появление судебной экспертизы в Европе связано с происхождением и характером доказательств в судопроизводстве. Необходимость в судебных экспертах возникла тогда, когда их выводы стали легитимными доказательствами для суда в уголовных и гражданских процессах. Подчёркнуто, что впервые процессуальный статус судебного эксперта как сведущего человека нормирован в Уставе уголовного судопроизводства Российской империи 1864 г. (ст. 112, 690— 692, 698 и др.).

Отмечено, что учреждению судебно-экспертной деятельности в сфере интеллектуальной собственности предшествовала легитимизация права на объекты интеллектуальной собственности в Австро-Венгрии, Англии, Испании, Нидерландах, России, США, Франции в XVIII в., а также учреждение административных и судебных механизмов её защиты. Вместе с тем, практика привлечения сведущих людей к рассмотрению споров об авторских правах на научные, литературные и художественные произведения, изобретения и т. п. в XIX в. была редким явлением.

В 1913 году в Украине созданы кабинеты научно-судебной экспертизы (НСЭ) при прокурорах Киевской и Одесской судебных палат, что способствовало институционализации судебно-экспертной деятельности и профессионализации деятельности судебных экспертов. Указанные обстоятельства создали предпосылки для учреждения судебной экспертизы в сфере интеллектуальной собственности, но Первая мировая война отодвинула судебные споры о праве интеллектуальной собственности на второй план.

Ключевые слова: судебная экспертиза, судебный эксперт, сведущие люди, интеллектуальная собственность, судебная экспертиза объектов права интеллектуальной собственности, генезис судебной экспертизы по вопросам интеллектуальной собственности.

Received by Editorial Board: 05.08.2020

Fedorenko V. L., Kovalenko V. V., Gaidai O. D. Prehistory of formation of forensic intellectual property analysis in the context of forensic activity genesis in Ukraine (from the time of Kievan principality to the First World War) (Review Article)//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/ Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 126—145. DOI: https://doi.org/10.32353/khrife.2.2020.10.

DOI: https://doi.org/10.32353/khrife.2.2020.11
UDC [343.98:347.9](477)

I. A. Petrova,
Doctor of Law, Professor, Principal Researcher of the Laboratory of Theoretical Research, Editorial, Scientific and Methodological Activity of the National Scientific Center "Hon. Prof. M. S. Bokarius FSI", Kharkiv, Ukraine,
ORCID: http://orcid.org/0000-0002-1652-6715,
e-mail: ekobezpeka.ira@gmail.com

D. O. Chekin,
Researcher of the Laboratory of Theoretical Research, Editorial, Scientific and Methodological Activity of the National Scientific Center "Hon. Prof. M. S. Bokarius FSI", Kharkiv, Ukraine,
ORCID: 0000-0002-9893-1588, e-mail: chekin.hniise@gmail.com

K. P. Sylenok,
Researcher of the Laboratory of Theoretical Research, Editorial, Scientific and Methodological Activity of the National Scientific Center "Hon. Prof. M. S. Bokarius FSI", Kharkiv, Ukraine,
ORCID: 0000-0001-9355-5010, e-mail: sulenokkateruna@gmail.com

Procedural and non-procedural forms of special knowledge application in civil and economic proceedings

The article considers types and characteristics of special knowledge as well as legal status of persons applying special knowledge while civil and economic proceedings. The Article purpose is to identify existing gaps in civil and economic procedural legislation in relation to various forms of implementing special knowledge based on the analysis of description of their common features and identification of their application peculiarities in civil and economic proceedings. When considering the comparative legal research method, similarities and differences in entities using special knowledge, namely in a specialist, translator, teacher, were established. The analysis of norms of the current procedural legislation enables to deduce that a number of forms of special knowledge use can be distinguished in civil and economic proceedings, namely: court expertise; competent individuals' expertise without involving them in a trial; attracting competent persons to participate in civil or economic proceedings; using the results of forensic examinations: forensic reports. The issues of legal regulation for a translator candidate choice in civil or economic proceedings and the problem of translators' incompetence in legal terminology are identified. Methods for improving participation of translators in the proceedings were established. The opinions and observations of scientists in the field of law on the use of special knowledge in the field of law were analyzed, and the possibility of conducting legal vetting while

© I. A. Petrova, D. O. Chekin,
K. P. Sylenok, 2020

court proceedings was criticized. It was established that procedural definition of special knowledge must necessarily include their general scientific concept as direct substantive basis for the concept of procedural, and the latter will determine only boundaries and forms of this knowledge special use in civil and economic proceedings, as well as legally significant consequences of such use. The analysis of forms of special knowledge use in civil and economic proceedings provides grounds to consider that, except for special knowledge that is used in the form of forensic examination, other forms are also used which are given a detailed description.

Keywords: special knowledge, specialist, legal knowledge, consultation, meditation, civil proceedings, economic proceedings, means of proof, judge, forensic report, translator, teacher.

Formulation of Research Problem. The purpose of the use of special knowledge provides that this knowledge is used to form evidence-based information, verify and evaluate it by procedurally authorized persons. By this criterion (legal purpose of use) the division of forms of special knowledge use on procedural and non-procedural is happening. Thus, if during the application of special knowledge, a new evidence is formed or previously obtained is checked, then in this case it is a procedural way of using special knowledge. If special knowledge is used to form the inner conviction of the subject of evidence to evaluate the evidentiary information, then it is a non-procedural form of the use of special knowledge. However, there is no final distinction between the application of procedural and non-procedural forms of application of special knowledge in civil and economic proceedings.

Analysis of Essential Researches and Publications. Issues on the application of special knowledge and certain aspects of its use during the trial were studied by many domestic and foreign scientists, including: A. H. Davtian, Yu. M. Hroshevyi, V. H. Honcharenko, T. M. Kilichava, A. O. Selivanov, Yu. D. Prytyka and others [1] Thus, and today there are still many gaps in the legislation on the use of specialized knowledge in civil and commercial proceedings.

The **Article Purpose** is to identify gaps in the civil and economic procedural legislations regarding different forms of special knowledge application, based on the analysis of outlining of their general features and determination of peculiarities of its use in the civil and economic proceedings.

[1] E.g., Давтян А. Г. Экспертиза в гражданском процессе. Москва, 1995. 83 р. ; Судова експертиза: нормативно-правове регулювання та наукові коментарі: навч.-довід. посіб./уклад.: Ю. М. Грошевий, М. Л. Цимбал, Е. Б. Сімакова-Єфремян та ін. Харків, 2004. 448 р. ; Кілічава Т. М. Цивільне процесуальне право: навч. посіб. Київ, 2007. С. 200 ; Селіванов А. О. Проблема запровадження в судовий процес правової експертизи//*Право України*. Київ, 2002. № 8. Р. 32—34 ; Цивільне процесуальне законодавство України: зб. нормат. актів/за заг. ред. В. Т. Маляренка. Київ, 2004. 544 р.

Main Content Presentation. In legal doctrine, various forms of the use of special knowledge in the civil and economic proceedings are distinguished. For instance, A. H. Davtian considers that the forms of the use of special knowledge in civil proceedings should be differentiated, among which are both regulated and not regulated by the law. Among them we may name the following:

1) use of special knowledge of experienced persons without involving the latter in the trial (consultations, various certificates on special issues, etc.);
2) use of special knowledge in the form of results of non-judicial (departmental, administrative) investigations, departmental examenations;
3) use of special knowledge of experienced persons who have to perform procedural functions of specialists:
   a) participation in examination of written and physical evidences;
   б) involvement to their proceeding both teachers and translators;
4) use of special knowledge in the form of forensic expertise or special knowledge of those persons who have to perform procedural functions of forensic experts [1].

Other scientists support a similar view [2], however, some authors, supplementing mentioned forms, pay attention to such as:

- Getting professional advice and opinion from experienced persons;
- Usage of the help from specialists during the proceedings;
- Appointment of forensic examination [3].

It should be noted that by above - mentioned forms the list of used special knowledge are not exhausted.

The analysis of the current procedural legislation norms enables to draw a conclusion that in civil and economic proceedings it is possible to allocate such forms of the use of special knowledge:

1) usage of special knowledge that the court has. For instance, judges have special knowledge necessary to conduct a qualified examination of evidence or special knowledge in certain areas of law;
2) usage of special knowledge of competent (experienced) persons without involvement the latter in civil or economic proceedings. For example, compensation for the material damage, caused as a result of a traffic collision, when owners of vehicles, before hearing the case in court, apply to forensic expert institutions for non – judicial auto-technical examinations, the conclusions of which are attached to the case as written evidences;
3) usage of special knowledge of competent (experienced) persons involved in civil or economic proceedings:

[1] Давтян А. Г. Op.cit. P. 17.

[2] Судова експертиза: нормативно-правове регулювання та наукові коментарі. … P. 189.

[3] Кілічава Т. М. Op.cit. 352 p.

- specialists in the form of consultations, technical assistance or help during the conduct of procedural actions;
- competent people, in particular, a translator, teacher, a person who provides legal assistance, etc. (e.g., Art. 9 of Civil Procedure Code of Ukraine, Art. 10 of Economic Procedure Code of Ukraine);

4) usage of the results of forensic examinations — an expert conclusion.

It should also be noted that the forms of the use of special knowledge used in the administration of justice have similar characteristics. In particular, as noted in the legal literature, cognition in all forms is carried out by a person, specialist on the basis of special knowledge [1].

However, each form has its own specific, thus, it is considered appropriate to analyze each of them separately. Forensic examination remains a special and basis form of using special knowledge in civil and economic proceedings.

It should be noted that by the current Civil Procedure Code of Ukraine for the first time provides the involvement of a specialist in civil proceeding (Art. 74). In Civil Procedure Code of Ukraine of 1963 such possibility was not provided, although in practice judges often consulted specialists in various fields of knowledge. Among other things, the practice forensic expert involvement to the case of the specialist to solve questions that require special knowledge in case if the examination is impractical has become widespread. Thus, for instance, when considering and resolving a civil case, it may occur the need of special knowledge of a reference nature, which does not require special research (for instance, in case of division of the house often need to determine whether the house is the subject to division. It will be useful to consult a specialist (architect-builder) to properly resolve this issue, which will also facilitate the execution of the court decision.

It should be noted that the specialist may be engaged in economic or civil proceedings on the initiative of the parties, persons involved in the case, or of the court, on which the court makes a decision. It is here the court should be convinced that the person, involved as a specialist, has a sufficient level of special knowledge to assist the court in resolving the case and providing appropriate consultations. However, if during the evaluation of the materials provided by the specialist inaccuracies are found, the court should appoint an initial forensic examination or invite the specialist who conducted the investigation before the case was initiated in the court to clarify the position of the specialist.

For example, in cases of the claim for declaring will and Deed of gift invalid, where the court more often initializes an appointment and conduct of forensic examination, it is appropriate for the prosecutor to additionally use the official consultation of a specialist, as the latter may find it insufficient to conduct an expert examination and recommend, if necessary, a comprehensive forensic examination at the intersection of two or more branches of science. This is due to the fact

[1] Васьковский Е. В. Учебник гражданского процесса. Москва, 2003. P. 22.

that the judge, due to his incompetence (given the lack of special knowledge, such as technical or medical), stereotypically brings to the examination of issues relating to only a certain part of the expert examination, and therefore ignores some specific manifestations or patterns of events, behavior, etc.

Regarding consultation as one of the forms of the use of specialist's knowledge, it should be applied not only by the court during the trial, also by prosecutors and investigators at all stages of the jurisdictional process.

Interesting is the approach of Professor N. S Karpov, who believes that if there is a source of data and information about it does not require further processing, because the court is the only body that decides the case on the merits, if necessary, it can turn to any source data to verify their reliability [1]. Taking into account the above-mentioned, a written conclusion of the specialist should be considered as a separate type of evidences that will necessarily serve the full, comprehensive and objective implementation of the proceedings. However, procedural law does not provide for this document as a means of proof.

Given that the participation of the specialists in civil and economic proceedings is a novelty of current procedural law, this issue is insufficiently studied in the sciences of procedural law and causes some difficulties. Although at different times, scientists have repeatedly drawn attention to the need of usage in civil proceedings the help of the specialist and expressed their suggestions on his legal status [2]. The science of civil procedure law does not currently have a unified approach to resolving this issue and defining the concept of "specialist".

The term "specialist" in common understanding means *the one who knows certain specialty in perfection, has deep knowledge in in any field of science, technology etc.* [3]. That is, the specialist in the general sense is a person who is professionally known in a particular specialty. In law enforcement practice, specialists are any persons whose special knowledge is necessary to clarify the nature, essence, properties of objects, phenomena, the knowledge of which is necessary to determine the truth.

In accordance with part. 1 Art. 74 of Civil Procedure Code of Ukraine the specialist can be a person who has special knowledge and skills required for the use of technical means, and appointed by the court to provide advice and

[1] Карпов Н. С. Криміналістичні засади вивчення злочинної діяльності: дис. … д-ра юрид. наук: 12.00.09. Київ, 2008. P. 214.

[2] Захарова О. С. Докази та доказування в справах, що виникають з шлюб-но-сімейних правовідносин: дис. … канд. юрид. наук: 12.00.03. Київ, 1995. 152 p. ; Селіванов А. О. Op.cit. P. 32-34 ; Цивільне процесуальне законодавство України: … ; Цивільне процесуальне право України: навч. посіб./за заг. ред. С. С. Бичкової. Київ, 2006. 384 p. ; Фурса С. Я., Фурса Є. І., Щербак С. В. Цивільний процесуальний кодекс України: наук.-практ. комент.: у 2 т. Т. 1/за заг. ред. С. Я. Фурси. Київ, 2006. 912 p.

[3] За Івченко А. О. Тлумачний словник української мови. Харків, 2002. P. 437.

technical assistance during procedural actions related to the use of such technical means (photography, drawing up diagrams, plans, drawings, sampling for examination, etc.).

Although scientists have repeatedly addressed the problem of the use of the forensic expert assistance in civil and economic proceedings, the main attention they paid to the revealing of the concept and prospects of using such assistance. Instead, not enough attention was paid to the legal status of a specialist, and the legal literature did not define the term "specialist" without any objections. This provides a basis for a more detailed consideration of this issue. Instead, not enough attention was paid to the legal status of a specialist, and the legal literature did not define the term "specialist" without any objections. This provides a basis for a more detailed consideration of this issue.

Thus, I. L. Petrukhin in 1960s distinguished the concept of a consult – expert, according to which the specialist is not an expert, but he can make conclusions as a court consultant (on the solution of specific issues to determine certain circumstances without conducting research and reference to scientific provisions, practical, reference data on the theory and practice of special knowledge) [1].

Totally accepting this determination, T. V. Sakhnova characterizes the specialist as an independent subject of the process, an important feature of which is his participation in proceedings. That is, the specialist participates in the case and assists the court while carrying out its cognitive activities and applying special knowledge, but without special research. She substantiated two forms that can be used in in civil and economic proceedings: the participation of a specialist in the implementation of the court's procedural action and the provision of advisory information on special issues that do not require research [2]. Thus, the study of the legal status of a specialist among proceduralists in the science of procedural law was largely limited.

Analyzing this issue and taking into account the determinations of mentioned scientists, we suggest considering the specialist as an individual subject of civil or economic proceedings, who has a set of procedural rights and responsibilities that are not duplicated by any other participant in the process. It is possible when the involvement of the specialist is required by the court to determine the appropriateness of the appointment of an examination. In particular, during the examination of the written evidence by the court, the specialist with the help of a special device may find corrections (cleanups, additions) in the text of the contract, which gives the court grounds to appoint a forensic examination of this document. In this case, the specialist, as noted by some authors [3], can even give advice and consultations on the formulation of issues to be resolved by the

[1] Петрухин И. Л. Экспертиза как средство доказывания в советском уголовном процессе. Москва, 1964. P. 57—69.

[2] Сахнова Т. В. Судебная экспертиза. Москва, 2000. P. 49—50.

[3] Орлов Ю. К. Специалист — это сведущее лицо, не заинтересованное в исходе дела//*Российская юстиция.* 2003. № 4. P. 36—37.

examination. Thus, we can define the participation of the specialist in civil and economic proceedings as:

- participation in promotion of procedural actions (technical actions);
- giving consultations to the court and other participants of the process (in particular, related to legal issues).

On this grounds, taking into account all forms of participation of the specialist in civil or economic proceedings, the concept "specialist" can be formulated as: the **specialist** is an individual subject of civil/economic proceeding, who is the specialist in the field of special knowledge, who is involved by the court to the participation of the process and providing consulting and reference assistance on issues that require the use of special knowledge and technical assistance (photography, drawing up diagrams, plans, drawings, sampling for examination, etc.) during the procedural actions.

From the usage of the specialist' special knowledge in civil and economic proceedings, such form of the use of special knowledge as the using assistance of other competence persons e.g., a translator, teacher, legal expert, etc. Thus, in accordance with part 1 Art. 74 of Civil Procedure Code of Ukraine and part 1 Art. 72 of Economic Procedure Code of Ukraine the interpreter can be a person who is fluent in the language, who is fluent in the language in which civil proceedings are conducted, and another language whose knowledge is necessary for oral or written translation from one language to another, as well as a person who is familiar with the technique of communication with the deaf, dumb or deaf - mute. Thus, the interpreter is also a specialist in the field of special knowledge (linguistic). It should be noted that this is a master (specialist) in Linguistics, because not every person who knows a foreign language or technique of communication with deaf, dumb or deaf – mute can be the interpreter in civil proceedings. As correctly emphasized in scientific works, the interpreter has to know the legal terminology: Ukrainian, foreign, etc.; undertake not to disclose information that became known to him during the proceedings in which he participated [1]. However, according to the analysis of judicial practice, the presence of a document confirming proper education does not always indicate the presence of specialized knowledge in this area. Unfortunately, in domestic judicial practice such cases are not uncommon. The certificate of proper education of a translator is not always a confirmation of a sufficient level of knowledge in the field of special legal terminology, which is used when considering various categories of cases in civil and economic proceedings.

Simultaneously, the translator, although he is a master in Linguistics, should not be equated with the specialist. In civil and economic proceedings, the interpreter as well as a specialist, provides technical assistance, applying special knowledge. Although the interpreter is the master, his participation and knowledge are used to ensure the principles of equality and competition between parties. The main thing for the specialist is to assist the court to

[1] Фурса С. Я., Фурса Є. Г., Щербак С. В. Op.cit.

determine and record factual data; to carry out a specific procedural action. The specialist is involved to participate in the procedural action carried out by the court. The procedural functions of the interpreter are to clarify the facts with the help of accurate and complete translation, to help the participants in the process to obtain information about the circumstances of the case. His participation in the process is due to the principle of conduct proceedings in the state language (Art. 9 of Civil Procedure Code of Ukraine and Art. 10 Economic Procedure Code of Ukraine).

Furthermore, in distinct from the specialist, who is involved in the participation of the case by the court decision, without the obligatory request of the interested persons, the participation of the interpreter in the process necessarily requires the initiative of a person who does not know the language of the proceedings. In this regard, we should agree with the proposal of the proceduralists on the need to clarify the relevant provisions of procedural law [1]. In fact, in accordance with part 2 Art. 75 of Civil Procedure Code of Ukraine and part 2 Art. 72 of Scientific-practical commentary of Ukraine, the interpreter is admitted by a court decision on the application of the party to the case or is appointed on the initiative of the court. At the same time, in our opinion, only a person who directly needs the help of an interpreter can initiate this issue. Also, the procedural legislation does not regulate the issue that a person who needs the assistance of the interpreter has the right to nominate him. Of course, some lawyers believe that this goes without saying [2], but if the right of a participant in the process is not regulated by law, it is not always possible to implement it in practice.

So, the participation of the interpreter in civil and economic proceedings is the guarantee of the right to judicial protection to persons who are involved in the case and do not know enough the state language. That is why the procedural order of participation of interpreters in civil and economic proceedings needs to be improved, because it is necessary to solve a number of issues: the possibility of conduct the process in the foreign language, if all persons involved in the case do not know the language of proceedings [3], the procedure for finding the interpreter (who should look for, in what time frame, etc.), the expediency of involving the interpreter's diploma in the case file, etc.

The teacher, who should take part in the case during the interrogation of juveniles and minor witnesses also is a carrier of special knowledge in the field of child, adolescent, youth psychology [4]. The interrogation of a juvenile

[1] Фурса С. Я., Фурса Є. Г., Щербак С. В. Op.cit.

[2] Луспеник Д. Д. Настільна книга професійного судді при розгляді цивільних справ (складання судових процесуальних документів за новим ЦПК України): наук.-практ. комент. Харків, 2005. P. 166.

[3] Кравчук В. М., Угриновська О. І. Науково-практичний коментар Цивільного процесуального кодексу України. Київ, 2006. P. 206—207.

[4] Варфоломеєва Т. В., Гончаренко В. Г., Бояров В. І., Гончаренко С. В., Попелюшко В. О. Криміналістика. Академічний курс: підручник. Київ, 2018. 495 p.

is always complicated process as a psyche of the latter is quite unstable and very vulnerable. However, in practice, courts refer to the testimony of juveniles only when it is explicitly stated in the law or if there is no other evidence that would confirm or refute a specific circumstance that is important for the proper resolution of the case. In this case, the court faces the task of making the interrogation process the least traumatic for the juvenile witness, and the teacher can help him in this, in particular, establishing contact with the juvenile (minor), formulating clear and understandable questions, clarifying various circumstances relevant to the case.

Another form of using special knowledge, which is becoming more widespread, is the use of special knowledge of competent (experienced) persons without involving them in civil and economic proceedings. In particular, in judicial practice, widely used advisory opinions, certificates from institutions, organizations, public authorities, and local governments. In scientific papers, it has long been argued that on some issues that require special knowledge without research can be issued but not by a person involved as the specialist in the process, but only by the relevant institution, organization, enterprises, and officials (who are not the subjects of the process) [1].

In contradiction to the specialist those organizations and persons are not trial participants, do not participate in the procedural actions of the courts, so they, accordingly, do not have any independent procedural functions and do not have procedural status. For example, if in the civil cases of incapacitation, the citizen suffering from a mental disorder does not want to provide (the applicant or the court) information about his health, the applicant loses the actual opportunity to do so. The applicant has the only one way out: to apply to the court for such information from the relevant medical institution. In this case, the medical institution, its officials are not the subjects of the process, although the procedural relationship arises between them and the court to request written evidence. Thus, the information provided at the request of the court, obtained during the consultation, from certificates from institutions, organizations, authorities, in the performance of their professional duties, is evidence (in the case of obtaining written information — written), as it meets the general features of judicial evidence (observance of the procedural form at the time of receipt, admissibility, affiliation).

Besides the above-mentioned list of forms of special knowledge in civil and economic proceedings, it is necessary to pay special attention to the fact that in judicial practice (along with forensic examination) the results of non-judicial examinations are also widely used. In practice, the parties often conduct an examination before the opening proceedings on their own initiative (non-judicial examination, i.e. not conducted by court decision). Thus, in most cases,

[1] Фурса С. Я., Щербак С. В., Євтушенко О. І. Цивільний процес України. Проблеми і перспективи: наук.-практ. посіб. Київ, 2006. 448 р.

in the case of damages, the parties conduct the examination before the trial [1]. In addition, the topical question remains whether the court should appoint the examination on the same issues on which the non-judicial examination was conducted and which are not in doubt. It would seem that this is not necessary if there is no need for the forensic examination. On the other hand, given that such a conclusion is used as written evidence, the court has no legal basis to assess it as the result of the investigation. If, for example, the court rejects the conclusion of a non-judicial examination because it does not contain a complete description of the investigation, it makes mistake, for the reason that the law does not make such a requirement for written evidence (it has enough information about the circumstances of the case).

Thus, identification the results of the non-judicial examination with written evidence is not a solution to the existing problem, it is only a predictable opportunity to use such a source of evidence in the proceeding. Written evidence and expert conclusion are different independent types of evidence that have different legal nature. In fact, the non-judicial examination is the full-fledged special examination, which differs from the forensic examination only by conducting it in a procedural form not provided by law.

However, using the non-judicial examination in civil or economic proceeding does not preclude the possibility of conducting the forensic examination of the same objects and on the same subject. This issue is especially relevant when a party or other interested parties file petition to the examination. The fact that the case contains the results of the non-judicial examination is not a ground for refusing to conduct the forensic examination.

Alongside with the results of non-judicial examination such forms of special knowledge as consulting conclusions, references of individual specialists in the area of special knowledge (in particular, in the field of law) have often been used lately. Scientists note that the practice of judicial reform has caused a lot of problems related to the implementation of the law by legal entities and individuals. Thus, the procedural model of justice construction involved in the consideration of cases judicial bodies endowed with a wide competence to examine cases at each stage, applying the legislation in its broadest sense. When considering a case, a judge applies general and special knowledge (first of all, the norms of the Constitution of Ukraine and other legal acts). A judge as the main important subject of the trial is endowed with the power to interpret legal norms, conduct a systematic study of various laws, be guided by the Plenum of the Supreme Court of Ukraine (in particular, on the application of legislation), be familiar with international legal acts in force in Ukraine [2]. At the same time, both judges

[1] Цивільне процесуальне право України: навч. посіб. … . ; Судова практика Вищого адміністративного суду України. 2006—2008/редкол.: В. Г. Гончаренко (голова) та ін.//*Бюлетень законодавства і юридичної практики України*. Київ, 2008. № 6. 352 р.

[2] Селіванов А. О. Op.cit.

and pre-trial bodies have the right to use the special knowledge of specialists in various fields of knowledge to resolve procedural issues by appointing a forensic expert.

In Art. 73 of Civil Procedure Code of Ukraine and Art. 70 of Economic Procedure Code of Ukraine indicated that as a forensic expert can be involved a person who has an Academic Degree and is recognized expert in the field of law. The decision on the admission to participate in the case of the forensic expert on legal issues and attachment of his conclusion to the case is approved by the court. The legal expert is obliged to appear in the court on its call, answer the court's questions, provide explanations. In the absence of objections of the participants of the case, the legal expert can take part in the court hearing in the mode of video conference. The legal expert has right to know the purpose of his summons, refuse to participate in the trial if he does not have the appropriate knowledge, as well as the right to payment for services and reimbursement of costs associated with the summons.

The attitude of scientists to this problem is not unambiguous, and in some cases even diametrically opposed — from the recognition of knowledge in the field of law, knowledge which can be recognized without any reservations as a kind of special and used in the interests of justice, to a strong denial of the possibility of including such knowledge in the list of special and categorical refusal to use them in evidence , in the pre-trial investigation, as well as denial of the possibility of appointment and conduct of legal examinations.

According to O. O. Eisman, knowledge in the field of legislation and jurisprudence, in other words — legal knowledge, do not belong to special knowledge in the sense in which this concept is used in law [1]. At the same time, the question arises to the determination of the category of special forensic knowledge. V. H. Honcharenko characterizes special forensic knowledge in the procedural and legal sense as knowledge in the field of forensic technology, used by specially trained persons in the implementation of legal activities to learn about objects from their scientific and technical side [2].

He is supported by H. I. Gramovych, according to whom, forensic knowledge is a system of closely related legal and natural-technical scientific information, which in general belongs to legal knowledge. But, given the complexity of this system, the versatility of the tasks solved by it, we can distinguish the scientific information used to identify objects in the process of detection, investigation and prevention of crime [3].

---

[1] Эйсман А. А. Критерии и формы использования специальных познаний при криминалистическом исследовании в целях получения судебных доказательств// *Вопросы криминалистики*. Москва, 1962. Вып. 6—7. P. 39.

[2] Гончаренко В. И. Использование данных естественных и технических наук в уголовном судопроизводстве (методологические вопросы). Киев, 1980. P. 118.

[3] Грамович Г. И. Тактика использования специальных знаний в раскрытии и расследовании преступлений: учеб. пособ. Минск, 1987. P. 10—11.

Opponents of recognizing legal knowledge as special knowledge argue that in the event of difficulties in resolving practical issues of law enforcement in the application of, for example, customs, tax, banking or other branches of law, as well as issues related to the application of foreign law, it is permissible to receive assistance in the use of such knowledge in a non-procedural form, in particular counseling [1]. In this case, any consultation of a party to the proceedings or the judge is intended to obtain advice from a specialist. Consequently, the legal knowledge of such a specialist is special.

In our opinion, the use of special legal knowledge in civil and economic proceedings requires, primarily, the training of specialists who would specialize exclusively in a narrow range of legal issues. Currently, domestic higher education institutions provide general (universal) training for specialist lawyers. This is due to the needs of the current labor market. In view of this, we agree with the views of those scientists who deny the possibility of conducting legal examinations in court proceedings [2] and argue that the forensic examination in the field of law is possible only in the practice of the Constitutional Court on a limited range of issues.

Conclusions. Summing up, it should be noted that the procedural definition of special knowledge must include their general scientific concept as an essential semantic basis of the concept of procedural, and the latter will determine only the limits and forms of special use of this knowledge in civil and economic proceedings and legally significant consequences of such use. Analysis of the forms of use of special knowledge in civil and economic proceedings gives every reason to believe that, in addition to special knowledge used in the form of expertise, also serve others who have been given a detailed description. The article outlines the limits of the specialist's participation in civil and economic proceedings, in particular: participation in the conduct of procedural actions (technical activities); providing advice to the court and other participants of the proceeding (in particular, on legal issues), etc.

It is proved that one of the forms of using special knowledge, which is becoming more widespread, is the application of special knowledge of competent (experienced) persons without involving them in civil and economic proceedings. In particular, in judicial practice, are widely used advisory opinions, certificates from institutions, organizations, public authorities, and local governments, as provided by their professional responsibilities.

References

Davtyan, A. G. (1995). *Ekspertiza v grazhdanskom processe.* Moscow: Spark [in Russian].

[1] Стринжа В., Корюшко В. Використання спеціальних знань судом//*Радянське право*. Київ, 1973. № 3. P. 46—49.

[2] Фурса С. Я., Фурса Є. І., Щербак С. В. Op.cit.

Eisman, A. A. (1967). Kriterii i formy ispolzovaniia spetsialnykh poznanii pri kriminalisticheskom issledovanii v tseliakh polucheniia sudebnykh dokazatelstv. *Voprosy kriminalistiki.* Moscow: Gosiurizdat [in Russian].

Fursa, S. Ya. (2006). *Tsyvilnyi protses Ukrainy: problemy i perspektyvy*: nauk.-prakt. posib. Kyiv: KNT [in Ukrainian].

Fursa, S. Ya. (2006). *Tsyvilnyi-protsesualnyi kodeks Ukrainy:* nauk.-prakt. koment. (Vols. 1-2). Kyiv: KNT. Vol. 1 [in Ukrainian].

Goncharenko, V. I. (1980). *Ispolzovanie dannykh estestvennykh i tekhnicheskikh nauk v ugolovnomu sudoproizvodstve metodologicheskie voprosy.* Kyiv: Vishcha shkola [in Russian].

Gramovich, G. I. (1987). *Taktika ispolzovaniia spetsialnykh znanii v raskrytii i rassledovanii prestuplenii.* Minsk: MVSH MVD [in Russian].

Ivchenko, A. O. (2003). *Tlumachnyi slovnyk ukrainskoi movy.* Kharkiv: Folio (Biblioteka derzhavnoi movy) [in Ukrainian].

Karpov, N. S. (2008). *Kryminalistychni zasady vyvchennia zlochynnoi diialnosti.* (dys. doktora yuryd. nauk: za specialnistiu 12.00.09. Kyiv [in Ukrainian].

Kilichava, T. M. (2007). *Tsyvilne protsesualne pravo:* navch. posib. Kyiv: Tsentr uchb. l-ry.

Kostytskyi, M. V. (1997). Psykholohichna konsultatsiia yak forma vykorystannia spetsialnykh znan. *Naukovyi visnyk UAVS.* Kyiv. № 1 [in Ukrainian].

Kravchuk, V. M. (2006). *Naukovo-praktychnyi komentar Tsyvilnoho protsesualnoho kodeksu Ukrainy.* Kyiv : Istyna [in Ukrainian].

Lindmiae, K. H. (1984). Poniatie spetsialnykh znanii, navykov i umenii. Ispolzovanie spetsialnykh znanii v sovetskom ugolovnomu protsesse. *Trudy po pravovedeniiu. Uchenye zapisi Tartuskogo universiteta.* Tartu [in Russian].

Luspenyk, D. D. (2005). *Nastilna knyha profesiinoho suddi pry rozghliadi tsyvilnykh sprav:* (skladannia sud. protsesual. dok. za novym TsPK Ukrainy). Kharkiv: Kharkiv yuryd. [in Ukrainian].

Marchak, V. Ya. (2003). V*ykorystannia spetsialnykh psykholohichnykh znan u dosudovomu slidstvi* (dyser. kandidata yuryd. nauk za specialnistiu 12.00.09). Kyiv [in Ukrainian].

Orlov, I. K. (2003). Spetsialist — eto svedushchee litso ne zainteresovannoe v khode dela. *IUstitsiia*. № 4 [in Russian].

Petrukhin, I. L. (1964). *Ekspertiza kak sredstvo dokazyvaniia v sovetskom ugolovnom protsesse.* Moscow: Iurid. Lit. [in Russian].

Sakhnova, T. V. (2000). *Sudebnaia ekspertiza:* monohrafyia. Moscow: Gorodets [in Russian].

Selivanov, A. (2002). Problema zaprovadzhennia v sudovyi protses pravovoi ekspertyzy. *Pravo Ukrainy.* № 8 [in Ukrainian].

Selivanov, A. (2002). *Problema zaprovadzhennia v sudovyi protses pravovoi ekspertyzy.* Kyiv: Pravo Ukrainy [in Ukrainian].

Strynzha, V. (1973). *Vykorystannia spetsialnykh znan sudom.* V. Strynzha, V. Koriushko (Eds.). Radianske pravo [in Ukrainian].

S*udova ekspertyza: normat.-pravove rehuliuvannia ta nauk. koment.:* navch.-dovidk. posib (2004). Uklad. Hroshevyi, Yu. M., Tsymbal, M. L. , Simakova–Yefremian, E. B. ta in. Kharkiv: Odissei [in Ukrainian].

Surmeneva, S. V. (2009). *Uchastie psykholoha v stadii predvarytelnoho rassledovanyia* (avtoref. dys. kand. yurid. nauk za spets. 12.00.09). Cheliabinsk [in Russian].

Tsyvilne protsesualne pravo Ukrainy: navch. posib. (2006). S. S. Bychkova (Ed.). Kyiv: Atika. [in Ukrainian].

Tsyvilne protsesualne zakonodavstvo Ukrainy (2004). redkol.: Honcharenko, V. H. (holova). ta in. Kyiv: Yurinkom Inter. (Biuleten zakonodavstva i yurydychnoi praktyky Ukrainy № 5) [in Ukrainian].

Tsyvilne sudochynstvo. Sudova praktyka (2008). V. H. Honcharenko (Ed.). Kyiv: Yurinkom Inter. (Biuleten zakonodavstva i yurydychnoi praktyky Ukrainy. № 6) [in Ukrainian].

T*syvilnyi protsesualnyi kodeks Ukrainy:* nauk.-prakt. koment. (Vols. 1-2); Vol. 1 (2006). S. Ya. Fursa (Ed.). Kyiv : KNT. Vol. 1 [in Ukrainian].

Varfolomeieva, T.V., Honcharenko, V.H., Boiarov, V.I. (2011). *Kryminalistyka. Akademichnyi kurs:* pidruchnyk . Kyiv : Yurinkom Inter. [in Ukrainian].

Vaskovskij, E. V. (2003). *Uchebnik grazhdanskogo processa.* Izd. 2-e, pererab. Moscow: Zercalo [in Russian].

І. А. Петрова, Д. О. Чекін, К. П. Силенок

ПРОЦЕСУАЛЬНІ ТА НЕПРОЦЕСУАЛЬНІ ФОРМИ ЗАСТОСУВАННЯ СПЕЦІАЛЬНИХ ЗНАНЬ У ЦИВІЛЬНОМУ ТА ГОСПОДАРСЬКОМУ ПРОЦЕСАХ

У статті розглянуто види та характеристики спеціальних знань, а також правовий статус осіб, яких залучають для застосування спеціальних знань у цивільному й господарському процесах. Використовуючи порівняльно-правовий метод дослідження, було визначено схожість і відмінності суб'єктів, які використовують спеціальні знання, а саме спеціаліста, перекладача, педагога, тощо.

Окреслено питання правового врегулювання залучення кандидатури перекладача до процесу та проблему некомпетентності перекладачів у юридичній термінології. Визначено шляхи вдосконалення участі перекладачів у судовому процесі.

Проаналізовано думки та спостереження науковців у галузі права щодо використання спеціальних знань у сфері права та заперечено можливість проведення правових експертиз у судовому процесі.

Ключові слова: спеціальні знання, спеціаліст, правові знання, консультація, медіація, цивільне судочинство, докази, засіб доказування, суд, висновок експерта, технічні знання, перекладач, педагог.

И. А. Петрова, Д. А. Чекин, Е. П. Силенок

ПРОЦЕССУАЛЬНЫЕ И НЕПРОЦЕССУАЛЬНЫЕ ФОРМЫ ПРИМЕНЕНИЯ СПЕЦИАЛЬНЫХ ЗНАНИЙ В ГРАЖДАНСКОМ И ХОЗЯЙСТВЕННОМ ПРОЦЕССАХ

В статье рассмотрены виды и характеристики специальных знаний, а также правовой статус лиц, применяющих специальные знания в гражданском и хозяйственном процессах. Целью статьи является выявление существующих пробелов в гражданском и хозяйственном процессуальном законодательствах в отношении разных форм использования специальных знаний на основе анализа описания их общих черт и установления особенностей их применения в гражданском и хозяйственном процессах. Используя сравнительно-правовой метод исследования, было установлено сходство и выявлены различия субъектов, использующих специальные знания, а именно: специалиста, переводчика, педагога. Анализ норм действующего процессуального законодательства дает возможность сделать вывод о том, что в гражданском и хозяйственном процессах можно выделить ряд форм использования специальных знаний, а именно: знаний, которыми обладает суд; знаний компетентных лиц без привлечения их к участию в процессе; привлечения компетентных лиц к участию в гражданском или хозяйственном процессе; использования результатов судебных экспертиз — заключений эксперта. Определены вопросы правового регулирования выбора кандидатуры переводчика в гражданском или хозяйственном процессе и проблема некомпетентности переводчиков в юридической терминологии. Установлены методы совершенствования участия переводчиков в процессе. Проанализированы мнения и наблюдения учёных в области права по использованию специальных знаний в этой сфере и подвергнута критике возможность проведения правовых экспертиз в судебном процессе. Установлено, что в процессуальное определение специальных знаний обязательно должно включаться их общенаучное понятие как непосредственно содержательная основа понятия процессуального, а последнее будет определять только границы и формы особенного использования этих знаний в гражданском и хозяйственном процессах, а также юридически значимые последствия такого использования. Анализ форм использования специальных знаний в гражданском и хозяйственном процессах даёт все основания считать, что помимо специальных знаний, применяемых в форме экспертизы, применяются и другие формы, которым дана развёрнутая характеристика.

Ключевые слова: специальные знания, специалист, правовые знания, консультация, медиация, гражданское судопроизводство, доказательства, средство доказывания, суд, заключение эксперта, технические знания, переводчик, педагог.

Received by Editorial Board: 04.08.2020

Petrova I. A., Chekin D. O., Sylenok K. P. Procedural and non-procedural forms of special knowledge application in civil and economic proceedings//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 146—161. DOI: https://doi.org/10.32353/khrife.2.2020.11.

DOI: https://doi.org/10.32353/khrife.2.2020.12
UDC 343.98

N. Ye. Filipenko,
PhD in Law, Associate Professor at the Department of Law at National Aerospace University H.E. Zhukovsky "Kharkiv Aviation Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-9469-3650,
e-mail: filipenko_natalia@ukr.net
O. P. Snigerov,
Doctor of Law, Professor, Principal Researcher of Laboratory of R&D and Publishing at National Scientific Center "Hon. Prof. M. S. Bokarius FSI", Kharkiv, Ukraine
A. V. Bublikov,
Senior Researcher of Laboratory of R&D and Publishing at National Scientific Center "Hon. Prof. M. S. Bokarius FSI", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-7382-8816,
e-mail: andriy.bublikov7@gmail.com

The use of special knowledge while identification, prevention and investigation of crimes in the field of computer-based information and high technologies (Review Article)

The article analyzes conceptual foundations, views and ideas on understanding the essence and forms of using special knowledge while detecting and investigating crimes in the field of computer-based information and high technologies, and addresses its concepts.

The relationship between similar concepts of forensic expert and third party expert has been traced, since one of the main problems considered in the framework of forensic examination is ambiguity of both scientific understanding and practical application of the corresponding conceptual-categorical apparatus. In our opinion, special knowledge in detecting and investigating crimes in the field of computer-based information and high technologies implies knowledge in various fields of science, including law, technology, arts and crafts, in relation to the field of computer-based information and high technologies, obtained within the framework of professional or special education, professional activity, as well as knowledge of theory, skills and abilities, and used by participants in civil, arbitration, administrative and criminal proceedings in order to establish circumstances to be proven in a particular case, in the manner provided by relevant procedural legislation of Ukraine.

Keywords: forensic examination, special knowledge, forensic expert, computer-based information, technologies, computer forensics, forensic science institutes.

© N. Ye. Filipenko, O. P. Snigerov, A. V. Bublikov, 2020

Formulation of Research Problem. The current state of society development is characterized by the comprehensive penetration of the latest information technologies in various areas of human activity: economic, social, managerial and others. Today, there is a growing increase of crimes in the computer information, as well as crimes where criminals use computer tools to commit and cover up such crimes.

The main information threats of nowadays

1. Dissemination of areas of application of special knowledge during detection, prevention and investigation crimes in the field of computer information and high technology creates new risks connected with the possibility of cross-border circulation of information, which is with increasing frequency used with criminal geopolitical, military-political, terrorist, extremist and other unlawful purpose to the detriment of international security and strategic stability.
2. Expanding the use of information and psychological influences by the special services of individual states to destabilize the domestic political and social situation in certain regions, which threatens the sovereignty and territorial integrity of states.
3. Activation of information and psychological influence on Ukrainian society, especially young people in order to impose a pro-Russian position and call for betrayal of the national interests of Ukraine.
4. Increasing the influence of terrorist and extremist organizations, which in their practices actively use the mechanisms of informational influence on the individual and public consciousness, actively recruit through social networks supporters and sympathizers to incite hatred on religious, racial and ethnic grounds.
5. Appearance of new and improvement of already existing computer crimes, especially in the economic and financial sphere.
6. Increasing the number of computer attacks on the objects of critical infrastructure and an air transport.
7. Lack of research aimed at creating promising high technologies, low level of implementation of domestic developments in the field of information security, etc.

These threats are becoming especially relevant in Ukraine, as our country has been in a state of permanent war for over 6 years. There is even a claim that information is a method of warfare.

Detention and investigation of crimes related to the application of computer tools, for today can not be performed without special knowledge in the field of modern high technology. The important thing here is the fact that a forensic expert, having special knowledge and appropriate qualification, is able to solve the most complicated questions, asked by investigators, judges and other law enforcement and law enforcement officials.

Peculiarities of detection and research of forensic computer information are connected, first of all, with the fact that this field of special knowledge contains various types of scientific directions such as electronics, electrical technology, information systems and processes, radiotechnics and communication, computing (in particular computer programming), and automation. Crimes of considered categories are often latent, do not leave visible traces and complex from a perspective of detection and information gathering due to wide application of means of remote access, data protection.

Lack of theoretical and methodological foundations, lack of significant work on theoretical and applied aspects of forensic examination using special knowledge during the detection and investigation crimes in the field of computer information and high technology not only negatively affect the activities of law enforcement agencies, but also threaten efficiency measures aimed at combating crime in the field of modern information technology.

Analysis of Essential Researches and Publications. The issue on the application of special knowledge during the detection and investigation crimes in the field of computer information and high technology has repeatedly been subjected to scientific analysis in the theory of Criminalistics, forensic examination, Criminology and other related fields of law. The works of Soviet scientists, modern domestic scientists and specialists of foreign forensic institutions are devoted to this topic (among whom were T. V. Averianova, I. V. Aristov, O. M. Bandurka, V. S. Batyrgereeva, R. S. Belkin, I. M. Danshyn, O. M. Dzhuzha, V. A. Zhuravel, R. A. Kaliuzhnyi, V. P. Kolmakov, O. M. Kliuiev, O. M. Lytvynov, A. I. Marushchak, E. B. Simakova-Yefremian, O. P. Snigerov, V. Yu. Shepitko, V. M. Sherstyuk, M. H. Shcherbakovskyi, O. P. Uhrovetskyi and others [1]), that gives grounds to conclude about the inter - sectoral nature of this problem. The range of scientific

[1] E.g., Бандурка О. М., Зацеркляний М. М., Веприцький Р. С. Злочинність в Україні: економіко-кримінологічний аналіз: монографія/за заг. ред. д-ра юрид. наук, проф. О. М. Литвинова. Харків, 2013. 264 р. ; Клюєв О. М. Міжнародні стандарти та міжнародне співробітництво у сфері судово-експертної діяльності в Україні// *Актуальні питання судової експертизи та криміналістики:* мат-ли Міжнар. наук.-практ. конф., присвяч. 95-річчю створення ХНДІСЕ ім. Засл. проф. М. С. Бокаріуса (Харків, 10—11.10.2018). Харків, 2018. Р. 5—8 ; Сімакова-Єфремян Е. Б. До питання взаємозалежності європейських інтеграційних процесів і тенденцій інтеграції спеціальних знань в Україні//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2017. Вип. 17. Р. 152—158 ; Шепитько В. Ю. О новеллах в использовании специальных знаний в уголовном процессе Украины// *Теория и практика судебной экспертизы в современных условиях:* материалы 4-й Междунар. науч.-практ. конф. (Москва, 30—31.01.2013). Москва, 2013. Р. 340—342 ; Щербаковський М. Г. Теоретико-методологічні та праксеологічні засади судових експертиз у кримінальному процесі: автореф. дис. … д-ра юрид. наук. Харків, 2016. 34 р. ; Щербаковський М. Г., Куриленко Д. В. Обізнані особи у судочинстві України// *Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2019. Вип. 19. Р. 142—157, etc.

developments on this thematic range is quite wide, however, not all problematic issues of examination in the criminal proceedings have been solved, and some are only marked, and some still remain controversial. However, these researches are mainly focused on the field of legal regulation, the formation of the information security system of Ukraine and activities of law enforcement officers. Therefore, in no case, without diminishing the scientific and practical value of the published works on this issue, we note that the application of special knowledge during the detection and investigation of crimes in the field of computer information and high technology requires comprehensive coverage, taking into account current legislation and problems of practice.

The **Article Purpose** is the analysis of conceptual principles, views and ideas on the understanding of the essence of application of special knowledge during detection and investigation of crimes in the field of computer information and high technology, and the development theoretical and applied proposals for the application of its developments in the practice of combating crime.

Main Content Presentation. One of the most important procedural forms of using special knowledge is examination. However, before considering in detail the issues devoted to this work, we consider it necessary to dwell on the scientific analysis of theoretical and applied categories, which we will use.

Firstly, this is the concept "examination", which is frequently used in the word combination "forensic examination" in the professional scientific literature.

The term "expert" and "examination" come from Latin *expertus* ('experienced", "the one, who knows" [Hereinafter the translation from Russian is our — Author's notes]) [1] and from French *expertise* ("tested") [2]; review, examination of any case, some issue to come to the right conclusion, correctly evaluate a certain phenomenon; research, examination by the forensic expert some cases, issues that require special knowledge [3]; consideration of the issue by the forensic expert for the purpose of reaching the conclusion [4]; research of cases that require special knowledge [5].

In Great Legal Encyclopedian dictionary the forensic examination is determined as the research by the specialist — expert material of objects, phenomenon and process, which contain information about facts that are in the process of inquiry, pre-trial investigation or the court. The main distinguish feature of forensic examination from examinations, practiced outside judiciary,

[1] Словарь иностранных слов/под ред. А. Г. Спиркина. 7-е изд., перераб. Москва, 1980. P. 588.

[2] Юридична енциклопедія: у 6 т./редкол.: Ю. С. Шемшученко (відп. ред.) та ін. Київ, 1998. Т. 2: Д — Й. P. 133.

[3] Великий тлумачний словник сучасної української мови/уклад. і голов. ред. В. Г. Бусел. Київ; Ірпінь, 2007. P. 341.

[4] Ожегов С. И. Словарь русского языка: 70 000 слов/под ред. Н. Ю. Шведовой. 23-е изд., испр. Москва, 1991. P. 904.

[5] Словник іншомовних слів/за ред. О. С. Мельничука. 2-ге вид., випр. і допов. Київ, 1985. P. 290.

according to the researchers, is that the facts, the existence of which is claimed or denied by a forensic expert, is a means of proof [1].

A well - known scientist, criminalist R. S. Belkin believes that the forensic examination is a generic concept of research conducted in accordance with criminal procedure or civil procedure law, a person who has special knowledge in science, technology, art, craft, in order to find out the circumstances (factual data) that are relevant to the case [2].

Studying this concept, T.S. Volchetskaya explains it in a broad sense as the research conducted by the experienced person to answer the questions required special (scientific, professional, investigative) knowledge, and means that non –forensic examination, in contrast to the forensic examination is appointed due to proceedings and conducted not in procedural form [3].

According to V. Yu. Shepitko, forensic examination is the procedural action which consists in the examination by the forensic expert on assignment of the investigator or judge of material evidence and other materials with the purpose to determine factual data that are important for the correct resolution of the case [4].

V. V. Gordeev under the term "forensic examination" understands as one of the types of examination which has special features defined by law [5].

Forensic examination, as Yu. Ya. Loza notes, is the research that is conducted by the subject of procedural activity (forensic expert) in order to elicit facts that are important for resolving a specific legal case [6].

M. I. Lutsky emphasizes that the forensic examination is not only a research, but also an assessment of the facts discovered by the forensic expert within his competence. In his opinion, forensic examination is a statutory activity of a specialist whose knowledge in the relevant field of science, technology, art, craft on the basis of procedural court documents is used in the investigation of the circumstances of the case to determine the objective truth [7].

O. I. Zherebko understands forensic examination as an investigative action on the organization and tactics of using special knowledge in order to obtain

---

[1] Великий енциклопедичний юридичний словник: А — Я/за ред. Ю. С. Шемшученка. Київ, 2007. P. 232.

[2] Белкин Р. С. Криминалистическая энциклопедия. 2-е изд., доп. Москва, 2000. P. 305.

[3] Волчецкая Т. С. Основы судебной экспертологии: учеб. пособ. Калининград, 2004. P. 6—7.

[4] Шепітько В. Ю. Довідник слідчого. Київ, 2001. P. 130.

[5] Гордєєв В. В. Доказування в адміністративних справах, пов'язаних з виборчим процесом: дис. … канд. юрид. наук. Київ, 2009. P. 94.

[6] Лоза Ю. Я. Експертиза в адміністративному судочинстві: дис. … канд. юрид. наук. Київ, 2011. P. 12.

[7] Луцький І. М. Судово-психіатрична експертиза в адміністративному процесі: навч. посіб. Івано-Франківськ, 2012. P. 12.

evidence by methods of scientific research, which is performed on behalf of investigators and judicial bodies and reflected in the expert conclusion [1].

The term "forensic examination" has recently been used in the procedural legislation, focusing on the procedural features of the judiciary (compared to the examination in other areas of human activity), as well as on the subject of the forensic examination — the forensic expert who is a subject of procedural activity.

Based on the analysis of works of current Ukrainian scientists [2], we may single out the main features of the forensic examination: the study of issues by the forensic expert as a process of applying special knowledge; procedural form of appointment of forensic examination; procedural independence and individual responsibility of the forensic expert; comprehensive and objective conduct of the forensic examination; direct research of objects of the examination; procedural written registration of results in the special document — the expert conclusion; providing the conclusion, etc.

So, nowadays, under the concept "examination" the specialists understand mainly the way of comprehension, studying and verification of evidences, and under the term "forensic examination" not only examination but one whose results are used during the trial (administrative, civil, criminal, etc.). A characteristic feature of the process is the quite strict procedural form as a way of its existence.

Secondly, it is necessary to distinguish between such related terms as "expert" and "knowledgeable person".

In the provisions of Art. 69 of Criminal Procedural Code of Ukraine indicated that in the criminal proceedings the expert is the person who has scientific, technical or other special knowledge, as well as in accordance with the Law of Ukraine: *On Forensic Science* the right to conduct the forensic examination, and who is entrusted with researching objects, phenomenon and processes that contain information on circumstances of the criminal offense, and providing the conclusion on issues arising during criminal proceedings and relating to the field of its knowledge [3].

As we have already mentioned above, in professional literature (along with the term "expert"), the term "knowledgeable person" is widely used. Generally,

---

[1] Жеребко О. І. Компетенція експертизи і компетентність експерта, співвідношення понять: зб. мат-лів Міжнар. наук.-практ. конф./Ірпінська фінанс.-юрид. акад. Ірпінь, 2012. P. 100.

[2] E.g., наприклад: Комзюк А. Т., Бевзенко В. М., Мельник Р. С. Адміністративний процес України: навч. посіб. Київ, 2007. P. 292—293 ; Когут О. В. Правовий статус експерта в адміністративному процесі//*Вісник Хмельницького інституту регіонального управління та права*. 2002. № 3. P. 97—103 ; та ін.

[3] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented). URL: http://zakon3.rada.gov.ua/laws/show/4651-17 (date accessed: 01.08.2020).

this concept outlines the collective name of persons that meet the needs judiciary in special knowledge [1].

For example, O. O. Bondarenko defines knowledgeable people as any disinterested in resolving the case of competent persons who have special knowledge in a particular field of science, technology, arts, crafts and experience in their application and involved by the coroner, investigator, prosecutor, court (judge) to participate in criminal case in order to assist them in resolving issues that require the application of special knowledge and practical skills [2].

V. M. Makhov suggests to use the term "knowledgeable people" to all persons who have special knowledge and skills of their application, disinterested in the result of the case, summoned by the investigator, court to assist in clarifying the truth of the case in cases and forms provided by law [3]. Overall, we support the thought of the scientist, though, we should note that in the definition the author emphasizes not only on special knowledge, but also on "skills of their application". We can not agree with this it because the category "special knowledge" belongs not to the cognitive theory but to a specific legal field. Therefore, we share the point of view of those scientists, who consider skills and abilities to be part of special knowledge [4]. In our opinion, it is impossible to apply special knowledge without established skills, because these elements are integral and functionally interconnected parts.

A. F. Volobuiev believes that the knowledgeable person is the disinterested in the results of the case, who has special knowledge in the certain field and involved in the detection and investigation of crimes to solve special issues [5].

According to M. H. Shcherbakovskyi and D. V. Kurilenko, knowledgeable persons are any specialists, except for professional participants in the process, who have special (non-legal) and legal knowledge [6].

Thirdly, experts and/or knowledgeable persons are carriers of special knowledge.

The history of special knowledge has been beginning with the emergence of the first types of state and legal relations, when certain rules of behavior,

---

[1] Шерстюк В. М. Правова регламентація використання знань обізнаних осіб у проектах Кримінально-процесуального та Цивільного процесуального кодексів України//*Вісник Академії правових наук України.* 2002. № 4 (31). Харків, 2002. С. 634.

[2] Бондаренко О. О. Процесуальний статус обізнаних осіб та їх правовідносини з дізнавачем та слідчим у кримінальному судочинстві України: автореф. дис. … канд. юрид. наук. Харків, 2004. Р. 9.

[3] Махов В. Н. Использование знаний сведущих лиц при расследовании преступлений: монография. Москва, 2000. Р. 54.

[4] Лазарева Л. В. Специальные знания и их применение в доказывании по уголовному делу: монография. Москва, 2009. Р. 24—25.

[5] Волобуєв А. Ф. Проблеми методики розслідування розкрадань майна в сфері підприємництва: монографія. Харків, 2000. Р. 250.

[6] Щербаковський М. Г., Куриленко Д. В. Op.cit. Р. 153.

customs and laws were initiated and first violated. The commission of illegal actions necessitated special rules and methods of detection and investigation of crimes, identification of criminals. Accordingly, special knowledge was formed within the process specific to a particular society. Of course, the emergence of forensic tools, techniques and methods associated with the administration of justice, investigative, research and expert practice [1].

The theoretical category "special knowledge" was considered in the last century and developed by such well - known specialists in the field of law as: V. Arseniev, A. Vinberg, V. Honcharenko, M. Kostytsky, H. Nahornyi, Yu. Orlov, I. Petrukhin, O. Eisman and others. However, until today, it attracts the attention of many scientists because it is very relevant. The team of forensic scientists of Ukraine, the Republic of Lithuania and other countries prepared and published in 2016 the first volume of the textbook on Criminalistics in English, edited by H. Malevski, Professor at Mykolas Romeris University and V. Yu. Shepitko, Professor at Yaroslav Mudryi National Law University [2], in which the basics of application of special knowledge are considered.

As O. O. Eisman points out, special knowledge is not well-known, not publicly available, but that is not widespread; in other words, it is knowledge that has a limited range of specialists, and deep knowledge in the field (e.g., physics) is in this sense special to the biologist; this is knowledge that the addressee of the evidence does not have (investigator, court, participants of the process) [3]. This concept has provoked a heated debate among scientists. Some specialists disagreed with this definition. For instance, O. V. Shmonin criticizes this concept rightly emphasizing that such an argument (knowledge that the addressee of evidence does not have) can not be considered correct, because a person, who will have any knowledge according to this conception, always will have special knowledge, which usually should be, but with a general understanding of this concept [4]. V. M. Makhov, on the contrary, argues that O. O. Eisman rightly emphasized the essential feature of special knowledge, namely, that they are not publicly available and not well-known [5]. A. V. Dulov also agrees with the last scientist, who notes that special knowledge is knowledge that investigators and judges lack [6].

---

[1] 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. P. 11.

[2] Textbook of Criminalistics. Vol. 1: General Theory/ed. by H. Malevski, V. Shepitko. Kharkiv, 2016. 488 p.

[3] Эйсман А. А. Заключение эксперта. Структура и научное обоснование. Москва, 1967. P. 89—91.

[4] Шмонин А. В. Понятие и содержание специальных познаний в у //головном процессе//*Российский судья*. 2002. № 11. P. 11.

[5] Махов В. Н. Op.cit. P. 55—56.

[6] Дулов А. В. Вопросы теории судебной экспертизы.. Минск, 1959. P. 4.

According to Yu. K. Orlova, special knowledge is the knowledge that overcomes the boundaries of general education and life experience. Only a certain narrow circle of people has them [1]. A similar view is held by M. K. Treushnikov, who notes that special knowledge should be understood as knowledge that is outside the legal knowledge, well-known generalizations arising from human experience [2].

Special knowledge, according to H. M. Nahornyi, is knowledge gained as a result of professional training in scientific, engineering, industrial specialties, as well as other well-known knowledge needed to address issues in case [3]. B. V. Romaniuk notes that special knowledge is a set of scientifically substantiated information of a separate (special) type that individuals (specialists) have within any profession in various fields of science, technology, art and craft [4].

Special knowledge, according to V. M. Revaka, is a system of information in the field of science, technology and other spheres of human activity, as well as a system of techniques and skills acquired by the subject as a result of purposeful, volitional activity with significant time and intellectual effort which may, in the manner prescribed by law, assist law enforcement bodies in the detection and investigation of crimes and the adoption of a lawful, substaintiated and fair conclusion in the criminal case [5].

A detailed definition of the term "special knowledge" is given by M. H. Shcherbakovskyi, understanding the professional skills gained by the knowledgeable person in the process of practical activities in various fields of science, technology and other socially useful areas of human activity, which are used jointly with scientific and technical means during the examination. The content of special knowledge is theoretically substantiated and tested in practice the provisions and rules relating to any field of science, technology, art [6].

Based on the analysis of the above definitions, we propose *the author's definition of "special knowledge" during detection and investigation crimes in the field of computer information and high technology*, which means knowledge in various fields of science, including law, technology, arts and crafts, concerning computer information and high technology obtained in the framework of professional or special education, professional activities that contain knowledge of theory, skills and abilities and which participants in civil, economic,

[1] Орлов Ю. К. Заключение эксперта как источник выводного знания в судебном доказывании: автореф. … д-ра юрид. наук. Москва, 1985. P. 6—7.

[2] Треушников М. К. Судебные доказательства. Москва, 1997. P. 269.

[3] Нагорный Г. М. Гносеологические аспекты понятия «специальные знания»// *Криминалистика и судебная экспертиза.* Киев, 1980. № 21. P. 42.

[4] Романюк Б. В. Сучасні теоретичні та правові проблеми використання спеціальних знань у досудовому слідстві: дис. … канд. юрид. наук. Київ, 2002.

[5] Ревака В. М. Форми використання спеціальних пізнань в досудовому провадженні: дис. … канд. юрид. наук. Харків, 2006. P. 29.

[6] Щербаковський М. Г. Судова експертологія: навч. посіб. Харків, 2008. P. 6.

administrative and criminal proceedings use to clarify the circumstances to be proved in specific cases, in the manner prescribed by the relevant procedural legislation of Ukraine.

The specialization of knowledgeable people in the field of computer technology is determined by the absence of in-depth knowledge and experience with certain operating systems and software, computer networks and technical devices. In this regard, when appoint the examination, the subject specialization of experts and specialists should be taken into account when involving knowledgeable persons in investigative actions.

Like any other type of forensic examination, the need for which arose in the late XX century with the emergence of new types of crimes and the improvement of technical means (genetic, linguistic), computer expertise has overcome all stages of development: from the formulation of the subject and tasks, definition of terminology — to the formation of a modern academic and methodological school that meets the requirements of criminal procedure, high technology facilities. At different stages of formation of this type of examination, scientists have used different names (software, computer engineering, forensic examination of information and computer systems, information technology, forensic cybernetics). Today, the term "technical examination in computer" (hereinafter referred to as *TEC*), which is used in forensic institutions of the Ministry of Justice of Ukraine. We believe that the current terminology is not definitive. The use of terms is directly or indirectly related to the emergence of new or obsolescence of existing technical means, so in the future it is possible both the emergence of new types of technical examination in computer and change its name. However, regardless of the name, its high technocracy and the need for it by both law enforcement agencies and society as a whole remain unchanged.

The main task of forensic experts during their technical examination in computer is to answer questions that require special knowledge in the field of "forensics" (computer forensics) — knowledge of methods of searching, consolidating and investigating digital evidence of crimes related with computer information (cybercrime).

Technical examination in computer makes it possible to form a comprehensive evidence base by solving most diagnostic and identification issues, i.e., solves problems related to the search, detection, evaluation and analysis of information contained in a computer system. As a result of TEC, which is carried out during the investigation of crimes related to information security breaches in open computer networks, theft (destruction, modification) of information and information security breaches, information about the vulnerability of information processing in information systems. At the same time, information security specialists can use the results of TEC to improve modern means of information protection and information security.

Given the developments of foreign and domestic scientists [1], the current level of science and technology development, practical experience of TEC, it is clear that the main objects of research in the field of TEC are integrated and embedded systems, open systems, communication systems and multimedia objects. Mostly the purpose of such research is to solve diagnostic and identification problems during the study of the information system, access to electronic equipment and information. Thus, special attention is paid to telecommunication services *SMS, EMS, MMS* during research of mobile terminals, because they can provide information about persons involved in criminal acts (in particular, in mobile networks) [2].

A significant amount of work of forensic experts of domestic forensic institutions and their foreign colleagues (for example, in the Netherlands, the Czech Republic, Italy) is associated with the study of *open systems*, which cover various operating systems, their architectures, hardware and software complexes. The hardware objects of examination in this case are various computer systems: from miniature personal computers to extremely large supercomputers. These systems are characterized by the presence of various electronic data storage devices: from hard and floppy disks, tapes, *CD-ROM, DVD,* magneto-optical drives to *RAID* arrays, i.e. the analysis of the computer environment. In general, experts successfully use during the investigation of crimes and obtaining information from electronic media such operations as: breaking password protections; modeling the memory of remote electronic devices in computer memory (organizers, cell phones, SIM cards, smart cards and modules, smartphones and other storage media) - using hardware software (*Cardreader CardLaвs*) etc.

Geographic information systems and communication information systems are the next promising area of experts specializing in open network systems. The main tasks here are the analysis of various information flows in order to detect them, interpret messages, recover information, decode data, identify

[1] E.g., наприклад: Можаєв О. О., Логвиненко М. О., Чорний С. В. Автоматизована система накопичення емпіричних даних у сфері комп'ютерно-технічних експертиз//*Актуальні питання протидії кіберзлочинності та торгівлі людьми:* зб. мат-лів Всеукр. наук.-практ. конф. (Харків, 23.11.2018). Харків, 2018. P. 296—298 ; Харківський П. П. Комп'ютерно-технічна експертиза: проблемні питання// *Криміналістичний вісник:* наук.-практ. зб./голов. ред. В. В. Чернєй. Київ, 2014. № 2 (22). P. 97—100 ; Комаха В. О. Тактические особенности предварительного исследования криминалистических объектов и назначения судебных экспертиз: монография. Винница, 2006. 736 с ; Завдов'єва І. Г., Макарук К. Є. Особливості призначення і проведення комплексних комп'ютерно-технічних та економічних судових експертиз//*Криміналістичний вісник:* наук.-практ. зб./голов. ред. В. В. Чернєй. Київ, 2014. № 2 (22). P. 105—111 ; та ін.

[2] Вехов В. Б. Основы криминалистического учения об исследовании и использовании компьютерной информации и средств ее обработки: монография. Волгоград, 2008. P. 203—217.

various algorithms and etc. A prominent place in the expert study is occupied by the study of data transmission protocols, in particular the full stack of protocols by *OSI* levels [1]. This model contains routing and transport protocols. A separate type is the study of telecommunications networks to provide *GSM, GPS, GPRS*-cellular communications. However, the actions of specialists (interception of communication signals, their analysis, identification of local and global communication systems, geographical area, user / destination localization) are most often associated with operational and investigative activities, so experts use them only with applied purpose to solve individual problems. A similar situation is observed in studies related to the investigation of various crimes on global networks. This area of special knowledge includes the task of identifying and diagnosing network users, their resources, and analyze the work of providers, the characteristics of the studied traffic and Internet information systems, the activity of using various browser programs and more. Modern Internet technologies, software development technologies (*OLE, ActiveX*), various *plug-ins, Java*-applets significantly expand the list of possible data formats and software objects that are in the field of attention of experts. This list of areas of technical examination in computer is not exhaustive, it can be changed and supplemented, taking into account the modern development of computer technology, high technology and software, as well as the development of new methods of research of hardware and software. This approach, in our opinion, allows for a more effective selection of experts with special knowledge to involve in the detection and investigation of crimes in the field of computer information and high technology, as well as to reduce the time of examinations by clearly defining tasks and their distribution. between specific professionals.

Also noteworthy is the proposal of scientists at National Scientific Center **"**Hon. Prof. M. S. Bokarius Forensic Science Institute**"** on the development of an automated system for the accumulation of empirical data on computer-technical research, organization of access to it and user manual, a kind of forensic Wikipedia, which will receive information materials from expert practice and scientific works on this type of forensic examination [2].

Conclusions. Summarizing the above, we note that the development of nanotechnology and the merging of neurotechnology with microelectronics, the formation of psychotechnical examinations, technologies of geographic information systems, the active introduction of fundamentally new technologies based on telecommunications and information components, indicate the importance of further development of existing computer -technical examination.

In order to increase the effectiveness of combating cybercrime, in parallel with the development of methodological support for expert research and training of forensic experts, including their gaining of the latest special knowledge, it is necessary to hold regular international meetings of forensic experts, law

[1] Стандартизована модель мережевої архітектури.

[2] Сімакова-Єфремян Е. Б. Op.cit. P. 155.

enforcement agencies, specialists and experts. The purpose of these measures is to specify the main areas of this type of activity and exchange of experience, as well as cooperation in combating international criminal groups specializing in computer information and high technology.

References

Bandurka, O. M., Zatserklianyi, M. M., Veprytskyi, R. S. (2013). *Zlochynnist v Ukraini: ekonomiko-kryminolohichnyi analiz:* monohrafiia. Ed.: d-r yuryd. nauk, prof. O. M. Lytvynov. Kharkiv [in Ukrainian].

Belkin, R. S. (2000). *Kriminalisticheskaia entciklopediia.* 2-e izd., dop. Moscow [in Russian].

Bondarenko, O. O. (2004). *Protsesualnyi status obiznanykh osib ta yikh pravovidnosyny z diznavachem ta slidchym u kryminalnomu sudochynstvi Ukrainy.* (Abstract of candidates thesis). Kharkiv [in Ukrainian].

Clovar inostrannykh slov. (1980). A. G. Spirkin (ed.). 7-e izd., pererab. Moscow [in Russian].

Dulov, A. V. (1959). *Voprosy teorii sudebnoi ekspertizy.* Minsk [in Russian].

Eisman, A. A. (1967). *Zakliuchenie eksperta. Struktura i nauchnoe obosnovanie.* Moscow [in Russian].

Hordieiev, V. V. (2009). *Dokazuvannia v administratyvnykh spravakh, poviazanykh z vyborchym protsesom.* (Candidates thesis). Kyiv [in Ukrainian].

Kharkivskyi, P. P. (2014). Kompiuterno-tekhnichna ekspertyza: problemni pytannia. *Kryminalistychnyi visnyk:* nauk.-prakt. zb. V. V. Cherniei. (ed.). Kyiv. № 2 (22) [in Ukrainian].

Kliuiev, O. M. (2018). Mizhnarodni standarty ta mizhnarodne spivrobitnytstvo u sferi sudovo-ekspertnoi diialnosti v Ukraini. *Aktualni pytannia sudovoi ekspertyzy ta kryminalistyky:* materialy Mizhnar. nauk.-prakt. konf., prysviach. 95-richchiu stvorennia KhNDISE im. Zasl. prof. M. S. Bokariusa (Kharkiv, 10—11.10.2018). Kharkiv [in Ukrainian].

Kohut, O. V. (2002). Pravovyi status eksperta v administratyvnomu protsesi. *Visnyk Khmelnytskoho instytutu rehionalnoho upravlinnia ta prava.* № 3 [in Ukrainian].

Komakha, V. O. (2006). *Takticheskie osobennosti predvaritelnogo issledovaniia kriminalisticheskikh obektov i naznacheniia sudebnykh ekspertiz:* monografiia. Vinnitca [in Russian].

Komziuk, A. T., Bevzenko, V. M., Melnyk, R. S. (2007). *Administratyvnyi protses Ukrainy:* navch. posib. Kyiv [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). URL: http://zakon3.rada.gov.ua/laws/show/4651-17 (data zvernennia: 01.08.2020) [in Ukrainian].

Lazareva, L. V. (2009). *Spetcialnye znaniia i ikh primenenie v dokazyvanii po ugolovnomu delu:* monografiia. Moscow [in Russian].

Loza, Yu. Ya. (2011). *Ekspertyza v administratyvnomu sudochynstvi.* (Candidates thesis). Kyiv [in Ukrainian].

Lutskyi, I. M. (2012). *Sudovo-psykhiatrychna ekspertyza v administratyvnomu protsesi:* navch. posib. Ivano-Frankivsk [in Ukrainian].

Makhov, V. N. (2000). *Ispolzovanie znanii svedushchikh litc pri rassledovanii prestuplenii:* monografiia. Moscow [in Russian].

Mozhaiev, O. O., Lohvynenko, M. O., Chornyi, S. V. (2018). Avtomatyzovana systema nakopychennia empirychnykh danykh u sferi kompiuterno-tekhnichnykh ekspertyz. *Aktualni pytannia protydii kiberzlochynnosti ta torhivli liudmy:* zb. materialiv Vseukr. nauk.-prakt. konf. (Kharkiv, 23.11.2018). Kharkiv [in Ukrainian].

Nagornyi, G. M. (1980). Gnoseologicheskie aspekty poniatiia «spetcialnye znaniia». *Kriminalistika i sudebnaia ekspertiza.* Kyiv. № 21 [in Russian].

Orlov, Iu. K. (1985). *Zakliuchenie eksperta kak istochnik vyvodnogo znaniia v sudebnom dokazyvanii.* (Abstract of candidates thesis). Moscow [in Russian].

Osnovy sudovoi ekspertyzy: navchalnyi posibnyk dlia fakhivtsiv, yaki maiut namir otrymaty abo pidtverdyty kvalifikatsiiu sudovoho eksperta.(2016). Avt.-uklad.: L. M. Holovchenko, A. I. Lozovyi, E. B. Simakova-Yefremian ta in. Kharkiv [in Ukrainian].

Ozhegov, S. I. (1991). *Slovar russkogo iazyka:* 70 000 slov. N. Iu. Shvedova (ed.). 23-e izd., ispr. Moscow [in Russian].

Revaka, V. M. (2006). *Formy vykorystannia spetsialnykh piznan v dosudovomu provadzhenni*: (Candidates thesis). Kharkiv [in Ukrainian].

Romaniuk, B. V. (2002). *Suchasni teoretychni ta pravovi problemy vykorystannia spetsialnykh znan u dosudovomu slidstvi.* (Candidates thesis). Kyiv [in Ukrainian].

Shcherbakovskyi, M. H. (2008). *Sudova ekspertolohiia:* navch. posib. Kharkiv [in Ukrainian].

Shcherbakovskyi, M. H. (2016). *Teoretyko-metodolohichni ta prakseolohichni zasady sudovykh ekspertyz u kryminalnomu protsesi.* (Abstract of candidates thesis). Kharkiv [in Ukrainian].

Shcherbakovskyi, M. H., Kurylenko, D. V. (2019). Obiznani osoby u sudochynstvi Ukrainy. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 19. URL: https://doi.org/10.32353/khrife.1.2019.11 (data zvernennia: 01.12.2020) [in Ukrainian].

Shepitko, V. Iu. (2013). O novellakh v ispolzovanii spetcialnykh znanii v ugolovnom protcesse Ukrainy. T*eoriia i praktika sudebnoi ekspertizy v sovremennykh usloviiakh:* materialy 4-i Mezhdunar. nauch.-prakt. konf. (Moscow, 30—31.01.2013). Moscow [in Russian].

Shepitko, V. Yu. (2001). *Dovidnyk slidchoho.* Kyiv [in Ukrainian].

Sherstiuk, V. M. (2002). Pravova rehlamentatsiia vykorystannia znan obiznanykh osib u proektakh Kryminalno-protsesualnoho ta Tsyvilnoho

protsesualnohokodeksiv Ukrainy. *Visnyk Akademii pravovykh nauk Ukrainy.* № 4 (31). Kharkiv [in Ukrainian].

Shmonin, A. V. (2002). Poniatie i soderzhanie spetcialnykh poznanii v ugolovnom protcesse. *Rossiiskii sudia.* № 11 [in Russian].

Simakova-Yefremian, E. B. (2017). Do pytannia vzaiemozalezhnosti yevropeiskykh intehratsiinykh protsesiv i tendentsii intehratsii spetsialnykh znan v Ukraini. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 17 [in Ukrainian].

Slovnyk inshomovnykh sliv. (1985). O. S. Melnychuk (ed.). 2-he vyd., vypr. i dopov. Kyiv [in Ukrainian].

Textbook of Criminalistics. (2016). Vol. 1: General Theory/ed. by H. Malevski, V. Shepitko. Kharkiv.

Treushnikov, M. K. (1997). *Sudebnye dokazatelstva.* Moscow [in Russian].

Vekhov, V. B. (2008). *Osnovy kriminalisticheskogo ucheniia ob issledovanii i ispolzovanii kompiuternoi informatcii i sredstv ee obrabotki:* monografiia. Volgograd [in Russian].

Velykyi entsyklopedychnyi yurydychnyi slovnyk: A — Ya. (2007). Ed.: Yu. S. Shemshuchenko. Kyiv [in Ukrainian].

Velykyi tlumachnyi slovnyk suchasnoi ukrainskoi movy. (2007). Ed.: V. H. Busel. Kyiv; Irpin [in Ukrainian].

Volchetckaia, T. S. (2004). *Osnovy sudebnoi ekspertologii:* ucheb. posob. Kaliningrad [in Russian].

Volobuiev, A. F. (2000). *Problemy metodyky rozsliduvannia rozkradan maina v sferi pidpryiemnytstva:* monohrafiia. Kharkiv [in Ukrainian].

Yurydychna entsyklopediia: u 6 t. (1998). Eds.: Yu. S. Shemshuchenko (vidp. red.) ta in. Kyiv. T. 2: D — Y [in Ukrainian].

Zavdovieva, I. H., Makaruk, K. Ye. (2014). Osoblyvosti pryznachennia i provedennia kompleksnykh kompiuterno-tekhnichnykh ta ekonomichnykh sudovykh ekspertyz. *Kryminalistychnyi visnyk:* nauk.-prakt. zb. V. V. Cherniei (ed). Kyiv. № 2 (22) [in Ukrainian].

Zherebko, O. I. (2012). *Kompetentsiia ekspertyzy i kompetentnist eksperta, spivvidnoshennia poniat:* zb. materialiv Mizhnar. nauk.-prakt. konf. Irpinska finans.-yuryd. akad. Irpin [in Ukrainian].

Н. Є. Філіпенко, О. П. Снігерьов, А. В. Бубліков

ЗАСТОСУВАННЯ СПЕЦІАЛЬНИХ ЗНАНЬ ПІД ЧАС ВИЯВЛЕННЯ, ПРОФІЛАКТИКИ Й РОЗСЛІДУВАННЯ ЗЛОЧИНІВ У СФЕРІ КОМП'ЮТЕРНОЇ ІНФОРМАЦІЇ ТА ВИСОКИХ ТЕХНОЛОГІЙ (оглядова стаття)

У статті проаналізовано концептуальні засади, погляди та ідеї щодо розуміння сутності та форм застосування спеціальних знань під час виявлення й розслідування злочинів у сфері комп'ютерної інформації та високих технологій, розглянуто її поняття.

Досліджено співвідношення дотичних між собою понять «експерт» та «обізнана особа», адже однією з головних проблем, яку не можна оминути в межах криміналістичного дослідження, є неоднозначність як наукового розуміння, так і практичного застосування відповідного понятійно-категоріального апарату. На нашу думку, під «спеціальними знаннями» під час виявлення й розслідування злочинів у сфері комп'ютерної інформації та високих технологій розуміються знання в різних галузях науки (зокрема, техніки, мистецтва й ремесла) стосовно комп'ютерної інформації та високих технологій, здобуті в межах професійної або спеціальної освіти, професійної діяльності, які містять знання теорії, навички й уміння і які учасники цивільного, господарського, адміністративного та кримінального судочинства застосовують для з'ясування обставин, що підлягають доведенню з конкретної справи, у порядку, передбаченому відповідним процесуальним законодавством України.

Ключові слова: судова експертиза, спеціальні знання, експерт, обізнана особа, комп'ютерна інформація, технології, комп'ютерно-технічна експертиза, судово-експертні установи.

Н. Е. Филипенко, А. П. Снигерёв, А. В. Бубликов

ИСПОЛЬЗОВАНИЕ СПЕЦИАЛЬНЫХ ЗНАНИЙ ПРИ ВЫЯВЛЕНИИ, ПРОФИЛАКТИКЕ И РАССЛЕДОВАНИИ ПРЕСТУПЛЕНИЙ В СФЕРЕ КОМПЬЮТЕРНОЙ ИНФОРМАЦИИ И ВЫСОКИХ ТЕХНОЛОГИЙ (обзорная статья)

В статье проанализированы концептуальные основы, взгляды и идеи относительно понимания сущности и форм использования специальных знаний при выявлении и расследовании преступлений в сфере компьютерной информации и высоких технологий, рассмотрены её понятия.

Исследовано соотношение похожих между собой понятий «эксперт» и «знающее лицо», ведь одной из главных проблем, рассматриваемых в рамках криминалистического исследования, является неоднозначность как научного понимания, так и практического применения соответствующего понятийно-категориального аппарата. По нашему мнению, под «специальными знаниями» при выявлении и расследовании преступлений в сфере компьютерной информации и высоких технологий понимают знания в различных областях науки, в том числе техники, искусства и ремесла, применительно к области компьютерной информации и сферы высоких технологий, полученные в рамках профессионального или специального образования, профессиональной деятельности, включающие знания теории, навыки и умения и используемые участниками гражданского, хозяйственного, административного и уголовного судопроизводства для установления обстоятельств, подлежащих доказыванию по конкретному делу, в порядке, предусмотренном соответствующим процессуальным законодательством Украины.

Ключевые слова: судебная экспертиза, специальные знания, эксперт, знающее лицо, компьютерная информация, технологии, компьютерно-техническая экспертиза, судебно-экспертные учреждения.

Received by Editorial Board: 22.07.2020

Filipenko N. Ye., Snigerov O. P., Bublikov A. V. The use of special knowledge while identification, prevention and investigation of crimes in the field of computer-based information and high technologies (Review Article)//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 162—178. DOI: https://doi.org/10.32353/khrife.2.2020.12.

DOI: https://doi.org/10.32353/khrife.2.2020.13
UDC 343.98

A. O. Polianskyi,
PhD in Law, Docent, Head of R&D and Publishing Laboratory
at National Scientific Center "Hon. Prof. M. S. Bokarius
Forensic Science Institute", Kharkiv, Ukraine,
ORCID: 0000-0003-1684-7567, e-mail: anton_polianskyi@ukr.net
G. Juodkaite-Granskiene,
PhD in Philosophy, Doctor of Social Sciences, Professor at Vilnius University,
Vilnius, Republic of Lithuania,
ORCID: https://orcid.org/0000-0002-5335-1811,
e-mail: gabriele.juodkaite-granskiene@tf.vu.lt

Regarding relation between classification of forensic science general theory tasks and practical forensic activity (Review Article)

The article analyzes conceptual foundations, views and ideas as to understanding of the essence of the classification of forensic science general theory tasks. The main views of scientists concerning classification of forensic examination typical tasks are analyzed. Information is established by examining properties of individual objects or characteristics of several objects interaction process. Special (individual) tasks of the forensic science general theory include: research on the development and formation of forensic examination types, expansion of the scope of their practical application; design of the latest types and kids of forensic examinations in connection with the emergence of modern facilities or improvement of methods and techniques existing in forensic practice; modernization of software for an expert workstation; improvement of the practical activities of forensic experts and emergence of scientific research innovative tasks in the field of forensic science; planned enhancement of existing scientific knowledge and improvement of general and individual theories of forensic science; development (taking into account current realities) of methods and techniques for assessing an expert conclusion.

Having analyzed the trends in the development of individual theories of forensic science and forensic practice, we suggest to supplement the outlined special tasks of forensic science theory with the following: development of systemic links between state and non-state entities of forensic activity; development and rationalization of organizational foundations of forensic activity, including the development of an individual rating of a particular forensic expert and of a forensic science institute in general.

It has been proved that a scientifically grounded classification of forensic science general theory tasks and general tasks of practical forensic activity increases efficiency of forensic activity implementation, helps to identify and investigate crimes, to establish circumstances to be proved in a particular case in the manner stipulated by a corresponding procedural legislation of Ukraine.

Keywords: forensic science, forensic examination, identification task, diagnostic problem, situational task, classification, forensic science institutes.

© A. Poliankyi, G. Juodkaite-Granskieve, 2020

Formulation of Research Problem. Advancement of the mechanism of law enforcement and strengthening of legal reform require implementation of the newest approaches and justice at all state institutions. Particularly complex requirements are imposed on forensic expert activity which supports law enforcement and judicial bodies with objective evidence obtained as a result of the use of special knowledge. The concern of the country government with shortcomings of legal regulation, scientific-methodical and organizational support of forensic activity becomes even clearer. For example, the President obliged the relevant bodies to develop and submit to the Verkhovna Rada of Ukraine by the end of this year draft laws on amendments to some legislative acts of Ukraine as to creation of a system of forensic experts self-government, introduction of review of an expert conclusion and setting of timing for conducting forensic examinations [1]. We entirely agree with the view of O. M. Kliuiev who states that the study of current legislation and acquired results of researches allows to identify the range of existing problems of theoretical-legal and organizational content regrading formation of forensic science modern paradigm according to the standards of the European Union and creation of justice forensic support system [2].

Though, currently, forensic science theory actively develops, accumulated material has not been realized in due manner, the majority of its provisions necessitate not only confirmation but also continuous rethinking and advancement. The analysis of accumulated practical experience in the field of forensic support of justice demonstrates that provisions should be further developed as to forms and methods of forensic expert activity, classification of forensic examinations, consideration of ratio between classification tasks of general theory and practical forensic activity.

Analysis of Esssential Researches and Publications. The scientific papers of such outstanding scientists and practitioners as T. V. Averianova, R. S. Bielkin, N. I. Klymenko, O. M. Kliuiev, I. V. Pyrih, M. V. Saltevskyi, O. R. Rossynska, M. Ya. Sehai, E. B. Simakova-Yefremian, O. P. Uhrovetskyi, V. Yu. Shepitko, M. H. Shcherbakovskyi [3] and others are dedicated to consideration of forensic

[1] Про невідкладні заходи з проведення реформ та зміцнення держави. Указ Президента України від 08.11.2019 № 837/2019. URL: https://zakon.rada.gov.ua/laws/show/837/2019 (date accessed 25.11.2020 р.)

[2] Клюєв О. М. Удосконалення експертного забезпечення правосуддя:теоретичні, правові, та організаційні аспекти//*Теорія і практика судової експертизи та криміналістики:* зб. наук. пр. Харків, 2019. Вип. 19. P. 102—117. URL: https://doi.org/10.32353/khrife.1.2019.08 (date accessed: 01.12.2020).

[3] E.g., Клюєв О. М. Міжнародні стандарти та міжнародне співробітництво у сфері судово-експертної діяльності в Україні//*Актуальні питання судової експертизи та криміналістики:* мат-ли Міжнар. наук.-практ. конф., присвяч. 95-річ. створ. ХНДІСЕ ім. Засл. проф. М. С. Бокаріуса (Харків, 10—11.10.2018). Харків, 2018. P. 5—8 ; Клименко Н. І. Загальна теорія судової експертології: поняття і місце в системі наукового знання//*Збірник наукових праць Ірпінської фінансово-юридичної*

science general theory and forensic activity classification tasks. Despite theoretical and practical significance of scientific papers by indicated scientists, still there are many unresolved issues in forensic activity that need to be addressed, especially those raised by modern forensic, investigative and judicial practice (for example, classification of forensic science tasks).

Research Methods. For objective and subjective cognition, development of practical use of forensic science theory, general scientific methods have been applied. The main general scientific method is dialectical as well as comparative, since the problem being studied in this scientific paper is based on the analysis of individual theoretical notions in forensic expertology. In order to study the problem in more detail, certain methods are used, such as content analysis (research on legal sources and invariability of material), logical and legal (when analyzing and interpreting legal norms), which allows to eliminate contradictions, etc.

The **Article Purpose** is study of general theoretical and applied issues of tasks of forensic science general theory and practical forensic activity.

Main Content Presentation. Resolution of problems associated with tasks of forensic science general theory and practical forensic activity have always been of great scientific and practical importance. This classification allows to determine directions of research activities of scientists and forensic experts-practitioners, contributes to the qualitative solution of urgent problems in justice forensic support.

The tasks of forensic science general theory as a branch of scientific knowledge are divided into general and special. T. V. Averianova suggests to specify the general task of forensic science theory: creation of a scientific basis for functioning and development of the field of special knowledge use in forensic examination as practical activity to acquire reliable information for the needs of judiciary [1].

академії (економіка, право). 2013. Вип. 2. Р. 101—106 ; Пиріг І. В. Теоретичні основи експертної діяльності органів внутрішніх справ: монографія. Дніпропетровськ, 2011. 312 р. ; Клименко Н. І. Судова експертологія: курс лекцій: навч. посіб. для студент. юрид. спец. вищ. навч. закл. Київ, 2007. 528 р. ; Сімакова-Єфремян Е. Б. Щодо необхідності реформування базового законодавства України про експертне забезпечення правосуддя//*Проблеми реформування базового законодавства України з питань експертного забезпечення правосуддя:* мат-ли круглого столу (Харків, 06—07.02.2020). Харків, 2020. Р. 12—15 ; Щербаковський М. Г. Типові завдання судово-експертного дослідження//*Право і безпека.* 2016. № 4 (63). Р. 6—11 ; Кунділовська Т. А., Хомутенко В. П., Хомутенко А. В. Теорія та практика проведення судових експертиз за напрямком інженерних, економічних, товарознавчих видів досліджень та оціночної діяльності: монографія/за ред. В. П. Хомутенка, О. Ю. Костіна. Одеса, 2018. 274 р. ; та ін.

[1] Аверьянова Т.В. Судебная експертиза. Курс общей теории. Москва, 2008. 480 р.

Special tasks of forensic science theory include: study of regularities of emergence and development of specific types of forensic examinations, widening of the scope of their possibilities; creation of the newest species and subspecies of forensic examinations and expert researches in connection with emergence of new objects (for example, forensic gemological examination) or advancement of existing methods and methodologies in forensic practice (for example, art authentication and appraisal); development of the expert's workstation software according to species and subspecies of forensic examinations which he should conduct; adjustment of forensic practice activity processes and research tasks in the field of forensic science; systematic strengthening of scientific knowledge and enhancement of general postulates of forensic science as a scientific predictive category; creation of modern methodologies (evaluative categories) of an expert conclusion assessment which boost their full use while court proceedings [1].

Analyzing the development of individual forensic science theories in relation to forensic activity, we propose to supplement the mentioned special tasks of the theory of forensic science with the following:

- development of systematic links between state and non-state (private) forms of forensic activity implementation;
- advancement of organizational foundations of forensic activity, including the development of individual rating of a forensic expert, improvement of the system of state and non-state (private) forensic science institutes.

Tasks of practical forensic activity, according to T. V. Averianova views, are: continuous increase in forensic expert competence, advancement of professional mastery; search for the ways for increasing expert conclusions degree of specificity; optimization of the form and content of expert conclusions; mastering computer literacy basics by forensic experts; creation of data (collections, samples, etc.) banks of supplementary expert source information; development of information and legal basis for realization of forensic preventive activities [2].

In our opinion, in connection with the development of a number of provisions of the general theory of forensic science, these tasks can be supplemented as follows:

- development and systematic improvement of ethical requirements for a forensic expert (moral, professional criteria of a forensic expert behavior);
- creation of a system of collection and dissemination in Ukraine of scientific and methodological information on the best foreign experience of forensic activity.

Tasks of forensic science general theory as a branch of scientific knowledge serve as a certain basis for consideration of general tasks of practical forensic activity.

[1] E.g., Клименко Н. І. Загальна теорія судової експертології … ; Кунділовська Т. А., Хомутенко В. П., Хомутенко А. В. Op. cit. ; etc.

[2] Аверьянова Т. В. Op. cit.

According to M. H. Shcherbakovskyi, it is impossible to develop a logically clear classification of typical forensic expert tasks without choosing a certain general foundation. The general unifying link of all forensic expert tasks is information arising in crime commission while interaction of elements of an event mechanism and which is received from physical sources during expert research. Physical media are considered as systems that simultaneously reflect and perceive [1].

The analysis of scientific literature has shown that a number of scientists adhere to the idea as to division of expert research tasks in accordance with main purposes and set tasks into three big groups: classification, identification and diagnostic. In particular, N. P. Mailis rightly includes in the group of identification tasks the following: identification of a certain person, animal, objects by their representation (traces). She emphasizes that while resolution of diagnostic tasks a forensic expert establishes properties and states of an object, the possibility of traces formation in specific conditions, mechanism of objects interaction, etc.; explains that when solving classification tasks, characteristics and properties of an object are set to establish its affiliation to a corresponding class. The solution of classification tasks is carried out as a result of diagnostics of object, and classification is organically included in the group of diagnostic tasks [2]. We entirely share this view, but we believe that solution of situational tasks aimed at establishing circumstances of an event (for example, the mechanism of interaction) can be distinguished as a separate category of tasks.

According to M. H. Shcherbakovskyi, all typical forensic expert tasks can be divided depending on the ultimate goal of research into certain basic classes and corresponding types: 1) establishing properties of individual objects which is the basis for solving identification and diagnostic tasks; 2) determining characteristics of the process (mechanism) of several objects interaction as a basis for solving situational tasks [3].

Another group of scientists [4] suggests to divide main tasks of forensic science into four groups: identification, diagnostic, intermediate and supplementary. At the same time, they argue the essence of identification tasks solution as identification of an object according to its representation and rightly present diagnostic tasks as identification of the mechanism of an event, time, manner, quantitative and qualitative characteristics of objects, logically identifying classification tasks as one of "subtasks" of diagnostic forensic examination. We don't share this point of view entirely thinking that two last groups of tasks (intermediate and supplementary) should be excluded from the researched classification section, since a group of intermediate tasks is included in classification tasks section on

[1] Щербаковський М. Г. Op. cit.

[2] Майлис Н. П. Руководство по трасологической экспертизе: учеб. для вузов. Москва, 2007.

[3] Щербаковський М. Г. Op. cit.

[4] Клименко Н. І. Судова експертологія: курс лекцій … .

other grounds: on the stages of the process of expert research, and a group of supplementary tasks, accordingly, to the section of classification, which basis is the scope of carried out tasks: main and supplementary (attributive) tasks. Undoubtedly, resolution of the main task will be the answer to a question posed to a forensic expert, and resolution of supplementary tasks is to identify certain properties and characteristics of a studied object which contribute to resolution of the main expert task.

In view of the above, we deem to believe that tasks of practical forensic activity (expert task) with regard to the character of main purposes and addressed issues are divided into three big groups: identification, diagnostic and situational.

As modern Ukrainian specialists emphasize, solution of identification tasks is realized in the main four principles of the theory of forensic identification. *The first principle* of forensic identification is division of objects into those that are the subject to identification and those according to which identification is carried out. *The second principle* is division of objects into changeable and relatively unchangeable, that is recognition of identification possibility only if the object to be identified is able to retain its identity until the moment of research. *The third principle* is application in the process of identification of the most in-depth and detailed analysis combined with synthesis. *The fourth principle* is the study of each identifying feature in its dynamics, development, connection with previous and accompanying circumstances, i.e. this principle opposes the method of comparative research to means of live comparison. In general, identification is a consistent development of organically interconnected and conditioning each other [1] four basic principles.

Analysis of literary sources allows to conclude that while conducting different types of forensic examinations regardless of the nature of studied objects, experts professionally implement a few types of identification on the basis of physical traces. The first type of identification is implemented on the grounds of investigation of certain features of objects. The mentioned features are connected with the mechanism of crime, formed with the help of it and are represented as "imprints" of crime circumstances. Features of objects manifested in relations with other objects and processes of these features reflection is the essence of this type of identification [2].

Having analyzed professional scientific sources, we share the opinion according to which identical expert researches could be divided into the following subtypes:

- identification of the object according to physical embodiment of its properties on the other object. By onotological nature, properties are divided into signaling reflecting external structure of solid inorganic

[1] 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. P. 26.

[2] Щербаковський М. Г. Op. cit.

objects, and functional which represent motor functions of organic objects (for example, human body), movements of cars, mechanisms, etc.

- identification of a separated objects according to the parts that have been separated. Properties with the help of which identification is carried out encompass signaling and substantial representing physical, chemical, biological and other composition and structure of individual parts [1].

Another type of identification based on physical traces accordingly could include expert researches of objects and signs. The shape of a sign has no connection with its content. The semantics of a sign is completely determined by the agreement of people who use sign language (conventional nature of a sign). The substitute for the original is a sign. However, the signs of objects, in contrast to their properties, are not similar to the original object which is presented, and therefore they can be carriers of information about it only if signs already have value for the subjects of linguistic communication, that is if symbolic images of corresponding objects [2] have already been formed on their basis.

It is stated in the literary sources that one of the purposes of identification is identification of not only a specific, defined as a result of crime circumstances object, but also of a group, species and subspecies (so called "groupification") [3].

Diagnostic tasks are not identification tasks to establish properties and states of studied objects. Diagnostic tasks can be intermediate while solving identification tasks or acquire a separate, independent weight. Several classes of diagnostic tasks are distinguished:

- classification-diagnostic tasks are determination of certain characteristics of an object to assign it to generally accepted class. They arise at the initial stages of investigation and are investigative in nature: establishment of nature, purpose and scope of the object application, its physical embodiment, etc.;
- actual diagnostic tasks are establishment of objects condition (severity of injuries, serviceability of a weapon, suitability of a trace for identification, etc.);
- situational-diagnostic tasks are aimed at reproducing the external situation of the event (for example, establishment of an actual place of death, dating of document execution timing, determination of the distance and direction of shot, the place of a traffic collision, etc.);

---

[1] Алєксєєв О. О., Арешонков В. В., Атаманчук В. М. та ін. Криміналістика: мультимед. підруч./Кафедра криміналістики та судової медицини НАВС. URL: https://arm.naiau.kiev.ua/books/kruminalist/lections/lection_1.3.html (date accessed: 22.10.2020).

[2] Колдин А. В., Крестовников О. А. Источники криминалистической информации/под ред. В. Я. Колдина. Москва, 2007. 192 р.

[3] Салтевський М. В. Криміналістика (у сучасному викладі): підручник. Київ: Кондор, 2006. 588 р.

- causal-dynamic tasks are determination of cause and effect relation between components of an event, the possibility of performing certain actions and consequences [1] occurrence.

Situational tasks directed at establishing the mechanism of an event (the mechanism of formation of layers of different nature, contact of interaction objects, etc.) are considered to be a separate category.

Another important platform for classification of forensic expert tasks is division according to the level of development of methodologies for their solution. On its basis, tasks are usually divided into standard (algorithmic) and non-standard (heuristic, creative).

Algorithmic process of standard tasks resolution is presented as developed and scientifically grounded methodologies of objects expert research: methodologies to conduct forensic examinations. Thus, algorithms for solution of standard tasks are outlined in detail: documents: as methodologies of forensic examination of documents, methodologies of different types of forensic structural engineering examinations, forensic trace evidence analysis, road-accident analysis, forensic examination of cold-weapon and methodologies of other types, species and subspecies of forensic examinatons [2].

Unfortunately, it should be mentioned that a majority of methodologies appeared in Soviet times. With the development of the latest technologies, equipment, regulatory legal framework they became morally and physically outdated. The question of irrelevance of certain types of methodologies in connection with change of legislation has been considered multiple times at scientific and methodical seminars, scientific conferences and in scientific papers of Ukrainian scientists and practitioners. A remarkable example of obsolescence of forensic examination methods available in the Register of the Ministry of Justice of Ukraine are the methods of conducting forensic economic examinations which are mostly developed on the basis of current legislative and legal acts valid at the time of methodology introduction.

Therefore, the question of developing a mechanism for amending current methods in accordance with current legislation and creating a single algorithm that will adjust these methods, since in conditions of necessity of special knowledge use the question arise not only as to assessment of an expert conclusion, its integrity and procedure for obtaining the source of evidence but also in relation to its scientific validity [3].

---

[1] Алєксєєв О. О., Арешонков В. В., Атаманчук В. М. та ін. Криміналістика: мультимед. підруч. … . URL: https://arm.naiau.kiev.ua/books/kruminalist/lections/lection_1.3.html (date accessed: 22.10.2020).

[2] Кунділовська Т. А., Хомутенко В. П., Хомутенко А. В. Op. cit.

[3] Савченко І. О. Актуальні аспекти змінення методик проведення судових експертиз//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2013. Вип. 13. P. 443—451.

If it is necessary to resolve non-standard tasks, addressed to a forensic expert by an investigator, court, parties, a forensic expert independently search for the ways of their resolution, realizing their creative potential, and, as a result of tedious work finds answers to posed questions and develops the latest methodologies in forensic science. As I. V. Pyrih states, creation of new methodologies is a creative process based on understanding regularities of the process of features formation on studied objects, identification of these features with the use of certain means and methods. The specific purpose of creating new methods is to expand the amount of factual data provided for commissioner, based on the ability to solve new tasks, research on new objects, reduction of forensic examination timing, material and labor costs, reduction of the quantity of unresolved issues, increase in scientific level and integrity of solving expert tasks [1].

More and more forensic examinations which solution requires to set tasks to study not one but several information fields of an object, allows us to suggest another basis for classification of forensic expert tasks: depending on the need to study one or the system of information fields of an object. Depending on the number of information fields of an object to be studied while forensic examination, it is possible to distinguish integrative (Latin: *Integratio*: recovery, from *integer*: whole*,* the union of any parts or elements) and differentiated (Latin: *Differentia:* is difference, division, dismemberment, stratification of something into separate heterogeneous elements) forensic expert tasks.

We entirely agree with the view of E. B. Simakova-Yefremian and co-authors concerning the fact that integration of knowledge in the course of multidisciplinary examinations is the mechanism helping to exclude lack of evidence on the studied object, properly substantiate an expert conclusion, therefore, increase the level of its integrity and reliability. Since forensic activity [2] should be based on the principles of objectivity and research integrity.

As forensic practice demonstrates, integrative tasks are always solved in the course of conducting forensic multidisciplinary examinations, and differentiated tasks are solved while conducting separate forensic examinations or as stages of multidisciplinary examinations.

As a consequence of multidisciplinary examinations on the grounds integration of knowledge from various fields, new evidence information is revealed that should be investigated on the basis of this knowledge. According to such views the complexity of research is characterized: *firstly,* by the use of the sum of special knowledge from various sciences to solve individual forensic expert tasks, which cannot be resolved by the use of knowledge from one science;

[1] Пиріг І. В. Теоретичні основи експертної діяльності органів внутрішніх справ: монографія. Дніпропетровськ, 2011. Р. 228.

[2] 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. Харків, 2010. Вип. 10. Р. 151—161.

secondly, by parallel or subsequent research on different features of the same or several objects with the purpose of solving tasks of independent examinations [1].

Having concluded the analysis of classification of forensic examination tasks, let's consider classification of tasks taking place on the basis of practical forensic activity: tasks of a specific forensic examination.

As it is know, the tasks of a particular forensic examination are formulated by the investigator, court, other participants in the case as questions in the regulation (appeal) of the investigator, court or at the request of a participant in case on the appointment of forensic examination (involvement of a forensic expert).

In this case, the tasks cannot embrace the entire subject of particular species (subspecies) of forensic examination. Tasks of a specific forensic examination help to study the problem in dynamics and characterize the process of their solution.

To resolve tasks of a particular forensic examination, hierarchy of subtasks and the procedure for solving them is formed. This hierarchy is clearly represented in the methodologies of specific species (subspecies) of forensic examinations [2].

Having studied findings of scientists [3] and forensic experts-practitioners [4], *we propose to group the tasks of a particular forensic examination according to the following hierarchy*:

- attributive tasks. In the course of resolution of this type of tasks, certain identified objects are studied separately, their certain properties are established: shape, seizes, individual and group features, etc.;
- analytical and validation tasks. In the context of resolving this type of tasks the set of established properties, featrures of objects which are defined as suitable (or unsuitable) for further expert research is analyzed. For example, the general and individual features of the papillary pattern

[1] Гора І. В. Комплексна судова експертиза в аспекті дослідження міжгалузевого інституту судових експертиз в судочинстві України//*Вісник Академії адвокатури України*. 2014. Т. 11. № 3 (31). Р. 145—153.

[2] E.g., Про затвердження Інструкції про призначення та проведення судових експертиз та експертних досліджень та Науково-методичних рекомендації з питань підготовки та призначення судових експертиз та експертних досліджень: наказ Мін'юсту України від 08.10.1998 р. № 53/5 (у ред. наказу Мін'юсту України від 26.12.2012 р. № 1950/5). URL: https://zakon.rada.gov.ua/laws/show/z0001-13#n6 (date accessed: 22.10.2020) ; Інформаційно-методичний лист з правил поводження з об'єктами-носіями, на яких можуть бути залишені як сліди рук, так і сліди біологічного походження осіб, причетних до учинення злочину, при огляді місця події та в лабораторних умовах/ДНДЕКЦ МВС України. Київ, 2012. 5 р. ; etc.

[3] E.g., Салтевський М. В. Op.cit. ; Щербаковський М. Г. Op. cit. ; etc.

[4] Все про почеркознавчу експертизу/*Протокол: юридичний інтернет-ресурс*. 22.03.2019. URL: https://protocol.ua/ua/vse_pro_pocherkoznavchu_ekspertizu (date accessed: 22.10.2020).

in the detected trace are stable, significant and form an individual set which allows to recognize this trace appropriate for identification;

- analytical and synthesizing tasks. Within the framework of solving this type of tasks, comparative research on objects is conducted, features that coincide or vice versa differ are analyzed; causes and conditions of their formation. After, matching signs (assessment of the results of comparative research) are assessed, that's is the results of comparative research. As an example, the researched trace of the finger papillary pattern with fingerprints of a person being inspected;
- illustrative and design tasks. In the course of solving this type of task, illustrations are prepared in the form of photographs, drawings, graphs, chromatograms, nomograms, tables, etc.; significant features are indicated in photographs, chromatograms, nomograms; the text of an expert conclusion is drawn up, which along with illustrations is signed by the forensic expert and certified by the seal of a forensic science institute.

In addition, there is no doubt regarding distribution of tasks in sequence: primary, intermediate and final.

Conclusions. Thus, it should be stressed that *firstly* scientifically grounded classification of the tasks of forensic science general theory and general tasks of practical forensic activity is highly important, as it enhances the development of individual classes, species and subspecies of forensic examination; facilitates orientation of an appointed entity in the great variety of different species, subspecies and classes of forensic examinations while solving the issue as to attribution of an object to one or another type of forensic examinations when formulating tasks for a forensic expert; allows to make the right choice in choosing forensic science institute where competent forensic experts can solve set issues at a high professional level; allows to improve organization of work in forensic science institutes; enhances to advance scientific and technical means and equipment used when conducting forensic examinations; and purposefully teaches forensic experts certain types and species of forensic examinations. *Secondly*, it is suggested to supplement special knowledge of tasks of forensic science theory with the following: development of systematic links between state and non-state (private) subjects of forensic activity; improvement of organizational basis of forensic activity, including development of an individual rating for a forensic expert, etc.

References

Alieksieiev, O. O., Areshonkov, V. V., Atamanchuk, V. M. ta in. *Kryminalistyka: multymed. pidruch.* Kafedra kryminalistyky ta sudovoi medytsyny NAVS. URL: https://arm.naiau.kiev.ua/books/kruminalist/lections/lection_1.3.html (data zvernennia: 22.10.2020) [in Ukrainian].

Averianova, T. V. (2009). *Sudebnaia ekspertiza. Kurs obshchei teorii.* Moscow [in Russian].

Hora, I. V. (2014). Kompleksna sudova ekspertyza v aspekti doslidzhennia mizhhaluzevoho instytutu sudovykh ekspertyz v sudochynstvi Ukrainy. *Visnyk Akademii advokatury Ukrainy.* T. 11. № 3 (31) [in Ukrainian].

Informatsiino-metodychnyi lyst z pravyl povodzhennia z obiektamy-nosiiamy, na yakykh mozhut buty zalysheni yak slidy ruk, tak i slidy biolohichnoho pokhodzhennia osib, prychetnykh do uchynennia zlochynu pry ohliadi mistsia podii ta v laboratornykh umovakh. (2012). DNDEKTs MVS Ukrainy. Kyiv [in Ukrainian].

Kliuiev, O. M. (2018). Mizhnarodni standarty ta mizhnarodne spivrobitnytstvo u sferi sudovo-ekspertnoi diialnosti v Ukraini. *Aktualni pytannia sudovoi ekspertyzy ta kryminalistyky:*mat-lyMizhnar.nauk.-prakt.konf.,prysviach.95-rich.stvor.KhNDISE im. Zasl. prof. M. S. Bokariusa (Kharkiv, 10—11.10.2018). Kharkiv [in Ukrainian].

Kliuiev, O. M. (2019). Udoskonalennia ekspertnoho zabezpechennia pravosuddia: teoretychni, pravovi ta orhanizatsiini aspekty. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 19. URL: https://doi.org/10.32353/khrife.1.2019.08 (data zvernennia: 01.12.2020) [in Ukrainian].

Klymenko, N. I. (2007). *Sudova ekspertolohiia: kurs lektsii:* navch. posib. dlia stud. yuryd. spets. vyshch. navch. zakl. Kyiv [in Ukrainian].

Klymenko, N. I. (2013). Zahalna teoriia sudovoi ekspertolohii: poniattia i mistse v systemi naukovoho znannia. *Zbirnyk naukovykh prats Irpinskoi finansovoiurydychnoi akademii (ekonomika, pravo).* Vyp. 2 [in Ukrainian].

Koldin, A. V., Krestovnikov, O. A. (2007). *Istochniki kriminalisticheskoi informatcii.* Ed.: V. Ia. Koldina. Moscow [in Russian].

Kundilovska, T. A., Khomutenko, V. P., Khomutenko, A. V. (2018). *Teoriia ta praktyka provedennia sudovykh ekspertyz za napriamkom inzhenernykh, ekonomichnykh, tovaroznavchykh vydiv doslidzhen ta otsinochnoi diialnosti:* monohrafiia. Eds.: V. P. Khomutenko, O. Yu. Kostina. Odesa [in Ukrainian].

Mailis, N. P. (2007). *Rukovodstvo po trasologicheskoi ekspertize:* ucheb. dlia vuzov. Moscow [in Russian].

Osnovy sudovoi ekspertyzy: navchalnyi posibnyk dlia fakhivtsiv, yaki maiut namir otrymaty abo pidtverdyty kvalifikatsiiu sudovoho eksperta. (2016). Eds.: L. M. Holovchenko, A. I. Lozovyi, E. B. Simakova-Yefremian ta in. Kharkiv [in Ukrainian].

Pro nevidkladni zakhody z provedennia reform ta zmitsnennia derzhavy: Ukaz Prezydenta Ukrainy vid 08.11.2019 r. № 837/2019. URL: https://zakon.rada.gov.ua/laws/show/837/2019 (data zvernennia: 25.11.2020) [in Ukrainian].

Pro zatverdzhennia Instruktsii pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen ta Naukovo-metodychnykh rekomendatsii z pytan pidhotovky ta pryznachennia sudovykh ekspertyz ta ekspertnykh doslidzhen: nakaz Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (u red. nakazu Miniustu Ukrainy vid 26.12.2012 r. № 1950/5). URL: https://zakon.rada.gov.ua/laws/show/z0001-13#n6 (data zvernennia: 22.10.2020) [in Ukrainian].

Pyrih, I. V. (2011). *Teoretychni osnovy ekspertnoi diialnosti orhaniv vnutrishnikh sprav:* monohrafiia. Dnipropetrovsk [in Ukrainian].

Saltevskyi, M. V. (2006). *Kryminalistyka (u suchasnomu vykladi):* pidruchnyk. Kyiv [in Ukrainian].

Savchenko, I. O. (2013). Aktualni aspekty zminennia metodyk provedennia sudovykh ekspertyz. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Vyp. 13 [in Ukrainian].

Shcherbakovskyi, M. H. (2016). Typovi zavdannia sudovo-ekspertnoho doslidzhennia. *Pravo i bezpeka.* № 4 (63) [in Ukrainian].

Simakova-Yefremian, E. B. (2020). Shchodo neobkhidnosti reformuvannia bazovoho zakonodavstva Ukrainy pro ekspertne zabezpechennia pravosuddia. *Problemy reformuvannia bazovoho zakonodavstva Ukrainy z pytan ekspertnoho zabezpechennia pravosuddia*: mat-ly kruhloho stolu (Kharkiv, 06—07.02.2020). Kharkiv [in Ukrainian].

Simakova-Yefremian, E. B., Balynian, T. Ye., Derecha, L. M. (2010). Pro kryterii otsiniuvannia metodyk provedennia sudovykh ekspertyz v Ukraini. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky.* Kharkiv. Vyp. 10 [in Ukrainian].

Vse pro pocherkoznavchu ekspertyzu. Protokol: yurydychnyi internet-resurs. 22.03.2019. URL: https://protocol.ua/ua/vse_pro_pocherkoznavchu_ekspertizu (data zvernennia: 22.10.2020) [in Ukrainian].

А. О. Полянський, Г. Юодкайте-Гранськієне

ЩОДО КЛАСИФІКАЦІЇ ЗАВДАНЬ ЗАГАЛЬНОЇ ТЕОРІЇ СУДОВОЇ ЕКСПЕРТИЗИ І ПРАКТИЧНОЇ СУДОВО-ЕКСПЕРТНОЇ ДІЯЛЬНОСТІ

(оглядова стаття)

Проаналізовано концептуальні засади, погляди й ідеї щодо розуміння сутності класифікації завдань загальної теорії судової експертизи. Досліджено основні позиції науковців щодо класифікації типових завдань судово-експертного дослідження. Підставою диференціювання завдань експертизи запропоновано вважати інформацію, яку має здобути експерт, досліджуючи властивості й ознаки конкретних об'єктів або характеристики процесу взаємодії кількох таких об'єктів.

Доведено, що науково-обґрунтована класифікація завдань загальної теорії судової експертизи та практичної судово-експертної діяльності підвищує ефективність експертного забезпечення правосуддя, допомагає під час виявлення й розслідування правопорушень, встановлення фактів і обставин, які мають бути доведені у справі в порядку, передбаченому процесуальним законодавством України.

Ключові слова: судова експертиза, судово-експертне дослідження, ідентифікаційне завдання, діагностичне завдання, ситуаційне завдання, класифікація, судово-експертні установи.

А. А. Полянский, Г. Юодкайте-Гранськиене

К СООТНОШЕНИЮ КЛАССИФИКАЦИИ ЗАДАЧ ОБЩЕЙ ТЕОРИИ СУДЕБНОЙ ЭКСПЕРТИЗЫ И ПРАКТИЧЕСКОЙ СУДЕБНО-ЭКСПЕРТНОЙ ДЕЯТЕЛЬНОСТИ

(обзорная статья)

В статье проанализированы концептуальные основы, взгляды и идеи относительно понимания сущности классификации задач общей теории судебной экспертизы. Исследованы основные точки зрения учёных на классификацию типовых задач судебно-экспертного исследования. Информацию устанавливают, исследуя свойства отдельных объектов или характеристики процесса взаимодействия нескольких объектов.

К специальным (отдельным) задачам общей теории судебной экспертизы можно отнести: исследование развития и формирования видов судебных экспертиз, расширение сферы их практического применения; конструирование новейших видов и родов экспертиз в связи с появлением современных объектов или усовершенствование существующих в экспертной практике методов и методик; модернизирование компьютерно-программного обеспечения автоматизированного рабочего места эксперта; усовершенствование практической деятельности судебных экспертов и появление инновационных задач научных исследований в области судебной экспертизы; плановое пополнение существующих научных знаний и совершенствование общей и частных теорий судебной экспертизы; разрабатывание (с учётом современных реалий) методов и методик оценки заключения эксперта.

Проанализировав тенденции развития частных теорий судебной экспертизы и судебно-экспертной практики, предлагаем дополнить приведённые специальные задачи теории судебной экспертизы следующими: разрабатывание системных связей между государственными и негосударственными субъектами судебно-экспертной деятельности; развитие и рационализация организационных основ судебно-экспертной деятельности, в том числе и разрабатывание индивидуального рейтинга конкретного судебного эксперта и экспертного учреждения в целом.

Доказано, что научно-обоснованная классификация задач общей теории судебной экспертизы и общих задач практической судебно-экспертной деятельности повышает эффективность осуществления судебно-экспертной деятельности, помогает выявлять и расследовать преступления, устанавливать подлежащие доказыванию обстоятельства по конкретному делу в порядке,предусмотренном соответствующим процессуальным законодательством Украины.

Ключевые слова: судебная экспертиза, судебно-экспертное исследование, идентификационная задача, диагностическая задача, ситуационная задача, классификация, судебно-экспертные учреждения.

Received by Editorial Board: 01.12.2020

Polianskyi A. O., Juodkaite-Granskiene G. Regarding relation between classification of forensic science general theory tasks and practical forensic activity (Review Article)//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 179—192. DOI: https://doi.org/10.32353/khrife.2.2020.13.

DOI: https://doi.org/10.32353/khrife.2.2020.14
UDC 343.98

O. M. Nedoseka,
Senior forensic expert of Sector of Handwriting examination,
Technical Examination of Documents and Accounting of the Department
of Forensic Research at Sumy Research Expert Criminal Center
of the Ministry of Internal Affairs of Ukraine,
Sumy, Ukraine,
ORCID: https://orcid.org/0000-0001-7063-5253,
e-mail: svksd@ukr.net

Topical issues of the concept of *forensic expert professional ethics* formation

The article provides interpretation for the concepts of "ethics", "professional ethics", "forensic expert professional ethics", as well as their main components are distinguished. The main stages of formation of ethics as a branch of knowledge are outlined, concise information on scientists who became founders of ethics as a science and made a significant contribution to the process of its origin, formation and development, is provided. Complex issues of ethics principles application in professional activity, formation of forensic expert professional ethics are provided. Scientists who outlined main parameters of a forensic expert personality, his moral qualities, are listed. The list of criteria required for forensic expert successful professional activities is presented. The necessity of creating a unified Code of Professional Ethics for a forensic expert was substantiated since the professional ethics of a forensic expert, according to the author, has many components: this is, on the one hand, the official ethics (ethical requirements contained in legal norms, in particular, in the provisions of the Law of Ukraine: "On Judicial Examination"), corporate ethics (business ethics)(in collective agreements, internal regulations are outlined, basic moral qualities that a person who holds the position of forensic expert should possess are presented) and traditional ethics, which basic principles are introduced on the basis of scientific achievements of theoreticians.

As for creation of a unified, standardized Code of Professional Ethics for a forensic expert, the problem remains unresolved for both scientists and legislators as it requires their cohesive and fruitful cooperation, since such code needs to be thoroughly developed by scientists in the field of ethics, forensic experts and lawyers. The issue as to creation of the Code is relevant since the profession of forensic expert in connection with increasing openness of court proceedings becomes public, and therefore needs to be regulated by rules of conduct for a forensict expert while his official duties fulfillment.

Keywords: personality, ethics, morality, virtue, professional ethics, forensic expert, Code of Forensic Expert Professional Ethics.

© O. M. Nedoseka, 2020

Formulation of Research Problem. Correlation between science and morality has always caused debate in the process of formation of a democratic society. As modern forensic expertise is developing rapidly, we can argue about the prospects for the integration of not only physical and mathematical and natural sciences, but also the humanities into the paradigm of forensic disciplines. It is in the context of the philosophy of communication and the separation of norms of professional ethics that the problem of the absence of a standardized Code of Professional Ethics for a forensic expert becomes acute.

Moral requirements are put forward to each member of society, however, they are almost subconscious, established in the process of historical development, while specific norms of morality are found in the characteristics of a particular type of professional activity. Such integration of professional skills and moral norms becomes the basis of any professional code, the creation of which may be the result of the interaction of knowledge about forensic science and ethics.

Analysis of Essential Researches and Publications The development of professional morality and professional ethics as an integral part of individual professional growth is a component of a progressive democratic society. The problem of creating a unified Code of Professional Ethics for the forensic experts is relevant, as this profession is becoming more public and in demand, and therefore it requires not only special knowledge, but also adherence to a certain model of behavior and communication skills. The issues of ethical bases of expert activity were considered by L. Yu. Arocker, N. I. Klimenko, S. O. Shevtsov, V. Yu. Shepitko, O. R. Shliakhov and others [1], who in their works singled out such qualities as the level of moral and legal culture of the expert, his ability to perform his procedural duties, as well as to maintain a certain ethical distance in tone, style of communication, behavior, to stress the necessity to create a certain model of behavior using a scientific approach to solving this problem. In particular, N. I. Klimenko combined professional and qualification qualities necessary for mastering the profession of a forensic expert in one concept "forensic expert's professiogram" [2], which allows to see in a new way the structure of professional

[1] E.g., Ароцкер Л. Е. Об этике судебного эксперта//*Криминалистика и судебная экспертиза:* Республ. межведом. сб. науч. и науч.-метод. работ. Киев, 1968. Вып. 5. P. 136—145 ; Клименко Н. И., Ципенюк С. А. Этические основы экспертной деятельности//*Эксперт-криминалист*. 2010. № 2. URL: https://center-bereg.ru/f982.html (date accessed: 09.03.2020) ; Судовий експерт*:* психологічні аспекти практичної діяльності*:* метод. посіб./авт.-упоряд.: С. О. Шевцов*,* С. М. Лозова. Київ, 2011. 332 p. ; Шепитько В. Ю. Проблемы формирования внутреннего убеждения судебного эксперта//*Материалы международной научно-практической конференции «Теория и п рактика судебной экспертизы в современных условиях»* (Москва, 14—15.02.2007). Москва, 2007. P. 87—89 ; Шляхов А. Р. Процессуальные права и обязанности руководителя экспертного учреждения//*Криминалистика и судебная экспертиза:* Республ. межведом. сб. науч. и науч.-метод. работ. Киев, 1969. Вып. 6. P. 160—163.

[2] Клименко Н. І. Судова експертологія: курс лекцій: навч. посіб. для студ. юрид. спец. вищ. навч. закл. Київ, 2007. 528 p.

and moral qualities of a person who intends to obtain qualifications of the forensic expert.

The **Article Purpose** is to substantiate the necessity to create a unified Code of Professional Ethics for forensic experts.

Main Content Presentation. At any stage of human development, the issue of morality and ethics has caused debate. Socrates, Aristotle, Platon, I. Kant, F. Nietzsche, F. Paulsen, F. Schleiermacher, A. Schweizer [1] — this is a rather incomplete list of scientists and philosophers who tried to outline their vision of the concept of "ethics" and its components. Thus, Socrates was a theorist and preacher of morality — one of the basic concepts in ethics, considering it through the prism of the doctrine about knowledge of human virtues and noting it as a common basis for all moral qualities. Aristotle in his "Nicomachean Ethics" made a successful attempt to unify all human virtues, Platon noted the divine origin of morality, Kant carefully analyzed morality, F. Nietzsche declared that "it is necessary to destroy morality to liberate life" [2], F. Paulsen noted that ethics is the science of goods that give life absolute value, a theologian and preacher F. Schleiermacher inextricably linked the concepts of morality and spiritual freedom, A. Schweizer stressed the need "to show the same reverence for life as in relation to their will to live, and as well as to any other"[3]. Thus, each of the thinkers in his own way saw the value and purpose of ethics, in his own way interpreted the concept of "morality". In the current democratic world, laws and social behavior are completely subordinated to the norms of ethics and humanity. However, such norms do not have uniform criteria for definition and interpretation.

Thus, in the narrow sense, ethics is a philosophical doctrine whose object of study is morality. In ethics, we can distinguish two types of problems that need to be addressed:

- the question on how a person should act depending on the circumstances;
- theoretical questions on the origin and essence of morality.

Studying the first problem, the practical orientation of ethics becomes obvious, its penetration into all spheres of life for which it was called "practical philosophy". The practical significance of ethics is manifested primarily in the field of human communication, an important component of which is human communication during joint activities, because it can not be neutral in relation

[1] E.g., Сократ. Платон. Аристотель. Сенека/Біографічна бібліотека Ф. Павленкова «ЖЗЛ: Життя Чудових Людей». URL: http://bibliograph.com.ua/zhzl (date accessed: 09.03.2020) ; Аникин Д. А. Этика: консп. лекц. (1. Этика И. Канта)/ВикиЧтение. URL: https://culture.wikireading.ru/61350 (date accessed: 09.03.2020) ; Бугера В. Е. Социальная сущность и роль философии Ницше. Москва, 2010. 168 p. ; Паульсен Ф. Введение в философию/РИДЛИ. URL: https://readli.net/chitat-online/?b=987573&pg=1 (date accessed: 09.03.2020).

[2] E.g., Гуревич П. С. Этика: учеб. для бак-в: 2-е изд. Москва, 2019. P. 65.

[3] Ibid. P. 67.

to morality. Historically, morality not law was the first form of regulation of human relations. This form of regulation of business relations acquires special significance in a democratic society, in which there is no strict state control over economic and other activities.

It is common to talk about the professional ethics of people in the so-called public professions, i.e. who are always in the process of communication (in particular, journalists, TV and radio presenters, teachers, doctors, judges, lawyers, etc.). This list can be extended, but whether it includes forensic experts. On the one hand, this profession is not public, as it does not involve daily communication in monologue, dialogue or polylogue, and on the other hand, in expert practice there are often cases of calling a forensic expert to the investigator, prosecutor or court to provide "answers to questions during interrogation" [1] (the Civil Procedure Code of Ukraine provides that the forensic expert has to appear in court on his summons and explain his conclusion and answer questions from the court and the parties, and in the absence of objections of the parties to the case, the forensic expert may participate in court hearing via videoconference) [2], it is also always worth remembering the consultative and methodological activities during which the forensic expert (within the scope stipulated by law) contacts the participants in the prectrial investigation and litigation, provides advice to individuals and legal entities, etc.

Since globalization (in the sense of the disappearance of the boundaries of information and communication space) is the norm of modern life, experts in various fields of knowledge often face moral collisions, which can not be resolved using only professional knowledge and empirical skills. Therefore, it is necessary to realize the importance of distinguishing between the concepts of "professional Ethics" and "professional Ethics of a forensic expert".

As far as life in society is based on the moral system of society, then any professional activity should be based on the moral aspect. The forensic expert, as a person responsible for the observance of the principles of legality, independence, objectivity and completeness in the performance of his professional duties (conducting forensic examinations and forensic expert researches), should not ignore qualities that are exclusively personal (endurance, respect for people around and the ability to master yourself).

As indicated earlier, L. Yu. Arocker, N. I. Klimenko, V. Yu. Shepitko, S. O. Shevtsov, O. R. Shliakhov and others devoted their attention to the study of the personality qualities of the forensic expert. However, to this day, there is no a single scientifically substantiated and legally established unified system of

[1] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. Ст.88.

[2] Цивільний процесуальний кодекс України: Закон України від 18.03.2004 р. № 1618-IV (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 2004. № 40—41, 42. Ст. 492.

moral qualities that should be inherent to the forensic expert in his professional activity.

Professional ethics is a set of certain responsibilities and norms of behavior that preserve the moral prestige of professional groups in society. The task of the professional ethics is to identify the meaning of moral norms and assessments, judgments and concepts that characterize a person as a representative of a particular profession. Professional ethics produces norms, standards, requirements specific to certain types of activities [1].

In a narrower sense, the professional ethics can be considered as codes of professional behavior of people, who must have certain moral qualities. Their practical application should help to achieve maximum results in professional activities.

Standardized codes of the professional ethics exist mostly for professions that have a special responsibility to society: teachers, doctors, police and tax officers, judges, lawyers, journalists, and so on. However, the problem of creating codes of the professional ethics, unified in accordance with the general ethical rules and norms of the legislation of Ukraine, is still relevant.

L. Yu. Arocker in the article "On forensic expert's ethics" noted: *"The further course of a criminal and civil case, fate of people, to whom it relates, often largely depends on the expert conclusion<...>. Judges and investigators, prosecutors and defenders, suspects and defendants — all participants of the process should be confident in the highly professional qualifications of the forensic expert, his deep knowledge, moral stability and impeccable honesty"* [2]. In this regard, the author stressed that the main elements contained in forensic ethics can be considered "*objectivity, fairness, principled stability, aversion to outside influence and pressure, independence in judgements on any issue related to the case, evaluation of evidences only by internal conviction, that based on a comprehensive, complete and objective consideration of all circumstances of the case in their entirely using the law <...>, the use of tactics during investigative actions (interrogation, investigative experiment, etc.), that do not degrade the honor and dignity of the participants, the absence of an accusatory position, the correctness of the participants in the process"* [3]. Also, L. Yu. Arocker called the norm of behavior in judicial ethics *"behavior that satisfies the requirements of the law <...> and professional duty"* [4], as well as self-criticism in their judgments — *"the expert's confidence should not be unquestionable, it should be based on sufficient, objective data that allow any participant in the process to verify the facts that became the basis for the conviction of the expert"* [5].

[1] Гуревич П. С. Op.cit.
[2] Ароцкер Л. Е. Op.cit.
[3] Ibid. P. 138.
[4] Ibid.
[5] Ibid. P. 140.

Therefore, it's these concepts (except those, related to issues that are the prerogative of the investigative bodies and court), in the author's opinion, should be considered part of the professional ethics of the forensic expert.

Nowadays, it unequivocally proves that in order to effectively cooperate in the field of forensic science and successfully implement their professional plans, the forensic expert has to master the culture of communication at a high level. For this reason, to these components of the professional ethics of a forensic expert should be added a rich vocabulary and the ability to express their thoughts appropriately and concisely, the art of persuasion and respect for the interlocutor or listener.

It is also important to remember non-verbal means of expression during communication: sign language and posture, facial expressions, speech characteristics, clothing and colors, etc. Scholars are of the opinion that one should not indulge in the interpretation of individual nonverbal signals: they should be considered in conjunction with the text of the speech. Certainly, Of course, the basis for the formation of the first impression of the speaker in the audience is his visual image. Posture, position, appearance, pace of speech — all these characteristics help to successfully convey the necessary information to the interlocutor or listener, to prove their position or, conversely, to refute another.

Conclusions. Thus, the professional ethics of the forensic expert, according to the author, has many components: this is, on the one hand, official ethics (ethical requirements contained in legal norms, in particular in provisions of Law of Ukraine: On Forensic Science [1]), corporate ethics (collective agreements, rules of internal schedule partially outline the basic moral qualities that should be inherent in a person who holds the position of forensic expert) and traditional universal ethics.

As for the creation of a unified Code of Professional Ethics for Forensic Experts, the problem remains open to both scholars and lawmakers, as it requires their close and fruitful cooperation, as such a Code requires balanced and careful cooperation of experts in ethics, forensic examination and law. The issue of creating the Code is now in demand and relevant, as the profession of the forensic expert (due to the greater openness of the judicial process) is gaining publicity and requires regulation of the rules of its behavior during the performance of official duties.

References

Anikin, D. A. Etika: konsp. lektc. (1. Etika I. Kanta). VikiChtenie. URL: https://culture.wikireading.ru/61350 (data zvernennia: 09.03.2020) [in Russian].

Arotcker, L. E. (1968). Ob etike sudebnogo eksperta. Kriminalistika i sudebnaia ekspertiza: Respubl. mezhvedom. sb. nauch. i nauch.-metod. rabot. Vyp. 5. Kyiv [in Russian].

Bugera, V. E. (2010). Sotcialnaia sushchnost i rol filosofii Nitcshe. Moscow [in Russian].

[1] Про судову експертизу: Закон України від 25.02.1994 р. № 4038-XII (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 1994. № 28. Ст. 232.

Gurevich, P. S. (2019). Etika: uchebnik dlia bakalavrov: 2-e izd., pererab. i dop. Moscow [in Russian].
Klimenko, N. I., Tcipeniuk, S. A. (2010). Eticheskie osnovy ekspertnoi deiatelnosti. Ekspert-kriminalist. № 2. URL: https://center-bereg.ru/f982.html. [in Russian].
Klymenko, N. I. (2007). Sudova ekspertolohiia: kurs lektsii: navch. posib. dlia stud. yuryd. spets. vyshch. navch. zakl. Kyiv [in Ukrainian].
Kryminalnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). Vidomosti Verkhovnoi Rady Ukrainy (VVR). 2013. № 9—10, 11—12, 13. St.88. URL: https://zakon.rada.gov.ua/laws/show/4651-17 (data zvernennia: 09.03.2020) [in Ukrainian].
Paulsen, F. Vvedenie v filosofiiu. RIDLI. URL: https://readli.net/chitat-online/?b=987573&pg=1 (data zvernennia: 09.03.2020) [in Russian].
Pro sudovu ekspertyzu: Zakon Ukrainy vid 25.02.1994 r. № 4038-XII (zi zmin. ta dopov.). Vidomosti Verkhovnoi Rady Ukrainy (VVR). 1994. № 28. St.232 [in Ukrainian].
Shepitko, V. Iu. (2007). Problemy formirovaniia vnutrennego ubezhdeniia sudebnogo eksperta. Materialy mezhdunarodnoi nauchno-prakticheskoi konferentcii «Teoriia i praktika sudebnoi ekspertizy v sovremennykh usloviiakh» (Moscow, 14—15.02.2007). Moscow [in Russian].
Shliakhov, A. R. (1969). Protcessualnye prava i obiazannosti rukovoditelia ekspertnogo uchrezhdeniia. Kriminalistika i sudebnaia ekspertiza: Respubl. mezhvedom. sb. nauch. i nauch.-metod. rabot. Vyp. 6. Kyiv [in Russian].
Sokrat. Platon. Arystotel. Seneka. Biohrafichna biblioteka F. Pavlenkova «ZhZL: Zhyttia Chudovykh Liudei». URL: http://bibliograph.com.ua/zhzl (data zvernennia: 09.03.2020) [in Ukrainian].
Sudovyi ekspert: psykholohichni aspekty praktychnoi diialnosti (2011) metod. posib. Eds.: S. O. Shevtsov, S. M. Lozova. Kyiv [in Ukrainian].
Tsyvilnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 18.03.2004 r. № 1618-IV (zi zmin. ta dopov.). Vidomosti Verkhovnoi Rady Ukrainy (VVR). 2004. № 40—41, 42. St. 492. URL: https://zakon.rada.gov.ua/laws/show/1618-15 (data zvernennia: 29.05.2020) [in Ukrainian].

О. М. Недосека

АКТУАЛЬНІ ПИТАННЯ СТАНОВЛЕННЯ ПОНЯТТЯ «ПРОФЕСІЙНА ЕТИКА СУДОВОГО ЕКСПЕРТА»

У статті дано тлумачення понять «етика», «професійна етика», «професійна етика судового експерта», виокремлено їхні складові. Окреслено основні етапи формування етики як галузі знань, наведено стислу інформацію щодо науковців, які започаткували етику як науку та сприяли її становленню й розвитку. Узагальнено проблемні питання застосування принципів етики у професійній діяльності, виокремлено професійну етику судового експерта в структурі етики як галузі знань, згадано науковців, які визначили основні якості особистості й моральні якості, необхідні для роботи експертом.

Здійснено спробу обґрунтувати необхідність уніфікувати норми професійної та моральної поведінки особи, яка має намір здобути кваліфікацію судового експерта, а також окреслити нагальність створення уніфікованого Кодексу професійної етики судового експерта.

Ключові слова: особистість, етика, мораль, чеснота, професійна етика, судовий експерт, Кодекс професійної етики судового експерта.

Е. Н. Недосека

АКТУАЛЬНЫЕ ВОПРОСЫ СТАНОВЛЕНИЯ ПОНЯТИЯ «ПРОФЕССИОНАЛЬНАЯ ЭТИКА СУДЕБНОГО ЭКСПЕРТА»

В статье приведено толкование понятий «этика», «профессиональная этика», «профессиональная этика судебного эксперта», а также выделены их основные компоненты. Изложены основные этапы становления этики как отрасли знаний, приведена краткая информация об учёных — основоположниках этики как науки, способствовавших её зарождению, становлению и развитию. Проанализированы проблемные вопросы применения принципов этики в профессиональной деятельности, формирования профессиональной этики судебного эксперта, названы учёные, определившие основные параметры личности и моральные качества, необходимые для работы экспертом. Приведён перечень критериев, необходимых судебному эксперту для успешной профессиональной деятельности. Обоснована необходимость создания Кодекса профессиональной этики судебного эксперта как многокомпонентной структуры, сочетающей официальную этику (этические требования, содержащиеся в правовых нормах, в частности в положениях Закона Украины «О судебной экспертизе»), корпоративную этику (в коллективных договорах прописаны правила внутреннего распорядка, частично изложены основные моральные качества, которыми должен обладать судебный эксперт) и традиционную общечеловеческую этику.

Что касается создания унифицированного Кодекса профессиональной этики судебного эксперта, то проблема остаётся открытой как для учёных, так и для законодателей, нуждается в их сплочённом и плодотворном сотрудничестве, поскольку этот Кодекс следует тщательно разработать — и учёным в сфере этики, и судебным экспертам, и юристам. Вопрос создания такого Кодекса весьма актуален, поскольку профессия судебного эксперта в связи с растущей открытостью судебного процесса становится публичной, а значит, должна регулироваться правилами поведения судебного эксперта при выполнении им своих служебных обязанностей.

Ключевые слова: личность, этика, мораль, добродетель, профессиональная этика, судебный эксперт, Кодекс профессиональной этики судебного эксперта.

Received by Editorial Board: 01.06.2020

Nedoseka O. M. Topical issues of the concept of *forensic expert professional ethics* formation//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 193—200. DOI: https://doi.org/10.32353/khrife.2.2020.14.

DOI: https://doi.org/10.32353/khrife.2.2020.15
UDC 343.14

O. A. Nedashkivska,
Senior Forensic Expert of the Department of Commodity, Gemological, Economic, Construction, Land Research and Evaluation Activity at Zhytomyr Scientific Research Forensic Centre of the Ministry of Internal Affairs of Ukraine, Zhytomyr, Ukraine,
ORCID: https://orcid.org/0000-0003-2568-0201,
e-mail: persik.emir@gmail.com

The phenomenon of *forensic initiative* concept and current problems of its implementation in a digital society

The author addresses the issue of taking forensic initiative by forensic experts which is connected with a failure to recognize the mechanism for its implementation in practice, peculiarities and specifics in the activities of various participants of criminal proceedings.

The Research purpose is to analyze current regulatory framework that regulates the right to forensic initiative and various scientific opinions on the right to manifest forensic initiative as a phenomenon, its significance for forensic examination in general as well as a systematic reflection of practical problems on application of forensic initiative right by forensic experts while practical work, characteristic forms of its manifestation.

The study was conducted by questioning forensic experts from the Ministry of Internal Affairs of Ukraine in order to determine boundaries of possessing knowledge in the conceptual framework in forensic initiative field, to determine the attitude of forensic experts to the very concept of forensic initiative, their use of own law-regulated forensic initiative, analysis of existing scientific approaches and use forms of the right of forensic initiative.

The boundaries of possession and handling of theoretical and practical knowledge in the field of forensic initiative and their implementation in practice are established by forensic experts of the Ministry of Internal Affairs. Various scientific approaches to the problem of forensic initiative manifestation are reflected and analyzed in conditions of society current development, practical significance and importance of ensuring realization of the right to forensic initiative by forensic experts in their practical work is outlined.

A systematic solution for the problem is suggested: development of an appropriate regulatory framework that would regulate the procedure for using the right to forensic initiative and creation of an algorithm for implementing such a right of a forensic expert in practice, which will take forensic examination to a qualitatively new level and ensure thoroughness and comprehensiveness of research, facilitate formation of the rule of law.

© O. A. Nedashkivska, 2020

Keywords: forensic initiative, forensic expert, questionnaire survey, expert conclusion, expert research.

Formulation of Research Problem. The current stage of development of the information-oriented society is characterized by its radical democratization, which is carried out in the era of total digitalization in all fields of vital activity of a person and humanity in general. Permanent process of establishing the constitutional state as a socially positive phenomena is accompanied by negative social factors, the influence of which is amplified and concentrated, which is associated with further social marginalization of public consciousness [1].

Over the last years in Ukraine (due to the increase processes of economic and political crisis) the level of social displeasure and property incompetence of the society is constantly growing; the global crises of various origins influence the loss of a significant part of the population's life goals and values, which ultimately leads to a steady increase in the level of crime.

Crime coefficient (index) increased from 780 to 100,000 of population in 1991, and to 1054 in 2019. The absolute number of registered crimes in Ukraine in 1991 was 405,516 [2], in 2019 — 444,130 [3]. This coefficient reflects a quite trustworthy picture because these numbers include only registered crimes, but the real picture is more serious.

In the conditions of tense criminogenic situation in the country, the growing in the level of organization and armament, the professionalism and technical equipment of offenders, the active use of forensic tools and methods is becoming one of the most popular and effective measures to combat crime.

Today, the internal affairs bodies perform 24 types of forensic examinations, 15 of which belong to special ones, and the annual volume of work by them is constantly growing. Each forensic expert performs an average of more than 200 examinations and studies per year [4]. The range is being expanded, and the technologies of automated systems for keeping files of traces and objects seized from site of unsolved crimes are being improved. Every year, the results of inspections in forensic centers contribute to the detection and investigation of more than half a million crimes.

At the same time, it should be noted that there is a tendency of growth in the role of procedural sources of evidence which is associated with retraction of previous testimony by persons (who are participants in the trial) at the stage

[1] Шваб К. Четвертая промышленная революция. Киев, 2019. 208 р.

[2] Шостко О. Ю., Подільчак О. М. Сучасні світові тенденції злочинності// *Проблеми законності:* зб. наук. пр./відп. ред. В. Я. Тацій. Харків, 2020. Вип. 148. Р. 184—200.

[3] Єдиний звіт про кримінальні правопорушення за січень — лютий 2019 року/Єдиний державний вебпортал відкритих даних. URL: https://data.gov.ua/dataset/8b9b1677-2407-454a-bfa7-76eb638c0ea1 (date accessed: 15.06.2020).

[4] Ковальов В. В. Взаємодія слідчого з працівниками експертної служби МВС України: автореф. дис. … канд. юрид. наук. Київ, 2008. 20 р.

of the trial. Such a condition requires the maximum of evidentiary information, that may be contained in the objects of a forensic expert research, which is really fully achieved by showing the appropriate expert initiative [1].

Unfortunately, this problem has not been comprehensively studied, although some publications on this topic have been published, however, among forensic experts (not to mention employees of the Prosecutor's Office and investigators) there is no any clear idea of the limits of this concept, form and ways of realization of the right of the expert initiative.

In accordance with the survey performed by us (80% of the total number of forensic experts of the MIA in Zhytomyr region), 74% respondents know the concept: *expert initiative*, instead paradoxical is the lack in 94.4% of respondents of the understanding as to their right on their own initiative to pay attention to the circumstances about which they were not asked questions.

The conducted survey among the forensic ballistics experts of the MIA from the whole regions notes that 75.8 % of respondents know the concept: *expert initiative*, the lack of the understanding their right on their own initiative to pay attention to the circumstances about which they were not asked questions was found in 89.6% of respondents.

That is, the forensic experts who have conducted the survey, use only the theoretical knowledge on the most hypothetical concept of the expert initiative, and are not aware of their direct, legally regulated right of the expert initiative which, accordingly, disables them of freedom to realize such right in their practical activity in accordance with the legislation.

Analysis of Essential Researches and Publications. Certain aspects of the essence and the problem of implementation of the expert initiative in the criminal proceedings were studied by I. V. Pyrih, O. R. Rossynska, I. Ya. Fridman [2] and other scientists. Nevertheless, there is no single position on the grounds and forms of implementation of the forensic expert's right of the expert initiative.

The analysis of scientific thoughts and empirical material allows to come to the conclusion on the necessity to improve both the theoretical approaches on the issue of the essence and forms of the expert initiative, and regulated in the criminal procedural legislation of certain provisions for the appointment and conduct of forensic examinations.

So, the important stage is to determine the grounds and forms of the implementation of the right of the expert initiative by the forensic expert in practice and the place of such a right in the system of rights and responsibilities of the forensic expert in criminal proceedings in general.

The **Article Purpose** is the analysis of the current state of the expert initiative during forensic examinations and expert researches in order to develop the

[1] Горбулинская И. Н. Об экспертной инициативе//*Вестник Московского университета МВД России*. Москва, 2017. № 2. P. 41—42.

[2] Мельник С. Л. Актуальные вопросы экспертной инициативы: дис. ... канд. юрид. наук. Челябинск, 2005. 287 p.

concept of the expert initiative and improve forms of its implementation withing the criminal procedural legislation.

Main Content Presentation. The expert initiative in the Ukrainian legislation has not found the adequate reflection, formally the Criminal Procedure Code of Ukraine only states the right for the forensic expert to go beyond the task set before him. Thus, para. 4 of part 3 of Art. 69 of Criminal Procedure Code of Ukraine provides the right of the forensic expert to present in the conclusion of the examination found during its conduct information that is relevant to criminal proceedings and about which he was not asked questions, and part 3 of Art. 102 of Criminal Procedure Code of Ukraine notes: if during the examination the information is found that is relevant to the criminal proceedings and about which no questions were asked, the forensic expert has the right to indicate them it his conclusion [1].

In fact, the procedural law provides the forensic expert with the right (in case of need to determine the circumstances of a case that are significant for the criminal proceedings) to go beyond the task set before him on appointment the examination and further to state in the conclusion the information revealed during such examination, about which he was not asked questions. Such right of the forensic expert was called *expert initiative.* Instead of this, analyzing this procedural form, we can come to the conclusion that it is purely declarative in nature, despite the scientific opinion about the importance of the right of the expert initiative as a guarantee of completeness and comprehensiveness of the study of the case circumstances [2].

The existence of the right of the forensic expert to go beyond the tasks set before him based on the experience of trial and investigative practice and related to the fact that investigative and court bodies, being not always aware of the possibilities of the case study, not always correctly ask questions that puts the study at a dead end [3].

Such right was realized in two aspects: in order to specify the facts that are significant for clarifying the circumstances to be proved and for determining the causes and conditions that contributed to the commission of the crime [4].

Following mentioned, the expert initiative can be defined as the criminal procedure category according to which the forensic expert is convinced of the

---

[1] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/main/4651-17 (date accessed: 30.06.2020).

[2] Белкин Р. С. Криминалистическая энциклопедия: 2-е изд., доп. Москва, 2000. 334 р.

[3] Петрухина А. Н. Проблемы развития института экспертной инициативы в уголовном судопроизводстве//*Российский судья*. Москва, 2004. № 1. Р. 14—15.

[4] Назаров В. А. Назначение и проведение экспертизы в уголовном процессе: дис. … канд. юрид. наук. Москва, 2003. 162 р.

need to go beyond the initiator of the study task and realizes this possibility by formulating additional information on the subject of evidence.

More deeper understanding of the essence of expert initiative may be reflected through a prism of the procedural position of the forensic expert and his competence. However, having analyzed procedural provisions designed to ensure the right of the expert initiative, we come to conclusion about the formal existence of the right of expert initiative, which is not reflected through its implementation in practice [1].

Despite the existence of norms for the regulation of the procedure for the application and implementation of the right of the expert initiative in practice, the clear algorithm of such implementation is absent in fact. Analyzing the current legislative norms in the part of the expert initiative, it should be noted that the most effective in this case is an unification of the expert activity with the development of the only flexible algorithm for solving such tasks.

In fact, there is no regulation of the boundaries of expert initiative, which (in our opinion) significantly affects the neglect of forensic experts with their right to expert initiative, and this, in turn, reduces such a function of forensic science as preventive. The expert's preventive proposals, which may have arisen during the examination, these are his initiative, have not been properly implemented, which cannot be considered correct, given the practical significance of preventive measures in general. At the same time, the body that appointed the examination is practically uncontrolled in the implementation of such measures, it is not obliged to inform the expert about the fate of his preventive proposals. Even in itself, the reflection of the proposals of the expert, in the opinion of such a body, is not a guarantee, much less evidence of their true implementation.

According to R. S. Belkin, the issue on the operational implementation of preventive proposals of the forensic expert occupies an important place in the system of preventive measures, because identified circumstances in the process of expert research that threaten human life and health or the likelihood of significant material damage, require immediate elimination (e.g., possibility of re-explosion, damage to important equipment, etc.). In this case, the regular procedure for the application of preventive measures by the body: the initiator of the examination may cause irreparable consequences due to significant bureaucratization of such bodies. In order to adequately solve such problems, it is necessary to regulate another procedure at the legislative level that can ensure an immediate response to the expert's preventive proposals, thus bringing the forensic expert to a fundamentally new level of quality in the law enforcement system.

While forensic examination various needs occur, the satisfaction of which allows the forensic expert to achieve the ultimate goal: to make a conclusion. It is possible to conditionally identify the following forms of detection of the expert

[1] Кримінальний процесуальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/main/4651-17 (date accessed: 30.06.2020).

initiative (depending on the stages of the expert examination): identification of the expert initiative to clarify expert tasks, which is usually implemented by submitting a request for obtaining additional source information, and for the study itself, possible need for expert experiment, selection in a certain way of samples necessary for the study, especially for specific objects.

In practice, almost every examination is characterized by a certain specificity related to the peculiarities of the objects of forensic examination, which, for objective reasons, were ignored by the initiator of the examination.

Taking into account such peculiarities, the forensic expert, in order to promote the most reliable and high-quality conclusion, aware of such a need, should undertake measures to specify the material circumstances of the case in relation to the objects under investigation. That is, the forensic expert has the right, on his own initiative, to pay attention to those circumstances about which he was not asked, but subject to the following requirements:

- if these circumstances are detected on the basis of the application of the forensic expert's special knowledge, and if they do not go beyond the competence of the forensic expert;
- if they are detected during forensic examination and they are its result;
- if they are relevant to the circumstances detected by the forensic expert during the examination, and are directly related to them, i.e. disclose, supplement, clarify the circumstances that are the subject of this examination;
- if due to objective reasons the forensic expert was not able to consult with the investigator and the court on the need to add information about these circumstances to his conclusion [1].

Procedural legislation does not require the forensic expert to obtain any license to implement his right of the expert initiative, i.e. the forensic expert can independently, on the basis of his experience and special knowledge, indicate important circumstances in his conclusion [2].

At the same time, there is an opinion that the forensic expert has to inform the initiator about additional detected information and about his intention to include them in the conclusion. This issue is debatable: although timely informing the investigator about the detected information can be used to expose a suspect in a crime, but the lack of questions to the forensic expert about the facts may not be accidental, but part of the investigator's planned tactical operation. In this case, the lack of concerted action between the forensic expert and the investigator may do harm the planned operation and complicate the investigation process [3].

---

[1] Ковальов В. В. Op.cit.

[2] Кримінальний процесуальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/main/4651-17 (date accessed: 30.06.2020).

[3] Бойцов А. А. Право экспертной инициативы с позиции юридической герменевтики//*Теория и практика судебной экспертизы.* Москва, 2019. Т. 14. № 2. P. 115—

At the stage of evaluating the forensic expert conclusion by the investigator and the court, the information indicated in the forensic expert conclusion, may serve as a direct evidence, but the forensic expert's determination of the intermediate circumstances of the case on the subject of evidence is more common, i.e. it is indirect evidence.

In the procedural literature it is noted that the evaluation of the forensic expert conclusion includes examination for compliance of the forensic expert conclusions with other evidences in the case and analysis of the forensic expert own conclusion, i.e. inspection of the scientific provisions used by the forensic expert and the course of the forensic expert examination, as well as determining whether the forensic expert conclusion is logical, given the scientific provisions and examination data indicated by him [1].

In a broader sense, the evaluation of the conclusion by the investigator and the court involves:

- analysis of compliance with the procedural order of preparation, appointment and conduct of examination and the consequences of its violation;
- analysis of compliance of the forensic expert conclusion with the task;
- analysis of the completeness of the conclusion;
- evaluation of the scientific validity of the conclusion;
- evaluation of the factual data contained in the conclusion on their relevance to the case and their place in the system of evidences [2].

Conclusions. Thus, the essence of the forensic expert's activity consists in the collaboration of creative work within the clearly defined by law framework with the use of specific expertise and experience. Gaps in the legislation limit the potential of the forensic expert, consequently do harm to the quality of forensic examinations. The development and approval of the relevant regulatory framework is very necessary for a clear formulation of the concept: *expert initiative*, definition of its types, forms of detection and implementation of the algorithm for its application in the practice of the forensic expert. Such actions will allow to use the professional potential of the forensic expert most effectively, enrich the possibilities of forensic examination in terms of finding out the truth in the case, reformat the static awareness by the forensic expert on the concept: *expert initiative* into a dynamic structure of the effective implementation of scientific and evidentiary capabilities of the current expert research in general.

127 ; Vermylen Y. The Role of the Forensic Expert in Criminal Procedures according to Belgian Law//*Forensic Science International*. Berlin, 2010. № 201 (1—3). P. 8—13 ; Fusaro N. The Role of the Expert, of the Technical Consultant and of the Consultant for the Defensive Investigations in the Criminal Trial//*Forensic Science International*. Berlin, 2004. № 146. P. 219—220.

[1] Петрухина А. Н. Op.cit.

[2] Бойцов А. А. Op.cit. Тертишник В. М. Гарантії істини та захисту прав і свобод людини в кримінальному процесі: монографія. Дніпропетровськ, 2002. 432 р.

References

Belkin, R. S. (2000). *Kriminalisticheskaia entciklopediia:* 2-e izd., dop. Moscow [in Russian].

Boitcov, A. A. (2019). Pravo ekspertnoi initciativy s pozitcii iuridicheskoi germenevtiki. *Teoriia i praktika sudebnoi ekspertizy.* Moscow. T. 14. № 2 [in Russian].

Fusaro, N. (2004). The Role of the Expert, of the Technical Consultant and of the Consultant for the Defensive Investigations in the Criminal Trial. *Forensic Science International.* Berlin, № 146.

Gorbulinskaia, I. N. (2017). Ob ekspertnoi initciative. *Vestnik Moskovskogo universiteta MVD Rossii.* Moscow. № 2 [in Russian].

Kovalov, V. V. (2008). *Vzaiemodiia slidchoho z pratsivnykamy ekspertnoi sluzhby MVS Ukrainy.* (Abstract of candidates thesis). Kyiv [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/main/4651-17 (data zvernennia: 30.06.2020) [in Ukrainian].

Melnik, S. L. (2005). *Aktualnye voprosy ekspertnoi initciativy.* (Candidates thesis). Cheliabinsk [in Russian].

Nazarov, V. A. (2003). *Naznachenie i provedenie ekspertizy v ugolovnom protcesse.* (Candidates thesis). Moscow [in Russian].

Petrukhina, A. N. (2004). Problemy razvitiia instituta ekspertnoi initciativy v ugolovnom sudoproizvodstve. *Rossiiskii sudia.* Moscow. № 1 [in Russian].

Shvab, K. (2019). *Chetvertaia promyshlennaia revoliutciia.* Kyiv [in Russian].

Tertyshnyk, V. M. (2002). *Harantii istyny ta zakhystu prav i svobod liudyny v kryminalnomu protsesi:* monohrafiia. Dnipropetrovsk [in Ukrainian].

Vermylen, Y. (2010). The Role of the Forensic Expert in Criminal Procedures according to Belgian Law. *Forensic Science International*. Berlin. № 201 (1—3).

Yedynyi zvit pro kryminalni pravoporushennia za sichen — liutyi 2019 roku. Iedynyi derzhavnyi vebportal vidkrytykh danykh. URL: https://data.gov.ua/dataset/8b9b1677-2407-454a-bfa7-76eb638c0ea1 (data zvernennia: 15.06.2020) [in Ukrainian].

О. А. Недашківська

ФЕНОМЕН ПОНЯТТЯ «ЕКСПЕРТНА ІНІЦІАТИВА» ТА СУЧАСНІ ПРОБЛЕМИ ЇЇ РЕАЛІЗАЦІЇ В ЦИФРОВОМУ СУСПІЛЬСТВІ

У статті порушено проблему виявлення експертної ініціативи судовими експертами, пов'язану з відсутністю усвідомлення механізму її реалізації на практиці, особливостями та специфікою діяльності різних учасників кримінального процесу.

Метою дослідження є аналіз наявної нормативно-правової бази, що регламентує право експертної ініціативи, різноманітних наукових думок щодо права виявлення експертної ініціативи як явища та її значення для судового експертного дослідження загалом, а також системне висвітлення практичних проблем застосування права експертної ініціативи судовими експертами у їхній практичній роботі.

Дослідження проведено шляхом анкетування судових експертів Міністерства внутрішніх справ України з метою визначення меж знання понятійного апарату в галузі експертної ініціативи.

З'ясовано межі знання й оперування судовими експертами МВС теоретичними та практичними знаннями у сфері експертної ініціативи й реалізації їх на практиці.

Запропоновано системне рішення проблеми — розробити відповідну нормативно-правову базу, яка б регламентувала право експертної ініціативи, та створити алгоритм для реалізації такого права судового експерта на практиці.

Ключові слова: експертна ініціатива, судовий експерт, анкетування, висновок судового експерта, експертне дослідження.

О. А. Недашковская

ФЕНОМЕН ПОНЯТИЯ «ЭКСПЕРТНАЯ ИНИЦИАТИВА» И СОВРЕМЕННЫЕ ПРОБЛЕМЫ ЕЁ РЕАЛИЗАЦИИ В ЦИФРОВОМ ОБЩЕСТВЕ

В статье затронуто проблему проявления экспертной инициативы судебными экспертами, связанную с отсутствием осознания механизма её реализации на практике, особенностями и спецификой деятельности разных участников криминального процесса.

Целью исследования является анализ существующей нормативно-правовой базы, регламентирующей право экспертной инициативы и различных научных мнений о праве проявления экспертной инициативы как явления, её значении для судебного экспертного исследования в целом, а также системное освещение практических проблем применения права экспертной инициативы судебными экспертами в их практической работе, характеристика форм её проявления.

Исследование проводилось путём анкетирования судебных экспертов Министерства внутренних дел Украины с целью определения границ владения понятийным аппаратом в сфере экспертной инициативы, отношения судебных экспертов к самому понятию «экспертная инициатива», степени использования ими регламентированного на законодательном уровне права экспертной инициативы, а также для анализа существующих научных подходов и форм использования права экспертной инициативы.

Установлены границы владения и оперирования судебными экспертами МВД теоретическими и практическими знаниями в сфере экспертной инициативы и реализации их на практике. Отражены и проанализированы различные научные подходы к проблеме проявления экспертной инициативы в условиях современного развития общества, продемонстрированы практическая значимость и важность обеспечения реализации права экспертной инициативы судебными экспертами в их практической работе.

Предложено системное решение проблемы — разработать соответствующую нормативно-правовую базу, которая бы регламентировала процедуру использования права экспертной инициативы, и создать алгоритм для реализации такого права судебного эксперта на практике, что выведет экспертные исследования на качественно новый уровень и обеспечит полноту и всесторонность исследования, будет способствовать формированию правового государства.

Ключевые слова: экспертная инициатива, судебный эксперт, анкетирование, заключение судебного эксперта, экспертное исследование.

Received by Editorial Board: 10.08.2020

Nedashkivska O. A. The phenomenon of *forensic initiative* concept and current problems of its implementation in a digital society//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 201—210. DOI: https://doi.org/10.32353/khrife.2.2020.15.

DOI: https://doi.org/10.32353/khrife.2.2020.16
UDC [343.98:351.74](477)

S. M. Naumenko,
PhD in Law, Head of Sumy Branch of National Scientific Center **"**Hon. Prof. M. S. Bokarius Forensic Science Institute**"**, Sumy, Ukraine,
e-mail: svhndise@meta.ua

The system of law enforcement agencies interacting with forensic science institutes

The article outlines the content and features of the system of law enforcement agencies interacting with forensic science institutes. The concept of law enforcement agencies and their system are studied. The characteristics of the general category of interaction of law enforcement agencies with forensic science institutes have been determined. Signs of interaction of forensic science institutes with law enforcement agencies have been established. It is also found that today problems of cooperation of law enforcement agencies with forensic scientists require detailed study and identification of gaps in legal and regulatory frameworks, determination of ways for their elimination. It should be emphasized that signs of cooperation of forensic science institutions with law enforcement agencies may include the following: joint activity of the indicated legal entities regulated by administrative regulations and other fields of law; agreed on goals, tasks, place, time, means and methods of activity; aimed at achieving common goals and results; the content of interaction is determined by set tasks and results, it is aimed at fulfilling them; parties bear responsibility for nonperformance or improper execution of interaction tasks. Cooperation of forensic science institutes with law enforcement authorities called to provide skilled, rapid and objective execution of criminal proceedings tasks as well as application of special knowledge in other areas of law-enforcement activity.

Keywords: forensic expert, forensic science institutes, law enforcement agency, interaction, tasks, functions, guarantees, administrative and legal forms of interaction, administrative and legal methods of interaction, signs of interaction, organizational principles of interaction.

Formulation of Research Problem. Current activity of law enforcement agencies (in particular, an implementation of criminal procedure) impossible without forensic experts' engagement for providing specialized, competent conclusions on issues which require special knowledge that law enforcement officers do not have, but about which the relevant forensic experts are aware. Almost all law enforcement agencies in their activities ask forensic expert institutions for getting answers (conclusions) on issues without the solving of which, the new, filled, comprehensive, and substantiated case decision cannot be made. The system of law enforcement agencies interacting with Forensic Expert Institutions has been defined with their circle of tasks and cases which are in their proceedings.

© S. M. Naumenko, 2020

Analysis of Essential Researches and Publications. To solving issues of concern of the system of law enforcement agencies, interacting with Forensic Expert Institutions, scientific papers of such scientists as: S. S. Shoptenko, O. M. Bandurka, O. M. Muzychuk, I. V. Reshetnykova, O. L. Sokolenko [1], and others were devoted to. However, despite the existence of a significant number of publications, modern legal science still lacks a comprehensive study on this issue.

The **Article Purpose is** the study of the system of law enforcement agencies interacting with Forensic Expert Institutions, for this reason it will be necessary to research the concept of *"law enforcement agencies"*, their system, as well as those mentioned bodies that interact with Forensic Expert Institutions.

Main Content Presentation. To date, the concept *"law enforcement agencies"* is not clearly defined in national legislation, but has been developed in considerable detail by legal science. Thus, Yu. S. Shemshuchenko defines them as *"agencies that have been given the state competence to protect public relations governed by Law"* [2]. O. M. Bandurka and O. K. Bezsmertnyi, note that law enforcement agencies are *"functioning in society and state institutions and organizations, the main tasks of activities are ensuring the rule of law, combating crime and other offenses"* [3]. Scholars characterize law enforcement agencies [4], according to their goals and tasks, which are to ensure the rule of law, combating crime, protection of public relations. At the same time, the mentioned state institutions are individualized not only through the tasks but also because of other characteristics of their legal status.

O. L. Sokolenko proposes the more detailed definition of law enforcement agencies, which she described as the formed body of public authority that functioning in accordance with the rule of law and constitutional legality, the purpose of which is the main the purpose of which is the main activity of which is professional performance of law enforcement powers current substantive and procedural legislation), that requires adequate special logistical and personnel

[1] Шоптенко С. С. Система правоохоронних органів України//*Науковий вісник публічного та приватного права.* 2017. Вип. 3. P. 150—155 ; Юридичний словник-довідник/за ред. Ю. С. Шемшученка. Київ, 1996. 695 p. ; Шоптенко С. С. Адміністративно-юрисдикційна діяльність правоохоронних органів в Україні/за заг. ред. О. М. Музичука. Харків, 2018. 436 p. ; Музичук О. М. Контроль за діяльністю правоохоронних органів в Україні: адміністративно-правові засади організації та функціонування: дис. … д-ра юрид. наук. Харків, 2010. 481 p. ; Решетникова И. В. Доказательственное право Англии и США. Екатеринбург, 1997. 240 p. ; Соколенко О. Л. Адміністративно-правові засади захисту прав громадян у діяльності правоохоронних органів: дис. … д-ра юрид. наук. Харків, 2012. 460 p.

[2] Юридичний словник-довідник … . P. 513.

[3] Судебные и правоохранительные органы Украины: учебник/под ред. А. М. Бандурки. Харьков, 1999. P. 6.

[4] Науменко С. М. Адміністративно-правові засади взаємодії експертних установ з правоохоронними органами: дис. … канд. юрид. наук. Суми, 2019. 203 p.

support [1]. That is the system of law enforcement agencies have to ensure comprehensive implementation of law enforcement function of the State. For its part, the State provides law enforcement officers with a certain amount of power, appropriate social, logistical and other support, that is determined by the scope of their activities and allows them to perform their tasks effectively [2].

O. M. Muzychuk quite successfully defined the concept of law enforcement agencies, which characterized them as state bodies, the purpose of creation and activities of which is to protect and defend the rights and freedom of citizens, the interests of society and the State, primarily from criminal encroachments that is decisive in their activities, and that on a professional basis perform law enforcement tasks, functions and powers, the implementation of which involves the use of state coercion, and their employees have increased social and legal protection due to the peculiarities of their so-called law enforcement service [3].

S. S. Shoptenko believes that law enforcement agencies are public authorities that are created and operate on a professional basis in accordance with substantive and procedural law regularities to ensure protection of the rights, freedom and legitimate interests of legal personalities, interests of society and the State from unlawful encroachments and, in connection with they are endowed with a set of powers, in particular the application of coercive measures, as well as whose employees have a special socio-legal status, financial and logistical support, which is determined by the specifics of service in these bodies [4].

Summarizing the above, law enforcement agencies can be defined as specially created state bodies that operate on a professional basis in the manner prescribed by law in order to implement the law enforcement function of the state and therefore endowed with a certain amount of power (in particular, application of statutory measures). coercion), whose employees have a special legal status and additional legal guarantees of activity, determined by the peculiarities of service in the relevant bodies [5].

Law enforcement agencies are characterized by certain features that characterize their legal status and distinguish it from other state institutions.

O. M. Muzychuk determined such features of law enforcement agencies: they are state bodies that are clearly defined in legislative acts that regulate their activities, as well as bodies of executive authorities (except authorities of the Prosecutor's Office); they are specially created by ensuring the protection and defense of the rights and freedoms of citizens, the interests of society and the State (mostly from malicious achievements); the performance of law enforcement functions is prominent (basic) in their activities, which is provided by the relevant tasks, which they apply everywhere and constantly; law enforcement

[1] Соколенко О. Л. Op.cit.

[2] Науменко С. М. Op.cit.

[3] Музичук О. М. Op.cit. P. 174.

[4] Шоптенко С. С. Op.cit. P. 20—21.

[5] Науменко С. М. Op.cit.

functions, tasks and powers are performed by such bodies on a professional basis, which provides for appropriate training; performance of law enforcement tasks, functions and powers provides for the possibility of their use of state coercion; law enforcement agencies have special powers to prevent, detect and investigate crimes that are not typical of other government agencies (control and operational procurement and supply of goods, conducting operations to seize criminals, removing information from communication channels, conducting searches, detention and arrest of people, use of special means of active defense and attack, firearms, etc.). Monitoring activities and behavior of natural and legal entities, other collective subjects of legal relations, law enforcement agencies are also a subject to control by those they control (i.e. there is a mutual control). Additional control (compared to other employees of social and legal protection of law enforcement personnel) is due to the peculiarities of their so-called law enforcement service, certain restrictions and prohibitions associated with such service. The issue of their disciplinary responsibility is mostly regulated by special statutes on discipline. Frequently [1], to perform given duties, law enforcement agencies endowed with corresponding attributes that give the basis to call them "security forces" (special knowledge and uniform, relevant recognition markers, the right to bear and use firearms). Their law enforcement activities are coordinated by the Cabinet of the Ministers of Ukraine or the Prosecutor's Office (on issues of combating crime), customs organizations (for combating customs crimes and other customs offenses), etc. [2].

There is a quite interesting approach, according to which all the features of law enforcement agencies are systematized into the following blocks:

- *system-structural:* 1) belonging of law enforcement agencies to the bodies of executive authorities (except authorities of the prosecutor's office); 2) their activities are coordinated by the Cabinet of the Ministers of Ukraine or other public authorities; 3) they interact with each other; 4) they can be both subjects and objects of control;
- *legitimacy Indicators:* 1) created on the basis of law; 2) act in accordance with the procedures prescribed by law; 3) their activities have to comply with the constitutional principles of the rule of law and legality;
- *target:* 1) focus on the implementation of the law enforcement function of the State; 2) created and act in order to protect the rights, freedoms and legitimate interests of citizens, the rights of legal entities, the interests of society and the State from unlawful encroachments [3];
- *functional:* 1) endowed with power; 2) have the right to apply coercive measures if necessary; 3) have special powers to prevent, terminate, detect and investigate crimes and offenses, to bring the perpetrators to administrative responsibility in cases stipulated by law;

[1] Науменко С. М. Op.cit.

[2] Музичук О. М. Op.cit. P. 172—173.

[3] Науменко С. М. Op.cit.

- *socio-legal, personnel and logistical:* 1) additional social and legal protection (compared to other civil servants); 2) the presence of special attributes that distinguish them from other subjects of power; 3) performance of tasks on a professional basis; 4) special requirements and restrictions on staffing; 5) a special procedure for bringing to disciplinary responsibility, as determined by special statutes; 6) special logistical and financial support [1].

As of today, the law enforcement function of the State is implemented by a wide range of entities: for some it is the main one, it is comprehensively implemented by all employees and departments, other state bodies cam (in parallel with their core business) implement certain law enforcement tasks. Taking into consideration sufficient number of entities, who in accordance with the legislation have the authority to ensure law and order in the state, protection of rights, freedoms and legitimate interests of natural and legal entities, society and the State, different approaches to their classifications have been developed in the administrative law. Therefore, K. Yu. Melnyk divided all structural formations, whose activities are related to law enforcement, into 3 groups: 1) actually law enforcement agencies (courts, prosecutor's office, internal affairs agencies, the Security Service of Ukraine, State Border Guard Service of Ukraine, Department of the State Protection of Ukraine); 2) bodies (subdivisions) and officials, one of the tasks of which is to protect the rights and freedoms of citizens, interests of society and the State from criminal and other unlawful encroachments (State Tax Service; State Customs Service; the State Forest Protection; State Environmental Inspectorate; the State Department of Fire Safety), captains of seagoing vessels in a long-distance sailing, etc.); 3) bodies and organizations that promote the law enforcement activities (advocacy, notary, private detective and security services, non-governmental bodies of public order) [2]. This system needs to be clarified, as it does not take into account recently established law enforcement agencies. This system needs to be clarified, as it does not take into account recently established law enforcement agencies (e. g. the National Anti-Corruption Bureau of Ukraine and the State Bureau of Investigations) and also includes entities whose activities cannot be defined by such a system (the Bar, Notarial Office, security services) [3].

O. L. Sokolenko believes that the system of law enforcement agencies of Ukraine includes such types of law enforcement agencies: courts; the Prosecutor's Office; the Security Service of Ukraine; the Department of the State Protection; Military Law Enforcement Service in the Armed Forces of Ukraine; the State Border Guard Service of Ukraine; the State Penitentiary Service of Ukraine; the State Executive Service of Ukraine; police; Internal Troops of Ukraine; The

[1] Шоптенко С. С. Щодо змісту поняття «правоохоронний орган»// *Прикарпатський юридичний вісник.* 2017. № 3. P. 103.

[2] Науменко С. М. Op.cit.

[3] Мельник К. Ю. Проблеми правового регулювання трудових відносин службовців правоохоронних органів: монографія. Харків, 2009. P. 110.

Foreign Intelligence Service of Ukraine; the Main Directorate of Intelligence of the Ministry of Defence of Ukraine; Ukrainian Parliament Commissioner for Human Rights, etc. [1].

Thus, the main mission of courts is to administer justice, which cannot be equated with law enforcement. The Prosecutor's Office implements a supervisory function over law enforcement agencies (in particular, those conducting operational and investigative activities and pre-trial investigations), it is not directly involved in prevention, preclusion, detection and cessation of offenses, identification of perpetrators, which is the basis of law enforcement. However, it influences law enforcement agencies by making appropriate government decisions on the process and results of law enforcement activities [2].

I. M. Bilodid proposed to divide the law enforcement agencies into law enforcement and bodies that (along with their main functions) are also engaged in law enforcement activities. *The first group* includes: National Police of Ukraine; authorities of the Prosecutor's Office; State Border Guard Service of Ukraine; Security Service of Ukraine; National Anti-Corruption Bureau of Ukraine; State Fiscal Service of Ukraine; Department of the State Protection; Military Law Enforcement Service in the Armed Forces of Ukraine; penitentiary bodies and institutions. *The second group* includes: State Forest Protection Agencies; State Fisheries Agencies; State Sanitary Epidemiological Service of Ukraine; State Emergency Service; State Environmental Inspectorate [3]; bodies of State Financial Control; Foreign Intelligence Service of Ukraine.

By the Law of Ukraine: *On the state protection of employees of court and law enforcement agencies* [4] was approved that law enforcement agencies are authorities of the Prosecutor's Office, Internal affairs agencies, Security Services, bodies of military law enforcement in the Armed Forces of Ukraine, National Anti-Corruption Bureau of Ukraine, State Border Guard Services, organization of revenues and fees, penitentiary bodies and institutions, Detention centers, the bodies of State Financial Control, Fisheries Agencies, State Forest Protection Agencies, other bodies performing law enforcement functions.

According to S. S. Shoptenko, the system of law enforcement agencies of Ukraine should be considered through its division into direct law enforcement agencies that implement law enforcement activities comprehensively in various areas, and bodies that implement certain law enforcement functions. The first group includes: Prosecutor's Office; National Police of Ukraine; Security Service

[1] Соколенко О. Л. Op.cit.

[2] Науменко С. М. Op.cit.

[3] Білодід І. М. Адміністративно-правовий статус органів прокуратури в умовах реформування правоохоронної системи України: дис. … канд. юрид. наук. Харків, 2016. P. 50—51.

[4] Про державний захист працівників суду і правоохоронних органів: Закон України від 23.12.1993 р. № 3781-XII (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 1994. № 11. Ст. 50.

of Ukraine; National Anti-Corruption Bureau of Ukraine; State Fiscal Service of Ukraine; State Border Guard Service of Ukraine; Military Law Enforcement Service in the Armed Forces of Ukraine; State Penitentiary Service of Ukraine. It should be noted that law enforcement activities are carried out by separate divisions of mentioned institutions, specially created and authorized by law to implement these activities. Institutions that perform certain law enforcement functions are bodies of State Financial Control; Fisheries Agencies; State Forest Protection Agencies of Ukraine; Foreign Intelligence Service of Ukraine; Department of the State Protection; investigative body of the Ministry of Defence of Ukraine; State Bureau of Investigations; State Emergency Service of Ukraine; National Guard of Ukraine; State Executive Service; National Agency on Corruption Prevention; State Sanitary Epidemiological Service; State Environmental Inspectorate; State Architectural and Construction Inspectorate of Ukraine; State Migration Service of Ukraine [1].

So, the system of law enforcement agencies should be considered through the consolidation into 3 group: 1) *major bodies* (National Police of Ukraine, Security Service of Ukraine, National Anti-Corruption Bureau of Ukraine, State Bureau of Investigations, State Fiscal Service of Ukraine, State Border Guard Service of Ukraine, Military Law Enforcement Service in the Armed Forces of Ukraine, State Penitentiary Service of Ukraine); 2) *law enforcement entities* (courts and Prosecutor's Office); 3) *bodies which (along with the main activity) implement certain law enforcement functions* (bodies of State Financial Control, National Agency on Corruption Prevention, State Executive Service; Fisheries Agencies, State Forest Protection Agencies, Department of the State Protection, State Emergency Service, National Guard of Ukraine, State Migration Service of Ukraine, State Environmental Inspectorate, State Sanitary Epidemiological Service, State Architectural and Construction Inspectorate of Ukraine) [2].

These law enforcement agencies coordinate with various entities in their daily activities which contributes to the tasks assigned to them. One of such entities are experts, among of which we can single: a) forensic experts — employees of state specialized institutions that perform forensic expert activities [3]; b) forensic experts who are not employees of state specialized institutions that forensic expert activities; c) other specialists in relevant fields of knowledge who are not forensic experts. They can work at Research Institutions of Forensic Examinations of the Ministry of Justice, Ministry of Internal Affairs, Security Service, Ministry of Defence, State Border Guard Service of Ukraine.

Law enforcement agencies, that interact with forensic expert institutions, are determined depending on the tasks of latter mentioned, the main of which is

[1] Шоптенко С. С. Система правоохоронних органів України … . P. 155.

[2] Науменко С. М. Op.cit.

[3] Ткаченко Н. М. Суб'єкти судово-експертної діяльності в сучасній системі експертного забезпечення кримінального провадження: дис. … канд.. юрид. наук. Харків, 2016. P. 56.

to conduct an investigation and provide a substantivated conclusion in criminal cases (in particular, during pre-trial investigation). The interaction of forensic experts with pre-trial investigation bodies is determined by the fact that they have the right to familiarize with the materials of criminal proceedings related to the subject of the investigation, to request additional materials and samples, and perform other actions related to the examination. Experts may be present during the procedural actions related to the subjects and objects of investigation, and also have to come to the investigator, prosecutor, court and answer the questions during the interrogation. Pre-trial investigation bodies, for their part, are authorized to turn to forensic expert institutions to provide conclusions on certain issues related to their field of knowledge and arising in criminal proceedings, to participate in certain procedural actions and to provide explanations on their conclusions.

In view of the above-mentioned, forensic expert institutions cooperate with Prosecutor's Office and pre-trial investigation bodies, which (according to the law) include:

1) investigative subdivisions of the National Police and security bodies [1]; bodies that monitor compliance with tax legislation; bodies of the State Bureau of Investigations; bodies of the State Penitentiary Service of Ukraine;
2) a detective subdivision and internal control subdivision of the National Anti-Corruption Bureau of Ukraine [2].

The Regulations on the Expert Service of the Ministry of Internal Affairs of Ukraine stipulate that the Head of the Expert Service of the Ministry of Internal Affairs ensures interaction of this Service with structural subdivisions of the Ministry of Internal Affairs and central executive bodies, activities of which is direct and coordinate the Ministry of Internal Affairs of Ukraine, in the manner prescribed by the Ministry of Internal Affairs [3]. Thus, the Expert Service of the Ministry of Internal Affairs of Ukraine cooperates in its activities with the National Police, the National Guard, the State Border Guard Service, the State Migration Service and the State Emergency Service of Ukraine.

The Instruction on appointment and conduct of forensic examinations and expert researches, approved by the Order of the Ministry of Justice of Ukraine dated on 08.10.1998, № 53/5 (hereinafter referred to as *Professional Instruction*) states that (according to the current legislation) expert researches, that requirement special knowledge and use of methods of Criminology and forensic examination, perform on behalf of: law enforcement agencies, officials of the

[1] Науменко С. М. Op.cit.

[2] Кримінальний процесуальний кодекс України*: Закон України* від 13.04.2012 р. № 4651-VI (as amended and supplemented)//*Відомості Верховної Ради України (ВВР)*. 2013. № 9—10, 11—12, 13. С?. 88.т. 88.

[3] Положення про Експертну службу Міністерства внутрішніх справ України: затв. наказом МВС України від 03.11.2015 р. № 1343 (as amended and supplemented) URL: http://zakon5.rada.gov.ua/laws/show/z1390-15 (date accessed: 10.09.2020).

State Tax Administration of Ukraine, State Customs Service of Ukraine, State Executive Service, at the requires of lawyers, defenders and self-advocates, and their representatives, notaries banking institutions, insurance companies, as well as other legal entities and individuals [1]. However, this normative legal act does not specify which law enforcement agencies have the right to give instructions for expert researches [2].

According to the Instruction on the procedure for involving employees of pre-trial police investigation bodies and the Expert Service of the Ministry of Internal Affairs of Ukraine as specialists to participate in the inspection of the scene, approved by the Order of the Ministry of Internal Affairs of Ukraine dated on 03.11.2015 № 1339, specialized mobile laboratory of the Expert Service of the Ministry of Internal Affairs of Ukraine may be involved in the inspection of the scene in criminal proceedings at the written (as an exception, orally with further written) request of the Head of the pre-trial investigation body or the person performing his duties , in case of objective circumstances related to the committing of: murder or intentional grievous bodily harm that resulted in the death of a victim with the use of firearms; robbery with the use of firearms with victims; rape of a minor, young children, or one that has caused particularly serious consequences; a traffic accident in which two or more people were died or five or more people were hospitalized; a fire in which two or more people were killed or five or more people were hospitalized; explosion, threat of explosion or detection of improvised explosive devices [3].

In this case, the entities of interaction with forensic expert institutions are Heads of pre-trial investigation bodies prescribed by the Criminal Procedural Code of Ukraine.

So, we can come to the conclusion that the major law enforcement agencies, which interact with forensic expert institutions during their professional activities, are Security Service of Ukraine, State Bureau of Investigations, State Fiscal Service, State Penitentiary Service, National Anti-Corruption Bureau. In some cases, stipulated by law, they also can collaborate with authorities of the Prosecutor's Office and State Executive Service, contributing to the implementation of the latter tasks in the field of law enforcement [4].

---

[1] Інструкція про призначення та проведення судових експертиз та експертних досліджень: затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented). URL: http://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 10.09.2020).

[2] Науменко С. М. Op.cit.

[3] Інструкція про порядок залучення працівників органів досудового розслідування поліції та Експертної служби Міністерства внутрішніх справ України як спеціалістів для участі в проведенні огляду місця події: затв. наказом МВС України від 03.11.2015 р. № 1339. URL: http://zakon.rada.gov.ua/laws/show/z1392-15 (date accessed: 10.09.2020).

[4] Науменко С. М. Op.cit.

As for the substantive part of such interaction, its research should begin with the general characteristics of the category of "interaction". Under this category in jurisprudence is understood as provided by laws, other bylaws, coordinated by the purposes, tasks, forces, means, place and time their joint activity which promotes detection, investigation and prevention of crimes, and unites efforts in the decision of the general questions of combating crime; their business contact, which may arise during the investigation of the circumstances to be determined and proved [1]. Yu. S. Nazar explains an interaction as a management process to achieve a common goal, which consists in the activities of several (at least two) entities that influence each other and the object by means and methods specific to each of the participants [2]. Thus, it is a joint concerted activity of several entities aimed at achieving a common goal.

M. S. Kahan believes that "interaction is the process of direct or indirect influence of entities (subjects) on each other that creates their conditionality and relation. Casual conditionality is the main feature of the interaction when each party becomes the cause of the other and, as a consequence, simultaneous reverse influence of the opposite party, that determines the development of entities and their structures" [3]. That is, during the interaction the entities not only perform certain tasks, but also influence each other with the purpose to achieve a common goal.

Studying the interaction of local self-government bodies with law enforcement agencies, V. O. Burbyka defined it as a joint, agreed on a number of conditions (factors) activities of these bodies, carried out in the manner and within the limits prescribed by current legislation of Ukraine, aimed at ensuring public order and security, counteraction violation, protection of the rights and legitimate interests of individual and collective entities, as well as the resolution of other socially significant cases of a local nature [4].

V. M. Tertyshnyk consider the interaction of investigators, operatives and employees of forensic expert subdivisions (with various competence and specialization, as well as different level of knowledge in the field of Criminology, operational and investigative activities, criminal law and the process of subjects)

[1] Корж В. П. Деякі проблеми взаємодії слідчого з учасниками розкриття та розслідування економічних організованих злочинів//*Вісник прокуратури*. 2000. № 1 (13). P. 65.

[2] Назар Ю. С. Взаємодія територіальних органів внутрішніх справ із місцевими органами виконавчої влади та органами місцевого самоврядування у профілактиці адміністративних правопорушень: дис. … канд. юрид. наук. Львів, 2006. P. 158.

[3] Каган М. С. Мир общения: проблемы межсубъектных отношений. Москва, 1988. 319 p. ; Поплавська С. Д. Формування готовності студентів медичних коледжів до комунікативної взаємодії у професійній діяльності: дис. … канд. пед. наук. Житомир, 2009. 266 p.

[4] Бурбика В. О. Адміністративно-правові засади взаємодії органів місцевого самоврядування з правоохоронними органами: дис. … канд. юрид. наук. Суми, 2017. 38 p.

as based on law and other regularities the common goal of detecting and investigating crimes, determining the objective truth and ensuring the correct application of the law [1].

Therefore, the interaction of expert institutions with law enforcement agencies can be characterized as based on the law joint, agreed on the purpose, objectives, time, place and other conditions of their activities aimed at performing tasks in criminal proceedings and other cases of special knowledge [2].

V. D. Sushchenko identifies the following signs of interaction: consistency of events by purpose, place, time, methods; orientation of functioning of subjects of interaction; presence of normative (legal) base of interaction; the state that subjects occupy in the hierarchy of the system; the content of tasks that are solved by the subjects of interaction; common activity [3]. S. V. Borodin, emphasizing such signs of interaction as coordination of actions by purpose, place and time, defines the interaction of the operative and the investigator as based on law and bylaws, coordinated by purpose, place and time activities carried out to prevent, detect and investigation of crimes, as well as11 to search for criminals in hiding [4].

The peculiarities of the interaction are that it is regulated mainly by the norms of administrative law, which provides for: coordination of actions (in particular, when planning joint activities) to ensure public order on the places; the nature of interaction in accordance with the needs, interests and objectives of the parties; the responsibility of the Heads of these bodies for the decision made and agreed; continuity of interaction in the organization of activities to ensure public order and security; strict compliance with current legislation of Ukraine; focusing on raising the level of legal culture of society as a whole and legal awareness of individual citizens; joint activities aimed at improving the external and internal image of both law enforcement agencies and local self-government bodies [5].

Conclusions. So, the following features of the interaction between forensic expert institutions and law enforcement agencies can be single out:

- joint activities of mentioned entities governed by regularities of administrative and other fields of law, agreed on the purpose, tasks, place, time, means and methods of activities aimed at achieving joint tasks and results;

[1] Тертишник В. М. Науково-практичний коментар до Кримінально-процесуального кодексу України. Київ, 2004. P. 505 ; Пчеліна О. В. Теоретичні засади формування та реалізації методики розслідування злочинів у сфері службової діяльності: дис. … д-ра юрид. наук. Харків, 2017. 376 p.

[2] Науменко С. М. Op.cit.

[3] Сущенко В. Д., Смирнов А. М., Коваленко О. І., Смірнов А. А. Організація управління персоналом в органах внутрішніх справ: монограф. дослідж. Київ, 1999. P. 298—299; Назар Ю. С. Op.cit. P. 18—19.

[4] Бородин С. В. Некоторые вопросы взаимодействия оперативного работника и следователя охраны общественного порядка//*Труды ВНИИ МООП.* Москва, 1967. P. 21.

[5] Бурбика В. О. Op.cit.

- joint tasks and results to achieve which the following interaction is directed;
- responsibility of the interaction parties in case of non-performing or improper performing of the tasks of such interaction [1].

Interaction of forensic expert institutions with law enforcement agencies aims to ensure the qualified, rapid and objective execution of the tasks of criminal proceedings, as well as the application of special knowledge in other areas of law enforcement.

References

Bilodid, I. M. (2016) *Administratyvno-pravovyi status orhaniv prokuratury v umovakh reformuvannia pravookhoronnoi systemy Ukrainy* (candidates thesis). Kharkiv [in Ukrainian].

Borodin, S. V. (1967). Nekotorye voprosy vzaimodeistviia operativnogo rabotnika i sledovatelia okhrany obshchestvennogo poriadka. *Trudy VNII MOOP.* Moscow [in Russian].

Burbyka, V. O. (2017). *Administratyvno-pravovi zasady vzaiemodii orhaniv mistsevoho samovriaduvannia z pravookhoronnymy orhanamy* (candidates thesis). Sumy [in Ukrainian].

Instruktsiia pro poriadok zaluchennia pratsivnykiv orhaniv dosudovoho rozsliduvannia politsii ta Ekspertnoi sluzhby Ministerstva vnutrishnikh sprav Ukrainy yak spetsialistiv dlia uchasti v provedenni ohliadu mistsia podii: zatv. nakazom MVS Ukrainy vid 03.11.2015 r. № 1339. URL: http://zakon.rada.gov.ua/laws/show/z1392-15 (data zvernennia: 10.09.2020) [in Ukrainian].

Instruktsiia pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen: zatv. nakazom Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.). URL: http://zakon.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 10.09.2020) [in Ukrainian].

Kagan, M. S. (1988). *Mir obshcheniia: problemy mezhsubektnykh otnoshenii.* Moscow [in Russian].

Korzh, V. P. (2000). Deiaki problemy vzaiemodii slidchoho z uchasnykamy rozkryttia ta rozsliduvannia ekonomichnykh orhanizovanykh zlochyniv. *Visnyk prokuratury.* № 1 (13) [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy (2013): Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* № 9—10, 11—12, 13. St. 88 [in Ukrainian].

Melnyk, K. Yu. (2009). *Problemy pravovoho rehuliuvannia trudovykh vidnosyn sluzhbovtsiv pravookhoronnykh orhaniv:* monohrafiia. Kharkiv [in Ukrainian].

[1] Науменко С. М. Op.cit.

Muzychuk, O. M. (2010). *Kontrol za diialnistiu pravookhoronnykh orhaniv v Ukraini: administratyvno-pravovi zasady orhanizatsii ta funktsionuvannia:* dys. … d-ra yuryd. nauk. Kharkiv [in Ukrainian].

Naumenko, S. M. (2019). *Administratyvno-pravovi zasady vzaiemodii ekspertnykh ustanov z pravookhoronnymy orhanamy* (candidates thesis). Sumy [in Ukrainian].

Nazar, Yu. S. (2006). *Vzaiemodiia terytorialnykh orhaniv vnutrishnikh sprav iz mistsevymy orhanamy vykonavchoi vlady ta orhanamy mistsevoho samovriaduvannia u profilaktytsi administratyvnykh pravoporushen* (candidates thesis). Lviv [in Ukrainian].

Pchelina, O. V. (2017). *Teoretychni zasady formuvannia ta realizatsii metodyky rozsliduvannia zlochyniv u sferi sluzhbovoi diialnosti:* dys. … d-ra yuryd. nauk. Kharkiv [in Ukrainian].

Polozhennia pro Ekspertnu sluzhbu Ministerstva vnutrishnikh sprav Ukrainy: zatv. nakazom MVS Ukrainy vid 03.11.2015 r. № 1343 (zi zmin. ta dopov.). URL: http://zakon5.rada.gov.ua/laws/show/z1390-15 (data zvernennia: 10.09.2020) [in Ukrainian].

Poplavska, S. D. (2009). *Formuvannia hotovnosti studentiv medychnykh koledzhiv do komunikatyvnoi vzaiemodii u profesiinii diialnosti.* (Abstract of candidates thesis). Zhytomyr [in Ukrainian].

Pro derzhavnyi zakhyst pratsivnykiv sudu i pravookhoronnykh orhaniv (1994): Zakon Ukrainy vid 23.12.1993 r. № 3781-XII (zi zmin. ta dopov.)//*Vidomosti Verkhovnoi Rady Ukrainy (VVR).* № 11. St. 50 [in Ukrainian].

Reshetnikova, I. V. (1997). *Dokazatelstvennoe pravo Anglii i SShA.* Ekaterinburg [in Russian].

Shoptenko, S. S. (2017). Shchodo zmistu poniattia «pravookhoronnyi orhan». *Prykarpatskyi yurydychnyi visnyk.* № 3 [in Ukrainian].

Shoptenko, S. S. (2017). Systema pravookhoronnykh orhaniv Ukrainy. *Naukovyi visnyk publichnoho ta pryvatnoho prava.* Vyp. 3. [in Ukrainian].

Shoptenko, S. S. (2018). *Administratyvno-yurysdyktsiina diialnist pravookhoronnykh orhaniv v Ukraini.* Ed.: O. M. Muzychuka. Kharkiv [in Ukrainian].

Sokolenko, O. L. (2012). *Administratyvno-pravovi zasady zakhystu prav hromadian u diialnosti pravookhoronnykh orhaniv:* dys. … d-ra yuryd. nauk. Kharkiv [in Ukrainian].

Sudebnye i pravookhranitelnye organy Ukrainy (1999): uchebnik. Ed.: A. M. Bandurka. Kharkov [in Russian].

Sushchenko, V. D., Smyrnov, A. M., Kovalenko, O. I., Smirnov, A. A. (1999). *Orhanizatsiia upravlinnia personalom v orhanakh vnutrishnikh sprav:* monohraf. doslidzh. Kyiv [in Ukrainian].

Tertyshnyk, V. M. (2004). *Naukovo-praktychnyi komentar do Kryminalno-protsesualnoho kodeksu Ukrainy.* Kyiv [in Ukrainian].

Tkachenko, N. M. (2016). *Subiekty sudovo-ekspertnoi diialnosti v suchasnii systemi ekspertnoho zabezpechennia kryminalnoho provadzhennia* (candidates thesis). Kharkiv [in Ukrainian].

Yurydychnyi slovnyk-dovidnyk. (1996). Ed.: Yu. S. Shemshuchenko. Kyiv [in Ukrainian].

С. М. Науменко

СИСТЕМА ПРАВООХОРОННИХ ОРГАНІВ, ЯКІ ВЗАЄМОДІЮТЬ З ЕКСПЕРТНИМИ УСТАНОВАМИ

У статті визначено зміст та особливості системи правоохоронних органів, які взаємодіють з експертними установами. Досліджено поняття «правоохоронні органи» та їхню систему. Схарактеризовано загальні категорії взаємодії правоохоронних органів з експертними установами. Виокремлено ознаки взаємодії експертних установ з правоохоронними органами.

Ключові слова: експерт, експертні установи, правоохоронний орган, взаємодія, завдання, функції, гарантії, адміністративно-правові форми взаємодії, адміністративно-правові методи взаємодії, ознаки взаємодії, організаційні засади взаємодії.

С. М. Науменко

СИСТЕМА ПРАВООХРАНИТЕЛЬНЫХ ОРГАНОВ, ВЗАИМОДЕЙСТВУЮЩИХ С ЭКСПЕРТНЫМИ УЧРЕЖДЕНИЯМИ

В статье определены содержание и особенности системы правоохранительных органов, взаимодействующих с экспертными учреждениями. Исследованы понятие «правоохранительные органы» и их система. Охарактеризованы общие категории взаимодействия правоохранительных органов с экспертными учреждениями. Выделены признаки взаимодействия экспертных учреждений с правоохранительными органами. Также установлено, что на сегодняшний день проблемы взаимодействия правоохранительных органов с экспертными органами нуждаются в детальном изучении и восполнении пробелов в нормативно-правом регулировании, определении путей их устранения.

Признаками взаимодействия экспертных учреждений с правоохранительными органами можно считать: совместную деятельность указанных субъектов, регулируемую нормами административного и других отраслей права, согласованную по целям, задачам, месту, времени, средствам и способам деятельности и направленную на достижение общих целей и результатов; общие задачи и результаты, на достижение которых направлено такое взаимодействие; ответственность сторон взаимодействия за неисполнение или ненадлежащее исполнение

поставленных задач. Взаимодействие экспертных учреждений с правоохранительными органами призвано обеспечить квалифицированное, быстрое и объективное выполнение задач уголовного судопроизводства, а также применение специальных знаний в других сферах правоохранительной деятельности.

Ключевые слова: эксперт, экспертные учреждения, правоохранительный орган, взаимодействие, задачи, функции, гарантии, административно-правовые формы взаимодействия, административно-правовые методы взаимодействия, признаки взаимодействия, организационные принципы взаимодействия.

Received by Editorial Board: 22.06.2020

Naumenko S. M. The system of law enforcement agencies interacting with forensic science institutes//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 211—225. DOI: https://doi.org/10.32353/khrife.2.2020.16.

DOI: https://doi.org/10.32353/khrife.2.2020.17
UDC 343.98

D. V. Puchko,
PhD student at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Prosecutor of Kharkiv Local Prosecutor Office № 2 of Kharkiv Region, Lawyer of the 1st class, Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-1332-6806,
e-mail: puchko06111990@gmail.com

Relevance and reliability of an expert conclusion as a criteria for evaluating forensic examination

Based on the analysis of special literature, regulations and forensic expert practice, the article considers the main provisions related to formation of criteria for evaluating a forensic expert report as a source of evidence in terms of their relevance and admissibility.

Arguments are provided regarding the fact that if objects investigated by a forensic expert or solved tasks do not relate to materials of criminal proceedings, then, accordingly, a forensic expert report should be recognized as an irrelevant source of evidence.

When assessing admissibility of a forensic expert report, it is crucial to establish whether a forensic examination was appointed and conducted in accordance with the procedural order. Such an evaluation criterion is supported by regulations of Article Four of the Fundamental Law of Ukraine: "On Forensic Science", according to which independence of a forensic expert and validity of his findings are ensured by the procedure for appointing a forensic expert determined by law.

It is argued that calling on a forensic expert as a witness for the purpose of clarifying and supplementing his report may lead to his withdrawal from the criminal process by means of recusal. An expert who has conducted forensic examination, interrogated as a witness, will not be able to participate in this criminal proceeding as a forensic expert in the future. If a forensic expert interrogated as a witness will carry out, for example, an additional forensic examination in this criminal proceeding in the future, then it may be recognized as inadmissible evidence, since it was conducted by a witness in this criminal proceeding, which is prohibited by law. That is, based on the regulations of the current criminal procedural legislation of Ukraine, a forensic expert can provide clarifications on the issues of forensic examination carried out by him in criminal proceedings only as a forensic expert and not as a witness.

Keywords: relevance of evidence, admissibility of evidence, forensic expert report, proof, subject of proof, forensic examination.

Formulation of Research Problem. Main criteria for assessment any source of evidence in criminal proceedings is their relevance and admissibility. This

© D. V. Puchko, 2020

fully applies to conclusion. Per se, evidence appropriateness lies in awareness of its content and connection with offense circumstances. How an investigator, prosecutor or court should evaluate expert conclusion in criminal proceedings, if named subjects do not have specific expertise and forensic is the main form of specific expertise application in legal proceedings. This article is devoted to solving issues of evaluating forensic expert conclusion as for its relevance and admissibility.

Analysis of Essential Researches and Publications. Encyclopedic definition of *relevance* of evidence is limited by the ability of factual data to contain information about circumstances belonging to the proof subject, serve as arguments (premises) while finding out objective truth. According to this formulation authors, decision on evidence relevance requires clarification of two points: whether the facts for which relevant facts are extracted and investigated belong to the proof subject (basic, intermediate or auxiliary facts); whether factual data that is the evidence content taking into account their informational value can determine relevant circumstances of proof subject [1]. A significant number of research papers are devoted to the issue of proving and developing criteria for evaluating evidence [2]. Thus, fundamental in this aspect are the works

[1] Юридична енциклопедія: у 6 т./редкол.: Ю. С. Шемшученко (відп. ред.) та ін. Київ, 2002. Т. 4: Н — П. 720 р.

[2] E.g.,: Белкин Р. С. Собирание, исследование и оценка доказательств. Сущность и методы. Москва, 1966. 296 р. ; Владимиров Л. Е. Учение об уголовных доказательствах. Тула, 2000. 464 с. ; Горский Г. Ф., Кокорев Л. Д., Элькинд П. С. Проблемы доказательств в советском уголовном процессе. Воронеж, 1978. 303 р. ; Карнеева Л. М. Доказательства в советском уголовном процессе: учеб. пособ. Волгоград, 1988. 68 р. ; Лупинская П. А. Решения в уголовном судопроизводстве. Их виды, содержание и форма. Москва, 1976. 168 р. ; Миньковский Г. М. Пределы доказывания в советском уголовном процессе/Всесоюз. ин-т юрид. наук Минюста СССР. Москва, 1956. 115 р. ; Михеєнко М. М., Нор В. Т., Шибіко В. П. Кримінальний процес України: підручник. 2-ге вид., перероб. і допов. Київ, 1999. 536 р. ; Орлов Ю. К. Основы теории доказательств в уголовном процессе: науч.-практ. пособ. Москва, 2001. 144 р. ; Пешков М. А. Закон и полицейская практика производства ареста и обыска в уголовном процессе США (доктрина «достаточное основание»)// Российский следователь. 1999. № 4. Р. 52—56 ; Пчеліна О. В. Особливості предмета доказування у кримінальних справах про економічні злочини та їх вплив на методику розслідування: автореф. дис. … канд. юрид. наук/ХНУВС. Харків, 2010. 20 р. ; Советский уголовный процесс/под ред. Д. С. Карева. Москва, 1956. 416 р. ; Строгович М. С. Избранные труды: в 3 т. Т. 3. Теория судебных доказательств/ отв. ред. А. М. Ларин. Москва, 1991. 300 р. ; Уголовно-процессуальное право Российской Федерации: учебник/отв. ред. П. А. Лупинская. Москва, 2004. 800 р. ; Уголовный процесс: учеб. для вузов/под общ. ред. П. А. Лупинской. Москва, 1995. 544 р. ; Ульянова Л. Т. Оценка доказательств судом первой инстанции. Москва, 1959. 168 р. ; Фойницкий И. Я. Курс уголовного судопроизводства: в 2 т. Т. II. Санкт-Петербург, 1996. Р. 231 ; Шейфер С. А. Доказательства и доказывание по уголовным делам: проблемы теории и правового регулирования. Тольятти, 1997. 92 р. ;

of R. S. Belkin who explored essence and methods of collecting, researching and evaluating evidence and insisted on taking into account epistemological proof aspects [1]. Research paper of N. A. Yakubovych is devoted to the proof epistemology in criminal proceedings proved that cognitive nature of the proof procedure is due to the fact that in each criminal case professionals determine previously unknown facts and criminal offense circumstances [2]. Regarding theoretical and procedural issues of evidence S. A. Schaefer [3] noted: subject elements of proof are only those circumstances of the case that characterize the event as a dangerous and punishable act and are the basis for the application of law (procedural and substantive) to implement the tasks legal proceedings. Some provisions of the theory of forensic evidence were developed by M. S. Strogovich, defining the subject of proof as factual circumstances corresponding to elements of the crime [4]. These and other research papers became the basis for the development of the theory of proof in further research. Despite the fact that these studies formulate important principles, some unresolved or debatable issues remain. In particular, this applies to forensic expert conclusion evaluation as a source of evidence in criminal proceedings which led to this article purpose, namely: to improve the existing provisions and formulate proposals for solving problems on the issues under research.

The **Article Purpose**. Based on analysis of professional readings, regulations and forensic expert practice to consider main provisions related to formation of criteria for evaluating expert conclusion as a source of evidence.

Main Content Presentation. In Art. 85 of Criminal Procedural Code of Ukraine evidence relevance is defined as follows: appropriate evidence that directly or indirectly confirms existence or lack of circumstances to be proved in criminal proceedings and other circumstances relevant to criminal proceedings and reliability or unreliability, possibility or impossibility of using other evidence[5]. Connection with the subject of proof of such a criterion for evaluating evidence as belonging is quite obvious, but there is an active debate around this issue. Thus, V. V. Sychevskyi having analyzed numerous publications (mostly by Russian authors) came to conclusion about timeliness and relevance of novels of the Ukrainian criminal process aimed at introducing European standards of

Чельцов-Бебутов М. А. Курс уголовно-процессуального права: Очерки по истории суда и уголовного процесса в рабовладельческих, феодальных и буржуазных государствах. Санкт-Петербург, 1995. 846 р. ; Якубович Н. А. Гносеологические основы доказывания по уголовному делу. Курс советского уголовного процесса: Общая часть. Москва, 1989. P. 521—542.

[1] Белкин Р. С. Op. cit. P. 3.

[2] Якубович Н. А. Op. cit. P. 523.

[3] Шейфер С. А. Op. cit. P. 22—23.

[4] Строгович М. С. Op. cit. P. 159—160.

[5] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. P. 88.

human rights and freedoms in criminal proceedings, because it is the criteria they are evaluated and the norms of international conventions are implemented into domestic legislation [1].

L. V. Golovko proposed to distinguish the criteria for evaluating evidence into *rigid* and *flexible* models [2]. According to K. Yu. Samuticheva who compared the legislation of different countries in terms of evidence evaluation, criminal procedure in Ukraine, as well as in Russian Federation, has a *rigid* evaluation model [3]. Note that the *rigid* model involves a categorical rejection of the formal evidence theory, in contrast to the *flexible* one characterized by a certain freedom of evaluation. In Art. 94 of the Criminal Procedural Code of Ukraine of Ukraine stipulates the following: investigator, prosecutor, investigating judge, court according to their inner conviction based on a comprehensive, complete and impartial investigation of all circumstances of criminal proceedings, guided by law, evaluate each piece of evidence from the standpoint of relevance, admissibility, reliability from the standpoint of sufficiency and relationship to make the appropriate procedural decision [4]. In this case, no evidence has a predetermined force. Thus, we cannot agree that a *rigid* model of evidence evaluation has been introduced in Ukraine: it is more likely (given the above-mentioned *flexibility* criterion) that a mixed evaluation model operates in Ukraine: on the one hand, internal subject of assessment, on the other, mandatory assessment of relevance, admissibility, reliability and the set of evidence collected by experts check from the standpoint of sufficiency and relationship to make the appropriate procedural decision.

In previous publications[5] we have given examples from the field of construction and technical expertise, when the expert's opinion can be considered inappropriate (i.e., that is not relevant does not belong to the case file). If during the evaluation of forensic expert conclusion the investigator (prosecutor, court) finds that the mentioned condition is not fulfilled, i.e. the investigated objects or performed tasks do not relate to the materials of criminal proceedings, forensic expert conclusion is automatically recognized as an inappropriate source of

[1] Сичевський В. В. Актуальні питання належності доказів у кримінальному провадженні//*Європейські перспективи*. 2015. № 4. P. 54—59.

[2] Головко Л. В. Материалы к построению сравнительного уголовно-процессуального права: источники, доказательства, предварительное производство// *Труды юридического факультета МГУ им. М. В. Ломоносова.* Кн. 11. Москва, 2009. P. 260—261.

[3] Самутичева Е. Ю. Заключение эксперта и его оценка в уголовном процессе: дис. … канд. юрид. наук. Москва, 2015. 189 p.

[4] Кримінальний процесуальний кодекс України: …//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. Ст. 88.

[5] E.g.,: Пучко Д. В. До питання оцінювання результатів судової будівельно-технічної експертизи у кримінальному провадженні//Т*еорія та практика судової експертизи і криміналістики:* зб. наук. пр./редкол.: О. М. Клюєв, В. Ю. Шепітько та ін. Харків, 2020. Вип. 21. P. 92—105.

evidence. Please note that inadequacy of the conclusion provided by forensic expert can be related to both the setting of tasks or the provision of inappropriate objects by the person (body) who appointed forensic examination and the research of improper objects selected by forensic expert independently. A. Yu. Butyrin notes that affiliation to the case of issues (referred to forensic expert by a court decision, resolution of the investigator, the body of inquiry) is determined during the appointment of the examination; expert witness answering them should not go beyond the substantive limits of these questions [1]. How exactly should a forensic expert behave if the question is unclear or its wording does not comply with the developed recommendations [2], however, the task content is clear to forensic expert in accordance with the Instruction on appointment and conducting forensic examinations and researches; in this case, after quoting the question in the wording of the document on appointment of examination (expert involvement) he can give the corresponding explanations and state questions in the edition corresponding to the mentioned recommendations. In addition, if several questions are asked, the expert has the right to group them and present them in the sequence providing the most appropriate procedure for the study; if some issues contained in the document on forensic examination appointment (expert involvement) were decided during the examinations of various types: information (name of the expert institution, number and date of conclusion) about these examinations; if the issues raised for the resolution of the examination should be resolved in a different order than stipulated in the document on the examination appointment (expert involvement), indicate in what order these issues will be resolved [3]. The main thing in such cases is that the forensic expert does not violate the scope of the evidence when reformulating or grouping the issues. Only in this case, the expert conclusion is recognized as appropriate evidence.

Another issue we would like to focus on is expert initiative. Thus, in accordance with the requirements of paragraph 4 of Part 3 of Art. 69 of Criminal Procedural Code of Ukraine of Ukraine, forensic expert has the right to present in the conclusion of the examination found while its conducting information that is relevant to criminal proceedings and which about, he was not asked questions [4]. Here it is important to realize that forensic expert can expand the range of issues

[1] Бутырин А. Ю. Теория и практика судебной строительно-технической экспертизы. Москва, 2006. 224 р.

[2] 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 Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented; у ред. наказу від 27.07.2015 р. № 1350/5). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 29.08.2020).

[3] Ibid.

[4] Кримінальний процесуальний кодекс України: …//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. Ст. 88.

to be solved only within the limits of his specific expertise. For example, in the case of assignment of forensic structural inspection forensic expert sees with his own eyes that signatures and digital records on behalf of the same person in the contractual documentation submitted for the study of construction works (contracts and annexes, additional agreements, etc.) and also design and estimate and primary reporting and production documentation (forms: КБ-2в, КБ-3, information write-offs, logs, inspection reports of hidden works, test reports, etc.) differ in spelling and in the areas of signatures or digital inscriptions are observed visible traces similar to etching, cleaning, smearing, etc. in such situations, facts of forgery of documents by making changes or forging the signatures of a certain person may be important for criminal proceedings. It is clear that a forged document cannot be the basis for resolving issues raised by a construction expert: a forensic construction expert is not an expert in technical document research or handwriting. That is why he has no right to expand the range of issues to be addressed by involving experts in handwriting or in the field of technical research of documents. What way out of such a situation is possible in this matter, we agree with E. B. Simakova-Yefremian: while multidisciplinary forensic examination the realization of the expert's right to initiative within the relevant field of knowledge becomes legally conditioned and real (Article 69 of the Criminal Procedural Code of Ukraine of Ukraine). At the same time, author notes that in the "procedure of organizing multidisciplinary forensic examination on the initiative of forensic documentary expert can resolve the issue of availability (lack) of signs of document editing (mechanical or electronic) that is impossible for a separate handwriting analysis" [1]. Extrapolating this thesis to the field of construction and technical research, we can give the following example. In case of detection in real estate documentation, building materials, structures (provided for research to address construction issues, traces similar to forgery, the institution head may organize a multidisciplinary forensic examination in the field of construction and questioned document examination. According to the results of forensic investigations, it is possible to identify the fact of signing (handwriting) by another person or making changes to documents by adding, etching, cleaning, etc. This fact will help the investigator to decide on authenticity of submitted documents and expediency (inexpediency) of their consideration during the research of a construction specialization expert. This approach will significantly save the time of the examination, as filing a petition to the body (person) that appointed the examination with a proposal to involve relevant forensic experts for research will not contribute to efficiency of this research, because it requires much more time.

As we have already noted, another important criterion for evaluating evidence is its admissibility. The normatively defined criterion of admissibility of evidence in the Ukrainian legal proceedings is traditionally associated with

[1] Сімакова-Єфремян Е. Б. Комплексні судово-експертні дослідження: теорія та практика: монографія. Харків, 2016. P. 165.

the requirement to comply with the law and human rights. Thus, in Art. 86, 87 of Criminal Procedural Code of Ukraine, evidence is recognized as admissible if it is obtained in the manner prescribed by this Code. Inadmissible evidence cannot be used while adoption of procedural decisions, it cannot be referred to by the court during adoption of its decision [1]. Ukrainian researchers distinguish the following conditions for recognizing evidence as admissible: obtaining evidence by a proper subject; obtaining evidence from an appropriate source; observance of the proper procedure for obtaining evidence, as well as observance of human rights and freedoms guaranteed by the Constitution and other laws of Ukraine, international treaties which binding force has been approved by the Verkhovna Rada of Ukraine; proper design of the course and activity results [2].

We adapt these requirements to the assessment of such a means of proof as an forensic expert conclusion. The following circumstances should be taken into account when assessing the admissibility of forensic expert conclusion. First of all, during the assessment, it should be clarified whether a forensic examination has been appointed and conducted in accordance with the procedural procedure. This evaluation criterion is confirmed by the norm of Art. 4 of the Law of Ukraine: *On Judicial Examination*, which according to forensic expert independence and the correctness of his conclusion is ensured in the manner prescribed by law, appointment of a forensic expert [3]. In view of the mentioned evaluation criterion, if the procedural order is violated while forensic examination assignment and conducting, such a conclusion is declared inadmissible. The next step in the assessment should be to determine whether the rights of participants in criminal proceedings have been respected while forensic examination assignment and conducting.

Next, you need to determine whether the examination was conducted by the person to be removed. In accordance with the requirements of the blanket rules of Art. 79 of Criminal Procedural Code of Ukraine, forensic expert has no right to participate in criminal proceedings and his candidacy is rejected (withdrawn) on the grounds provided for in Part 1 of Art. 77 of this Code (with the restriction that his previous participation in this criminal proceedings as a specialist, forensic expert cannot be grounds for dismissal). Instead of Art. 77 contains grounds for dismissal of a prosecutor (investigator, coroner) if he participated in the same proceedings as an expert, specialist or there are other circumstances that raise reasonable doubts about his impartiality. In addition, the expert is not entitled to participate in criminal proceedings if he has conducted an audit, inspection, etc.,

---

[1] Кримінальний процесуальний кодекс України: …//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. Ст. 88.

[2] Уголовный процессуальный кодекс Украины: Научно-практический комментарий/отв. ред.: С. В. Кивалов, С. Н. Мищенко, В. Ю. Захарченко. Харьков, 2013. Р. 216.

[3] Про судову експертизу: Закон України від 25.02.1994 р. № 4038-XII (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 1994. № 28. Ст. 232.

the materials of which are used in these proceedings [1]. Finally, while assessing evidence admissibility, it is determined whether the procedural form of the expert's opinion has been complied with (Article 102 of the Criminal Procedural Code of Ukraine).

We analyzed 187 court decisions in criminal proceedings in cases of illegal use of budget funds during construction, and only 25% of these decisions were checked for the totality of the above data, indicating an inadequate assessment of expert conclusions as admissible sources of evidence in our opinion.

In particular, Art. 87 of the CPC of Ukraine stipulates that inadmissible evidence "obtained as a result of a significant violation of human rights and freedoms guaranteed by the Constitution and laws of Ukraine, international treaties, binding consent of the Verkhovna Rada of Ukraine, as well as any other evidence obtained through information obtained as a result of a significant violation of human rights and freedoms" [2]. Therefore, according to the provisions of the mentioned article of the Criminal Procedural Code of Ukraine, violations of human rights and fundamental freedoms are significant and the court is obliged to declare such evidence inadmissible. The legislator sets clear rules according to which evidence is declared inadmissible. First, if procedural law provides for the prior permission of the court to carry out certain actions, but instead these actions were carried out with complete or substantial disregard of this rule. Secondly, evidence is declared inadmissible if the facts of torture used in obtaining it are proved. In addition to torture, cruel, inhuman or degrading treatment or the intent or threat to use such treatment are prohibited. In addition, the right of a person to protection is an inalienable constitutional right of a person and a citizen, that is why the violation of this right during the taking of evidence is the basis for declaring it inadmissible. In addition, unfortunately, it has not yet become mandatory to notify (explain) to a person that he or she has the right to refuse to testify or explain and not to answer questions in cases provided by law. The law also provides for the right to cross-examination, so the court must recognize the violation of this right as significant [3]. The Criminal Procedural Code of Ukraine also declared inadmissible evidence obtained from the testimony of a witness who was later recognized as a suspect or accused in this criminal proceeding. That is why we consider it wrong to interrogate an expert as a witness (or to receive testimony from him as a witness), which will be discussed below, because there are cases when a forensic expert is informed of suspicion in case of disagreement with the results of his examination (according to Article 384 of Criminal Procedural Code of Ukraine) [4].

[1] Кримінальний процесуальний кодекс України: …//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. Ст. 88.

[2] Ibid.

[3] Ibid.

[4] Кримінальний кодекс України: Закон України від 05.04.2001 р. № 2341-III (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 2001. № 25—26. Ст. 131.

Legislators have provided other grounds for declaring evidence inadmissible. The evidence provided for in the above-mentioned article of the Criminal Procedural Code of Ukraine should be declared inadmissible by the court during any trial, except for consideration of liability for substantial violation of human rights and freedoms, as a result of which such information was obtained [1].

Another issue that needs special attention. We have already drawn attention to the fact that it is inadmissible to call a forensic expert to explain his opinion as a witness. At the same time, the generalization of the practice of summoning forensic experts shows that expert witnesses are summoned quite often for questioning in connection with the conducted examination (this is confirmed by almost 57% of summonses and summonses). in this aspect we note that paragraphs 1 and 2 of Part 5 of Art. 69 of the Criminal Procedural Code of Ukraine provides a rule according to forensic expert is obliged not only to conduct a full research and provide reasoned and objective written opinion on the questions asked to him but if necessary, to explain it and to come to court and answer questions while interrogation. In other words, forensic expert is obliged to appear in court only for questioning. At the pre-trial stage, he should provide clarification on his forensic examination as forensic expert.

As we can see, the legislation formulates a clear rule according to which, if necessary, in clarifying the opinion of a forensic expert, such an explanation can be obtained only from the procedural person of the expert, and not from a witness. Unfortunately, a different approach had to be observed in the practice of pre-trial investigation. We have already drawn attention to the case of what we consider to be erroneous practice of evaluating a forensic expert's conclusion while forensic expert was summoned for questioning as a witness. The plot did so. To determine the facts and circumstances of the criminal proceedings, the pre-trial investigation body initiated a forensic examination. As the prosecutor had reasonable doubts about correctness of expert conclusions while pre-trial investigation in the form of procedural guidance, the prosecutor, for his part, initiated the re-examination to an expert of another specialized expert institution who came to opposite conclusion. The investigator of the pre-trial investigation body that initiated the initial examination, summoned as a witness for questioning a forensic expert who conducted forensic re-examination. Forensic science institution appealed against this decision, considering that expert who conducted the forensic examination in the criminal proceedings could not be called as a witness to explain and supplement it, as it violates the legislation of Ukraine regarding the testimony of a forensic expert. After all, in accordance with the requirements of Art. 79 of the Criminal Procedural Code of Ukraine which sets out the grounds for the removal of the expert, expert has no right to participate in criminal proceedings and his candidacy is rejected on the grounds provided for in Part 1 of Art. 77 of this Code ("Grounds for dismissal of a prosecutor, investigator, coroner"),

[1] Кримінальний процесуальний кодекс України: …//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. Ст. 88.

with the restriction that his previous participation in these criminal proceedings as an expert may not be grounds for dismissal. Correlating the requirements of Art. 77 of Art. 79 of the Criminal Procedural Code of Ukraine, it should be concluded that it is necessary to challenge the expert who participated in criminal proceedings as a witness. So, the call of a forensic expert for the purpose of his explanation and supplementing his opinion as a witness may lead to the removal of the forensic expert from criminal proceedings by removal. This will not allow the forensic expert questioned as a witness to further participate in these criminal proceedings as an expert. If the forensic expert questioned as a witness in the future in this criminal proceeding conducts, for example, additional examination, it may be declared inadmissible evidence, as it was conducted by a witness in this criminal proceeding prohibited by applicable law. In other words, taking into account the norms of the current Criminal Procedural Code of Ukraine of Ukraine, a forensic expert may provide clarification on the issues of his forensic examination in criminal proceedings only as an expert and not as a witness [1].

Conclusions. Therefore, summarizing research results we can draw the following conclusions. The main criteria for assessing any source of evidence in criminal proceedings is their relevance and admissibility. We support the point of view of those scholars who consider it timely and relevant to introduce novelties of the Ukrainian criminal process related to the introduction of European standards for ensuring the rights and freedoms of the individual. If we take into account the criterion of *flexibility* or *rigidity* of evaluation model, then in Ukraine there is a mixed model: on the one hand, the determining factor is the internal conviction of the subject, on the other hand, mandatory assessment of relevance, admissibility, reliability, and the collected evidence is checked from the standpoint of sufficiency and interrelation for the adoption of the relevant procedural decision. if the objects examined or the tasks performed by the expert are not relevant to the materials of the criminal proceedings, the expert conclusion is automatically recognized as an inappropriate source of evidence. Please note that the inappropriateness of the expert's report may be related to the setting of tasks or the provision of inappropriate objects by the person (body) who appointed the examination, and the study of improper objects selected by forensic expert independently. The following circumstances should be taken into account when assessing admissibility of forensic expert conclusion. First of all, during the assessment it is necessary to find out whether the forensic examination was appointed and conducted in accordance with the procedural order. This evaluation criterion is confirmed by the norm of Art. 4 of the basic Law of Ukraine: *On Judicial Examination*, according to the independence of

[1] *For further information please refer to* Пучко Д. В. До питання про умови визнання висновку судової експертизи допустимим джерелом доказів у кримінальному провадженні//*International scientific and practical conference "Legal Practice in EU Countries and Ukraine at the Modern Stage"* (Arad (Romania), 25—26.01.2019). 2019. P. 558—560.

a forensic expert and the correctness of his conclusion is ensured by the procedure prescribed by law for the forensic expert appointment. The analysis of case law showed that only 25% of decisions examined a set of data that are important for assessing the expert conclusion as a source of evidence and this indicates the inadequate state of evaluation of expert conclusions as admissible sources of evidence.

Forensic expert summoning in order to clarify and supplement his opinion as a witness may lead to the removal of the forensic expert from the criminal proceedings by challenge. This will not allow forensic expert questioned as a witness to further participate in these criminal proceedings as forensic expert. If a forensic expert questioned as a witness subsequently conducts, for example, an additional examination in this criminal proceeding, the court may declare it inadmissible evidence because it was conducted by a witness in this criminal proceeding, which is prohibited by applicable law. In other words, based on the norms of the current criminal procedure legislation of Ukraine, a forensic expert may provide clarification on the issues of his forensic examination in criminal proceedings only as an expert and not as a witness.

Referenses

Belkin, R. S. (1966). *Sobiranie, issledovanie i otcenka dokazatelstv. Sushchnost i metody.* Moscow [in Russian].

Butyrin, A. Iu. (2006). *Teoriia i praktika sudebnoi stroitelno-tekhnicheskoi ekspertizy.* Moscow [in Russian].

Cheltcov-Bebutov, M. A. (1995). *Kurs ugolovno-protcessualnogo prava: Ocherki po istorii suda i ugolovnogo protcessa v rabovladelcheskikh, feodalnykh i burzhuaznykh gosudarstvakh.* Sankt-Peterburg [in Russian].

Foinitckii, I. Ia. (1996). *Kurs ugolovnogo sudoproizvodstva:* v 2 t. T. II. Sankt-Peterburg, [in Russian].

Golovko, L. V. (2009). Materialy k postroeniiu sravnitelnogo ugolovno-protcessualnogo prava: istochniki, dokazatelstva, prevaritelnoe proizvodstvo. *Trudy iuridicheskogo fakulteta MGU im. M. V. Lomonosova.* Kn. 11. Moscow [in Russian].

Gorskii, G. F., Kokorev, L. D., Elkind, P. S. (1978). *Problemy dokazatelstv v sovetskom ugolovnom protcesse.* Voronezh [in Russian].

Iakubovich, N. A. (1989). Gnoseologicheskie osnovy dokazyvaniia po ugolovnomu delu. *Kurs sovetskogo ugolovnogo protcessa: Obshchaia chast.* Moscow [in Russian].

Karneeva, L. M. (1988). *Dokazatelstva v sovetskom ugolovnom protcesse:* ucheb. posob. Volgograd [in Russian].

Kryminalnyi kodeks Ukrainy (2001): Zakon Ukrainy vid 05.04.2001 r. № 2341- III (zi zmin. ta dopov.). V*idomosti Verkhovnoi Rady Ukrainy (VVR).* № 25—26. St. 131 [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy (2013): Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* № 9—10, 11—12, 13. St. 88 [in Ukrainian].

Lupinskaia, P. A. (1976). *Resheniia v ugolovnom sudoproizvodstve. Ikh vidy, soderzhanie i forma.* Moscow [in Russian].

Minkovskii, G. M. (1956). *Predely dokazyvaniia v sovetskom ugolovnom protcesse.* Vsesoiuz. in-t iurid. nauk Miniusta SSSR. Moscow [in Russian].

Mykheienko, M. M., Nor, V. T., Shybiko, V. P. (1999). *Kryminalnyi protses Ukrainy:* pidruchnyk. 2-he vyd., pererob. i dopov. Kyiv [in Ukrainian].

Orlov, Iu. K. (2001). *Osnovy teorii dokazatelstv v ugolovnom protcesse:* nauch.-prakt. posob. Moscow [in Russian].

Pchelina, O. V. (2010). *Osoblyvosti predmeta dokazuvannia u kryminalnykh spravakh pro ekonomichni zlochyny ta yikh vplyv na metodyku rozsliduvannia.* (Abstract of candidates thesis). KhNUVS. Kharkiv [in Ukrainian].

Peshkov, M. A. (1999). Zakon i politceiskaia praktika proizvodstva aresta i obyska v ugolovnom protcesse SShA (doktrina «dostatochnoe osnovanie»). *Rossiiskii sledovatel.* № 4 [in Russian].

Pro sudovu ekspertyzu (1994): Zakon Ukrainy vid 25.02.1994 r. № 4038-KhII (zi zminamy ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* № 28. St. 232 [in Ukrainian].

Pro zatverdzhennia Instruktsii pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen ta Naukovo-metodychnykh rekomendatsii z pytan pidhotovky ta pryznachennia sudovykh ekspertyz ta ekspertnykh doslidzhen: nakaz Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.; u red. nakazu vid 27.07.2015 r. № 1350/5). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 29.08.2020) [in Ukrainian].

Puchko, D. V. (2019). Do pytannia pro umovy vyznannia vysnovku sudovoi ekspertyzy dopustymym dzherelom dokaziv u kryminalnomu provadzhenni. *International scientific and practical conference "Legal Practice in EU Countries and Ukraine at the Modern Stage"* (Arad (Romania), 25—26.01.2019) [in Ukrainian].

Puchko, D. V. (2020). Do pytannia otsiniuvannia rezultativ sudovoi budivelno-tekhnichnoi ekspertyzy u kryminalnomu provadzhenni. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky*: zb. nauk. pr. Eds.: O. M. Kliuiev, V. Yu. Shepitko ta in. Kharkiv. Vyp. 21 [in Ukrainian].

Samuticheva, E. Iu. (2015). *Zakliuchenie eksperta i ego otcenka v ugolovnom protcesse.* (Candidates thesis). Moscow [in Russian].

Sheifer, S. A. (1997). *Dokazatelstva i dokazyvanie po ugolovnym delam: problemy teorii i pravovogo regulirovaniia.* Toliatti [in Russian].

Simakova-Yefremian, E. B. (2016). *Kompleksni sudovo-ekspertni doslidzhennia: teoriia ta praktyka:* monohrafiia. Kharkiv: Pravo [in Ukrainian].

Sovetskii ugolovnyi protcess. (1956). Ed.: D. S. Karev. Moscow [in Russian].

Strogovich, M. S. (1991). *Izbrannye trudy:* v 3 t. T. 3. Teoriia sudebnykh dokazatelstv. A. M. Larin (ed.). Moscow [in Russian].

Sychevskyi, V. V. (2015). Aktualni pytannia nalezhnosti dokaziv u kryminalnomu provadzhenni. *Ievropeiski perspektyvy.* № 4 [in Ukrainian].

Ugolovno-protcessualnoe pravo Rossiiskoi Federatcii (2004): uchebnik. P. A. Lupinskaia (ed.). Moscow [in Russian].

Ugolovnyi protcess (1995): ucheb. dlia vuzov. P. A. Lupinskaia (ed.). Moscow [in Russian].

Ugolovnyi protcessualnyi kodeks Ukrainy: Nauchno-prakticheskii kommentarii (2013). Eds.: S. V. Kivalov, S. N. Mishchenko, V. Iu. Zakharchenko. Kharkiv [in Russian].

Ulianova, L. T. (1959). *Otcenka dokazatelstv sudom pervoi instantcii.* Moscow [in Russian].
Vladimirov, L. E. (2000). *Uchenie ob ugolovnykh dokazatelstvakh.* Tula [in Russian].
Yurydychna entsyklopediia: u 6 t. (2002). Eds.: Yu. S. Shemshuchenko (vidp. red.) ta in. Kyiv. T. 4: N — P [in Ukrainian].

Д. В. Пучко

НАЛЕЖНІСТЬ І ДОПУСТИМІСТЬ ВИСНОВКУ ЕКСПЕРТА ЯК КРИТЕРІЇ ОЦІНЮВАННЯ СУДОВОЇ ЕКСПЕРТИЗИ

На підставі аналізу спеціальної літератури, нормативних актів та експертної практики розглянуто основні положення, пов'язані з формуванням критеріїв оцінювання висновку експерта як джерела доказів щодо їх належності й допустимості.

Зокрема, зазначено, що під час оцінювання допустимості висновку експерта необхідно з'ясувати, чи було призначено та проведено судову експертизу відповідно до процесуального закону (за нормою ст. 4 базового Закону України «Про судову експертизу»).

Аргументовано, що виклик судового експерта як свідка для роз'яснення й доповнення його висновку може призвести до виведення його з кримінального процесу шляхом відводу, адже судовий експерт, набуваючи статусу свідка, не матиме змоги надалі проводити додаткові чи нові експертизи за цим кримінальним провадженням, тому що свідка заборонено залучати як експерта.

Ключові слова: належність доказів, допустимість доказів, висновок експерта, доказування, предмет доказування, судова експертиза.

Д. В. Пучко

ОТНОСИМОСТЬ И ДОПУСТИМОСТЬ ЗАКЛЮЧЕНИЯ ЭКСПЕРТА КАК КРИТЕРИИ ОЦЕНИВАНИЯ СУДЕБНОЙ ЭКСПЕРТИЗЫ

В статье на основании анализа специальной литературы, нормативных актов и экспертной практики рассмотрены основные положения, связанные с формированием критериев оценивания заключения эксперта как источника доказательств (с точки зрения их относимости и допустимости). Приведены аргументы в пользу того, что, если исследованные экспертом объекты или решённые задачи не имеют отношения к материалам уголовного производства, то, соответственно, и заключение эксперта должно быть признано неотносимым источником доказательств.

Оценивая допустимость заключения эксперта, необходимо установить, в соответствии ли с процессуальным порядком была назначена и проведена судебная экспертиза. Такой критерий оценивания подтверждается нормой ст. 4 Закона Украины «О судебной экспертизе», согласно которой независимость судебного эксперта и правильность его заключения обеспечены установленным законом порядком назначения судебного эксперта.

Аргументировано, что вызов судебного эксперта в качестве свидетеля с целью разъяснения и дополнения его заключения может привести к выведению его из уголовного процесса путём отвода. Выполнившее судебную экспертизу сведущее лицо, допрошенное в качестве свидетеля, не сможет в дальнейшем принять участие в этом уголовном производстве в качестве эксперта. Если же судебный эксперт, допрошенный в качестве свидетеля, в дальнейшем в этом уголовном производстве проведёт, например, дополнительную экспертизу, то её могут признать недопустимым доказательством, поскольку её провёл свидетель в этом уголовном производстве, что запрещено законом. То есть, исходя из норм действующего уголовного процессуального законодательства Украины, судебный эксперт может давать разъяснения по вопросам проведённой им судебной экспертизы в уголовном производстве только как эксперт, а не как свидетель.

Ключевые слова: относимость доказательств, допустимость доказательств, заключение эксперта, доказывание, предмет доказывания, судебная экспертиза.

Received by Editorial Board: 15.10.2020

Puchko D. V. Relevance and reliability of an expert conclusion as a criteria for evaluating forensic examination//*Theory and Practice of Forensic Science and Criminalistics*: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 226—239. DOI: https://doi.org/10.32353/khrife.2.2020.17.

DOI: https://doi.org/10.32353/khrife.2.2020.18
UDC 343.98:004

M. O. Mozhaiev,
PhD in Technology, Department Head of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-1566-9260,
e-mail: mikhail.mozhayev@hniise.gov.ua
V. O. Homon,
Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-6326-9590,
e-mail: gomon1995@gmail.com
K. V. Nikulin,
Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-6326-9590,
e-mail: knikulin87@gmail.com

Peculiarities of computer network functioning to maintain information system of forensic activity

The analysis of the quality control of data transmission process in computer network of the forensic information system is carried out. The role of a specialized network in the information system of forensic science in Ukraine is determined. The causes that lead to overload and packet loss in data transfer networks of the information system are analyzed. Quite high requirements are imposed on modern computer networks, but, unfortunately, in conditions of limited funding and of a variety of sectoral informatization programs (typical for the present realia of Ukraine), most computer networks are heterogeneous, that is they consist of various software and hardware under various operating systems and provide consumers with a wide range of information services. Due to rapid growth in the volume of information, load on computer network keep significantly increasing. A single error in computer network operation may lead either to loss of information or to modification of a large amount of data. It can drastically reduce the quality and efficiency of forensic examination. Unfortunately, such errors can be undetected for many reasons: software and/or hardware failure, in-

© M. O. Mozhaiev, V. O. Homon, K. V. Nikulin, 2020

correct administration, etc. Software bugs are highly dangerous (buffer overflow, program crash, system overload, gaining administrator rights). There is a need to manage data transfer process. To improve the quality of computer network functioning, it is proposed to create a system for evaluating network parameters. As a result of theoretical studies on network bandwidth controlled by the TCP protocol, based on an approach aimed at studying the network structure, a new way to control network's computational capacity is suggested as well as it is also established that the suggested system for evaluating network parameters of the forensic information system allows you to determine location of telecommunication network segments with limited bandwidth.

Using STAB allows you to accurately assess the available channel bandwidth, due to its calculation to m connections at any time. Thus, it will help to develop alternative virtual routes which will significantly reduce the number of lost packets and, ultimately, improve the quality of information transfer in the computer network of the forensic information system.

Keywords: computer forensics, computer network, data transfer, heterogeneous network, TCP protocol.

Formulation of Research Problem. Forensic science activity of various forms and content is impossible without involvement of information resources by which legislator understands individual documents and arrays of documents, in particular: in information systems (libraries, archives, funds, data banks, other information systems). Informational support of forensic science activity should be an information process that legislator defines as the process of collecting, processing, accumulation, storage, retrieval and dissemination of information necessary for the solution of forensic tasks [1].

Both local computer networks (for example, during forensic registration) and the global Internet are used to exchange information in forensic information systems. Many forensic science institution (public and private) have their own websites where you can get useful information. In modern forensic practice, computer networks are integral part of forensic computer examination, so ensuring their proper functioning becomes an extremely important task. This

[1] Про судову експертизу: Закон України від 25.02.1994 р. № 4038-XII (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/4038-12 (date accessed: 01.08.2020) ; Билык А. С. Перспективные направления развития экспертной деятельности в сфере информационных технологий//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2013. Вип. 13. Р. 385—391 ; Бобрицький С. М. Методичні аспекти дослідження телекомунікаційних систем (обладнання) та засобів//*Ibid*. 2008. Вип. 8. Р. 445—449 ; Балашов В. Ю. Проблеми уніфікації термінології у сфері боротьби з кіберзлочинністю//*Теорія і практика юридичної відповідальності за правопорушення в інформаційній сфері:* мат-ли наук.-практ. конф. (Київ, 08.06.2016). Київ, 2016. Р. 123—127.

forces users to question the effectiveness of control, protection and information transmission [1].

Analysis of Essential Researches and Publications. Modern computer networks have quite high requirements, however, in conditions of limited funding and a variety of industry informatization programs typical for Ukrainian present time, most computer networks are heterogeneous, i.e. contain a variety of software and hardware running different operating systems and provide consumers with a wide range of information services. Due to significant increase in the information amount, load on the computer network also increases significantly. A single error in the computer network can lead to loss of information or modification of a significant amount of data that can significantly reduce forensic examination quality and efficiency. Unfortunately, such errors can go unnoticed for many reasons: software and/or hardware failure, incorrect administration and so on. Software errors (buffer overflow, program crash, system overload, administrator privileges) are very dangerous when there is a need to control the data transfer process [2].

The task of data transfer process management is due to the need to maintain full network traffic with constant quality of service requirements. Overload can occur when connection bandwidth exceeds the allowed one. Packets should be resent for reliable data transmission that will increase network traffic. Network overload is most often caused by retransmissions when the true cause of overload is no longer present [3].

[1] Можаєв О. О. Передача інформації у гетерогенних комп'ютерних мережах: монографія. Харків, 2012. 220 р. ; Кучук Г. А. Інформаційні технології управління інтегральними потоками даних в інформаційно-телекомунікаційних мережах систем критичного призначення. Харків, 2013. 264 р. ; Idem. Концептуальний підхід до синтезу структури інформаційно-телекомунікаційної мережі//*Системи обробки інформації:* зб. наук. пр. Харків, 2013. Вип. 7 (114). Р. 106—112 ; Семенов С. Г., Беленков А. Г., Можаев А. А. Разработка распределенного метода многопутевой маршрутизации, основанного на потоковой модели с предвычислением путей (маршрутов)//*Моделювання та інформаційні технології.* 2005. № 32. Р. 189—192.

[2] Кочура В. О., Кучук Г. А., Можаєв О. О. Моделювання динамічних процесів у віртуальних з'єднаннях//*Збірник наукових праць Об'єднаного науково-дослідного інституту Збройних Сил.* 2006. Вип. 2 (4). Р. 217—224 ; Можаев А. А., Порошин С. М., Кузьменко В. Е., Можаев М. А. Исследования поведения фазовой траектории телекоммуникационного трафика гетерогенной сети передачи даннях//*Системи управління, навігації та зв'язку:* зб. наук. пр. Київ, 2011. Вип. 2 (18). Р. 255—259.

[3] Котенко С. Г., Можаєв М. О., Порошин С. М. Побудова екстраполюючої моделі процесу функціонування телекомунікаційних систем//*Восточно-европейский журнал передовых технологий.* 2012. Т. 4. № 9. Р. 62—65 ; Можаев А. А., Семенов С. Г., Казимирова В. В., Можаев М. А. Усовершенствование математической модели защищенной информационно-телекоммуникационной системы с использованием теории чувствительности//*Електроніка та Зв'язок:* наук.-техн. журн. Київ, 2014. Т. 19. № 4 (81). Р. 98—103.

Possible causes of overload are: high-speed connections with a significant packet transmission time; temporary overloads; suboptimal topologies and inconsistent channel speeds; protocols do not slow down the speed of sending packets to the network in the event of an overload.

In order to significantly improve the quality of computer network functioning and maintain multiservice, i.e. taking into account existence in the network of data streams of various network applications and services (voice, data, video, etc.), it is necessary to investigate coordination of technical means used in the computer network with mathematical models and methods on which basis corresponding network protocols are created [1].

That is why diagnosing process of data transmission, determining the time of overload in the network and the analysis of the principles of building mathematical models of data transfer that will reduce network congestion is an urgent scientific task.

The **Article Purpose** is to analyze various methods of modeling the process of information transfer in the computer network of the forensic science information system which use of will provide the necessary indicators of quality of information transfer.

Main Content Presentation. All approaches to analyzing and estimating the bandwidth of the various data transmission methods used in the *Transmission Control Protocol* (*TCP*) can be divided into two main classes: a cross-cutting approach which assumes that network between the two nodes is a kind of black box with unknown content. The functioning of *TCP* mechanisms is evaluated and improved as a function of various forms describing the exit of packets from this black box, network structure-oriented approach that would address the problem based on the specific type of network and increase *TCP* bandwidth. adding some mechanisms to the network.

The tools used to study the bandwidth of data transfer methods can be divided into three categories.

Experiments. Research on real connections (by *TCP* protocol) on Internet or experimental networks (in the latter case, it is necessary to generate background traffic to emulate real network traffic).

Simulation modeling. Modeling of all networks and transport layer protocol is performed programmatically. Currently, *The Network Simulator (hereinafter referred to as NS)* [2] is most often used to study *TCP* protocol. This is an event-based network simulation software package developed by *Lawrence Berkeley*

[1] Можаєв О. О., Казімірова В. В., Можаєв М. О. Методи керування трафіком в мультисервісних мережах//*Технология приборостроения.* 2013. № 1. P. 21—24 ; Завизиступ Ю. Ю., Коваленко А. А., Мохаммад А. С., Можаев М. А. Особенности функционирования протоколов в беспроводных сетях//*Системи обробки інформації:* зб. наук. пр. Харків, 2010. № 5. P. 39—42.

[2] Кучук, Г. А., Можаев А. А., Пащенко Р. Э., Руккас К. М. и др. Фрактальный анализ процессов, структур и сигналов: монография. Харьков, 2006. 360 p.

National Laboratory (USA) that allows you to perform both *TCP* and other protocols quite accurately.

Mathematical modeling can be applied to both the protocol and the network as a whole.

We will examine the bandwidth of a *TCP*-managed network using simulation based on a network structure-oriented approach. *Spatio-Temporal Available Bandwidth* (*STAB*) can be considered as a new research method based on an electronic data acquisition system that allows the location of connections with less available bandwidth than all previous ones. connection on the studied route.

By available bandwidth of data transfer path, we mean the difference between maximum bandwidth and the average load of the message flow: 100 Mbps communication, transmits 12 Mbps of traffic, has an available bandwidth of 88 Mbps. The available bandwidth of a continuous network track is the minimum available bandwidth of the channels of its components.

The available channel bandwidth is closely related to the bit rate it can achieve when using a *TCP*-managed route. However, these concepts are not identical because there are other factors, including full cycle delay, the number of competing *TCP* protocols affecting transfer path bandwidth.

By locating bottlenecks with *STAB*, you can facilitate network operations and troubleshooting, provide insight into what caused network congestion and support network applications. This uses special sounding sequences that simulate transmitting data packets to the multiservice network. The advantage of the proposed method is that if you use a small number of packets, you can accurately estimate available bandwidth.

Locating low-bandwidth network bottlenecks allows us to understand what caused the network congestions and suggests ways to bypass these connections. Finally, real-time location bottleneck information will help network administrators solve a variety of operational tasks, such as troubleshooting or setting up traffic routes.

Our method, through the use of continuous packet probing to determine bottlenecks, allows us to estimate available bandwidth of segments on the network through routes that helps to find its bottlenecks.

While transferring information packets one after another, several pairs of packets are used that are located close to each other; the first packet in each pair is long, but has a title with a small lifetime (*Time to live* hereinafter referred to as *TTL*), while the next packet is short, but has a significant *TTL*. Because each router on the route reduces the duration of the *TTL* packet by one and discards the packet, if the *TTL* value is zero, the first packet in each pair takes the *zero* value after communication; the second packet reaches the recipient.

Although we cannot record the timestamps of a packet in an arbitrary connection m, we can fairly accurately approximate them with the timestamps of the packet receiver that are transmitted one after the other. Probing packages are increasing. Since large packets disappear after *m*-connection and the speed increases significantly after *m*-connection, therefore, small packets arrive to recipient and their intermediate interval on connection remains more or less constant.

Simulation Modeling Results. The model of telecommunications network is proposed as the research object of forensic science activity information system, with availability of several (Fig. 1) sites with limited capacity (bottlenecks).

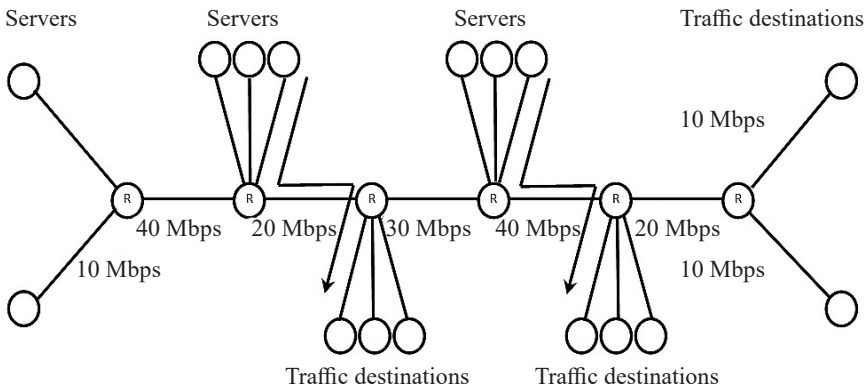
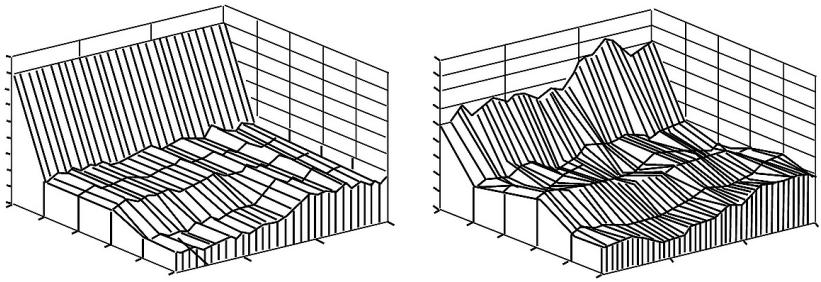


Fig. 1. Model of the telecommunications network site

Each network site contains 420 clients that download data from 40 servers on channels with limited bandwidth of 20 Mbps; remaining channels in the telecommunications network are characterized by a bandwidth of 40 Mbps. Determining the case of each use of the telecommunications network bottleneck, we model the appropriate number of network sessions; For example, for 200 network sessions we determine the use of a bottleneck at 5 Mbps and for 400 for 400 network sessions at 10 Mbps and so on. All sources (including STAB sources) use kilobyte packets that are comparable in size to typical Internet packets. The actual available bandwidth of the telecommunications network site to the *m*-connection with different number of connections m is presented in Fig. 2.

The available bandwidth curve is smoothed after the second connection in a time interval of up to 200 s and tries to reach 15 Mbps. In the case where both servers generate traffic (because the traffic intensity of the second server is higher than the first), the available bandwidth decreases after a time interval of 200 seconds and reaches a value of 5 Mbps.



a) b)

Fig. 2. Actual available telecommunications network bandwidth

Analyzing Fig. 2b, it can be seen that *STAB* estimates the available bandwidth fairly accurately. We calculate this bandwidth to the *m*-connection at any given time. After comparing Fig. 2a and 2b, it becomes clear that the *STAB* underestimates the available bandwidth of the first connection.

This can be explained by the fact that subsequent connections on the route do not significantly affect the trial that consists of packets, block packs, one after another. The graphs presented in Fig. 2b, can be very useful for optimizing network performance.

In practice, we can get backup routes through multiple addressing while using overlay networks or through mirror sites.

Conclusions. This article presents the main types of models of information transfer process in the computer network of the forensic science information system. The main advantages and disadvantages of these models are considered.

As a result of theoretical researches and simulation modeling, it was found that proposed system for estimating the parameters of the forensic science information system network allows to determine the site location of telecommunications network with limited capacity.

STAB use of helps to accurately estimate available bandwidth of the channel by calculating it to the *m*-connection at any time.

Thus, it becomes possible to build alternative virtual routes that will significantly reduce the number of lost packets and improve quality of information transfer in the computer network of forensic science information system.

As a result, it should be noted that by controlling distribution of transmitted packets along the routes in the network, you can increase available bandwidth by eight times compared to the existing one.

References

Balashov, V. Yu. (2016). Problemy unifikatsii terminolohii u sferi borotby z kiberzlochynnistiu. *Teoriia i praktyka yurydychnoi vidpovidalnosti za*

pravoporushennia v informatsiinii sferi: materialy nauk.-prakt. konf. (Kyiv, 08.06.2016). Kyiv [in Ukrainian].

Bilyk, A. S. (2013). Perspektivnye napravleniia razvitiia ekspertnoi deiatelnosti v sfere informatcionnykh tekhnologii. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 13 [in Russian].

Bobrytskyi, S. M. (2008). Metodychni aspekty doslidzhennia telekomunikatsiinykh system (obladnannia) ta zasobiv.*Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 8 [in Ukrainian].

Kochura, V. O., Kuchuk, H. A., Mozhaiev, O. O. (2006). Modeliuvannia dynamichnykh protsesiv u virtualnykh ziednanniakh. *Zbirnyk naukovykh prats Obiednanoho naukovo-doslidnoho instytutu Zbroinykh Syl.* Kharkiv. Vyp. 2 (4) [in Ukrainian].

Kotenko, S. H., Mozhaiev, M. O., Poroshyn, S. M. (2012). Pobudova ekstrapoliuiuchoi modeli protsesu funktsionuvannia telekomunikatsiinykh system. *Vostochno-evropeiskyi zhurnal peredovykh tekhnolohyi.* Kharkiv. T. 4. № 9 [in Ukrainian].

Kuchuk, G. A., Mozhaev, A. A., Pashchenko, R. E., Rukkas, K. M. i dr. (2006). *Fraktalnyi analiz protcessov, struktur i signalov*: monografiia. Kharkiv [in Russian].

Kuchuk, H. A. (2013). *Informatsiini tekhnolohii upravlinnia intehralnymy potokamy danykh v informatsiino-telekomunikatsiinykh merezhakh system krytychnoho pryznachennia.* Kharkiv [in Ukrainian].

Kuchuk, H. A. (2013). Kontseptualnyi pidkhid do syntezu struktury informatsiino-telekomunikatsiinoi merezhi. *Systemy obrobky informatsii:* zb. nauk. pr. Kharkiv. Vyp. 7 (114) [in Ukrainian].

Mozhaev, A. A., Poroshin, S. M., Kuzmenko, V. E., Mozhaev, M. A. (2011). Issledovaniia povedeniia fazovoi traektorii telekommunikatcionnogo trafika geterogennoi seti peredachi danniakh. *Systemy upravlinnia, navihatsii ta zviazku:* zb. nauk. pr. Kyiv. Vip. 2 (18) [in Russian].

Mozhaev, A. A., Semenov, S. G., Kazimirova, V. V., Mozhaev, M. A. (2014). Usovershenstvovanie matematicheskoi modeli zashchishchennoi informatcionno-telekommunikatcionnoi sistemy s ispolzovaniem teorii chuvstvitelnosti. *Elektronika ta Zviazok:* nauk.-tekhn. zhurn. Kyiv. T. 19. № 4 (81) [in Russian].

Mozhaiev, O. O. (2012). *Peredacha informatsii u heterohennykh kompiuternykh merezhakh:* monohrafiia. Kharkiv [in Ukrainian].

Mozhaiev, O. O., Kazimirova, V. V., Mozhaiev, M. O. (2013). Metody keruvannia trafikom v multyservisnykh merezhakh. *Tekhnolohyia pryborostroenyia.* Kharkiv. № 1 [in Ukrainian].

Pro sudovu ekspertyzu: Zakon Ukrainy vid 25.02.1994 r. № 4038-XII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/4038-12 (data zvernennia: 01.08.2020) [in Ukrainian].

Semenov, S. G., Belenkov, A. G., Mozhaev, A. A. (2005). Razrabotka raspredelennogo metoda mnogoputevoi marshrutizatcii, osnovannogo na potokovoi modeli s predvychisleniem putei (marshrutov). *Modeliuvannia ta informatsiini tekhnolohii.* Kyiv. № 32 [in Russian].

Zavizistup, Iu. Iu., Kovalenko, A. A., Mokhammad, A. S., Mozhaev, M. A. (2010). Osobennosti funktcionirovaniia protokolov v besprovodnykh setiakh. *Sistemi obrobki informatcii*: zb. nauk. pr. Kharkiv. № 5 [in Russian].

М. О. Можаєв, В. О. Гомон, К. В. Нікулін

ОСОБЛИВОСТІ ФУНКЦІОНУВАННЯ КОМП'ЮТЕРНОЇ МЕРЕЖІ ДЛЯ ЗАБЕЗПЕЧЕННЯ ІНФОРМАЦІЙНОЇ СИСТЕМИ СУДОВО-ЕКСПЕРТНОЇ ДІЯЛЬНОСТІ

Проаналізовано якість управління процесом передавання даних у комп'ютерній мережі інформаційної системи судової експертизи. Визначено роль спеціалізованої комп'ютерної мережі в інформаційній системі судової експертизи України. Досліджено причини перенавантаження та втрати пакетів у мережах передавання даних інформаційної системи. Для підвищення якості функціонування комп'ютерної мережі запропоновано створити систему оцінювання параметрів мережі. У результаті проведених теоретичних досліджень пропускної здатності, керованої протоколом TCP, на основі підходу, орієнтованого на вивчення структури мережі, запропоновано новий вид управління обчислювальною здатністю мережі, а також з'ясовано, що пропонована система оцінювання параметрів мережі інформаційної системи судово-експертної діяльності дає змогу визначати місце розташування ділянок телекомунікаційної мережі з обмеженою пропускною спроможністю.

Ключові слова: судова комп'ютерно-технічна експертиза, комп'ютерна мережа, передача даних, гетерогенна мережа, протокол TCP.

М. А. Можаев, В. А. Гомон, К. В. Никулин

ОСОБЕННОСТИ ФУНКЦИОНИРОВАНИЯ КОМПЬЮТЕРНОЙ СЕТИ ДЛЯ ОБЕСПЕЧЕНИЯ ИНФОРМАЦИОННОЙ СИСТЕМЫ СУДЕБНО-ЭКСПЕРТНОЙ ДЕЯТЕЛЬНОСТИ

Проанализировано качество управления процессом передачи данных в компьютерной сети информационной системы судебной экспертизы. Определена роль специализированной компьютерной сети в информационной системе судебной экспертизы Украины. Исследованы причины, приводящие к перегрузкам и потере пакетов в сетях передачи данных информационной системы. К современным компьютерным сетям предъявляются достаточно высокие требования, но, к сожалению, в условиях ограниченного финансирования и разнообразия отраслевых программ информатизации, характерных для реалий Украины, большинство компьютерных сетей являются гетерогенными, то есть состоят из различных программно-

аппаратных средств под управлением различных операционных систем и обеспечивают потребителям широкий спектр информационных услуг. Вследствие увеличения объёмов информации существенно увеличивается и нагрузка на компьютерную сеть. Единственная ошибка в компьютерной сети может привести к потере информации или к видоизменению большого количества данных, резкому снижению качества и оперативности проведения экспертизы. К сожалению, такие ошибки могут остаться незамеченными по многим причинам: сбой программного и/или аппаратного обеспечения, некорректное администрирование и т. п. Очень опасны ошибки в программном обеспечении (переполнение буфера, аварийная остановка программы, перегрузка системы, получение прав администратора). Возникает необходимость в управлении процессом передачи данных. Для повышения качества функционирования компьютерной сети предлагается создать систему оценивания её параметров. В результате проведённых теоретических исследований пропускной способности, управляемой протоколом передачи TCP (Transmission Control Protocol), на основе подхода, ориентированного на изучение структуры сети, предложен новый вид управления вычислительной способностью сети, а также установлено, что предлагаемая система оценивания параметров сети информационной системы судебно-экспертной деятельности позволяет определять местоположение участков телекоммуникационной сети с ограниченной пропускной способностью.

Применение STAB позволяет достаточно точно оценивать доступную полосу пропускания канала за счет её вычисления до m-го соединения в любой момент времени. Это помогает выстроить альтернативные виртуальные маршруты, что существенно снижает количество потерянных пакетов и, в итоге, повышает качество передачи информации в компьютерной сети информационной системы судебной экспертизы.

Ключевые слова: судебная компьютерно-техническая экспертиза, компьютерная сеть, передача данных, гетерогенная сеть, протокол TCP.

Received by Editorial Board: 20.08.2020

Mozhaiev M. O. , Homon V. O., Nikulin K. V. Peculiarities of computer network functioning to maintain information system of forensic activity//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 240—249. DOI: https://doi.org/10.32353/khrife.2.2020.18.

DOI: https://doi.org/10.32353/khrife.2.2020.19
UDC [342.9:343.98] (477)

D. O. Davydenko,
PhD in Economics, Senior Researcher of Postgraduate and Doctoral Studies Department at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-9124-9511,
e-mail: davidenko.dasha@ukr.net

Prospects for the development of mediation in the administrative process of Ukraine and its influence on forensic activity

The article considers the main directions for the development of mediation procedure in Ukraine in accordance with the current legislation and its development prospects in administrative law. The current state of mediation in Ukraine and the experience of previous implementation of this procedure were outlined. Scientific papers of domestic scientists were studied, independent ways of mediation development as a category of legal relations were identified. Currently, the status of a mediator is determined, including the Draft Law: "On mediation" and its basic provisions are considered. Disputed aspects of the current legislation, namely problems of introduction of mediation and possible ways for improving the Draft Law of Ukraine: "On mediation" were analyzed. The list of problems for introducing mediation into administrative law were defined, which is suggested to be divided into three groups: general, administratively oriented, technical. Common problems are conditioned by conceptual problems of mediation introduction, administratively oriented: provide impossibility of the development of alternative ways for solving disputes in administrative law, and technical: gaps in legislation concerning procedural aspects of carrying out mediation. Recommendations are also given on ways to overcome these problems, which will facilitate a gradual transition to mediation as an alternative way of settling disputes. As the main recommendation phased implementation of the Law of Ukraine: "On mediation" is suggested. Transition to each stage involves reducing court involvement in mediation procedures and further allocating it in independent system of alternative dispute resolution. Foreign experience of mediation was considered which is taken into account in the current practice of disputes peaceful settlement and confirms the need to implement the proposed recommendations.

Keywords: mediation, administrative law, alternative way of conflict resolution, dispute, mediator, judge, out-of-court consideration.

Formulation of Research Problem. In recent years, the issue of pre-trial dispute resolution has been a popular topic for discussion by professionals in various fields of law including administrative law. Interest in this issue is due to

© D. O. Davydenko, 2020

increased tension of courts in administrative procedures and the need for their unloading; corresponding significant financial costs, public need for available alternative forms of dispute resolution. Given this, the issues of implementation of mediation procedure and its legalization in all types of law need to be addressed urgently. In addition, the relevance of the study to address this issue is confirmed by the existing high-profile bill on mediation and the close attention of the public and professionals that is reflected in the discussions at scientific events. It is also worth noting that changes in the mediation procedure will have some impact on related areas (e.g. forensic science activity) that will increase the need for mediation.

Analysis of Essential Researches and Publications. In 2018, while round table meeting of the Supreme Court of Ukraine on the topic: *Mediation and administrative court: Discussion aspects* [1] the issue of the need to introduce a mediating judge in administrative procedure was discussed. A year later, professional discussions on the delimitation of mediation and the dispute settlement process with the participation of a judge took place there and on the same topic [2]. In 2019, S. O. Korinnyi [3] defended his dissertation on the introduction of mediation in the administrative process of Ukraine, where he stressed the need to form an institution of mediation to resolve administrative disputes. In addition, the phenomenon of mediation in Ukraine was also studied by O. D. Sidelnikov [4], N. V. Bozhenko [5], T. I. Shynkar [6] and others. In forensic science activity, mediation is an innovative process that researchers study infrequently and only in view of the powers of a forensic expert as a participant in the litigation defined in the Commercial and Procedural Code and Code of Administrative Proceedings of Ukraine. All theoretical and practical achievements of scholars on mediation in the administrative proceedings of Ukraine are relevant but contradictory and ambiguous due to lack of legal support for mediation, lack of a systematic approach to mediation procedure, insufficient effectiveness of proven practices.

---

[1] Сидоренко Д. Медіація в адміністративному процесі: в чому проблема// *Юридична Газета online.* 2018. 23 жовт. URL: https://yur-gazeta.com/publications/events/mediaciya-v-administrativnomu-procesi-v-chomu-problema.html (date accessed: 16.06.2020).

[2] Ibid.

[3] Корінний С. О. Впровадження медіації в адміністративний процес України: автореф. дис. … канд. юрид. наук. Ужгород, 2019. 20 р.

[4] Сидєльніков О. Д. Інститут примирення сторін в адміністративному судочинстві. автореф. дис. … канд. юрид. наук. Харків, 2017. 20 р.

[5] Боженко Н. В. Медіація як один із засобів врегулювання адміністративних спорів: теоретико-історичний аспект//*Право.ua.* 2017. №. 1. P. 95—98. URL: http://nbuv.gov.ua/UJRN/pravo_2017_1_19 (date accessed: 16.06.2020).

[6] Шинкар Т. І. Зарубіжний досвід правового забезпечення медіації та можливість його використання в Україні//*Наше право.* 2016. № 2. P. 54—58. URL: http://nbuv.gov.ua/UJRN/Nashp_2016_2_11 (date accessed: 16.06.2020).

The **Article Purpose**. Development of theoretical provisions and practical recommendations on the main directions of long-term mediation implementation in administrative procedure and possible results for forensic science activity of Ukraine.

Main Content Presentation. *Mediation* is species of alternative dispute resolution with the mediator involvement who helps the parties to the conflict to establish a communication and analyze the conflict situation so that they can choose the solution that would meet the interests and needs of all parties to the conflict [1]. The phenomenon of mediation is not an innovative concept for Ukraine and has its own stages of implementation. Back in 2007, the European Commission and the Council of Europe trained mediating judges in the judiciary in Ukraine [2]. There was no widespread use of these competencies, although the main goal of the program was to introduce mediation as an alternative way of resolving disputes within the then Code of Administrative Proceedings of Ukraine. The Association Agreement signed with Ukraine in 2014 with the European Union [3] provides for enhanced cooperation in the field of justice taking into account human rights, to ensure the rule of law and provides new opportunities for the mediation development. In the recommendations of the European Union, this rule should cover both judicial and extrajudicial methods of dispute settlement. Given the European integration processes aimed at improving the Ukrainian judiciary, some work is under way to introduce mediation, but to date there is no single effective mechanism. Forensic activity is an integral part of the litigation process, so any changes in the system will be reflected in the work of the expert as a forensic examiner. In addition, there is also no algorithm for involving specific participants in mediation which leaves open the issue forensic expert actions in this procedure.

In December 2019, the Verkhovna Rada of Ukraine submitted a draft Law of Ukraine № 3665 *On Mediation* [4] defining the legislative consolidation of possibility of mediation procedure that will consist of voluntary out-of-court

[1] Про медіацію: проєкт Закону України від 17.12.2015 р. № 3665. URL: http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_2pf3516=3665&skl=9 (date accessed: 16.06.2020).

[2] Мемель Ф.-Й. Медіація в адміністративному судочинстві України. Про можливості впровадження медіації в рамках діючого Кодексу адміністративного судочинства України (КАСУ). URL: http://www.voas.gov.ua/upload/337_mediac2.pdf. (date accessed:16.06.2020).

[3] Угода про асоціацію між Україною, з однією сторони, та Європейським Союзом, Європейським співтовариством з атомної енергії і їхніми державами-членами, з іншої сторони (as amended and supplemented): вчин. (у різних частинах) 21.03.2014 р. та 27.06.2014 р. № 984_011; ратифік. Законом України від 16.09.2014 р. № 1678-VII. URL: https://zakon.rada.gov.ua/laws/show/984_011/ed20151130 (date accessed: 16.06.2020).

[4] Про медіацію: ... . URL: http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_2pf3516=3665&skl=9 (date accessed: 16.06.2020).

settlement of the conflict through negotiations between its parties mediator's help. Such a legislative initiative was supported by 219 people deputies out of 226 required that delayed the adoption of the bill indefinitely. The decision of the Verkhovna Rada caused a stir in the Mass media[1] intensified by the political aspects of newly elected government actions that had previously promised to legislate mediation to protect the public interest. Thus, mediation has not acquired a legal right to conduct but its popularization and the passage of certain procedures in the Verkhovna Rada of Ukraine is clearly gaining momentum in this procedure development as an alternative to dispute resolution.

There is a logical question about controversial issues and aspects prolonging the bill adoption. It is proposed to divide these problems into general, administrative-centered and technical ones. The general issues are due to the conceptual problems of mediation, the administrative-centered ones do not provide for the possibility of developing alternative ways of resolving disputes in the administrative process, and the technical ones are gaps in the bill on procedural aspects of mediation.

One of urgent issues is the constitutionally enshrined right of a civil servant to act within the powers provided by the laws of Ukraine. In other words, employees are not able to implement the principles of voluntariness and initiative provided by mediation mechanism. As the court is one of the parties to mediation (unless otherwise provided by law), its initiative has clear limits and contradicts the essence of mediation.

Another common problem is the status of the mediator and his remuneration. The mediator can be a public representative on a gratuitous basis or a private person involved in court (in this case the mediator work should be paid by the state that is impossible). A mediator can also be a judge or a representative of the court at the stage of pre-trial consideration of the case that does not require additional funding at all but significantly overloads the court. In any case, the status of the mediator is not unambiguous and needs clarification. Involvement of a forensic expert initiated by the parties to mediation also has no motivated payment and requires additional procedural clarifications raising even more questions about the procedural status of a forensic expert in mediation.

For its part, the bill № 3665 proposes a different position on the status of a mediator and defines him as a specially trained mediator engaged in conflict resolution activities. The provisions of this law exclude the court participation, thus endowing the mediator with supervisory powers.

By the way, according to the bill, mediators' duplicate participants in any trial (including experts), except for the judge, which is unlikely to significantly reduce the cost of such a dispute and contradicts basic mediation principles that aims

[1] Парламент провалив голосування за законопроєкт про мирне вирішення конфліктів поза судом//*ZMINA. Центр прав людини.* 2019. 28 лют. URL: https://zmina.info/news/parlament_provaliv_golosuvannjia_za_zakonoprojekt_pro_mediacijiu (date accessed: 16.06.2020).

to relieve the court. In other words, in case of approval of the Law of Ukraine: *On Mediation* experts will be involved in the dispute resolution process as in ordinary hearing but the uncertainty of the forensic expert status, his salary and powers of persons appointing examinations in the alternative dispute resolution process leaves urgent issues regarding the mediation introduction at the state level.

Administratively-centered issues can be considered the limited possibility of mediation applying procedure in all administrative cases. For a long time, administrative cases did not belong to the list of procedures where mediation can be used. There is now a gradual reorientation regarding this issue, although some limitations remain. For example, mediation is not used in cases between power subjects for exercising their management competence.

The most important mediation issue is the lack of proper legal regulation. As the draft Law: *On Mediation* was rejected by the Verkhovna Rada and sent for revision to committees, the only possibility for mediation in administrative hearing is a peaceful settlement of disputes that can conclude in an agreement between parties or return to court to continue the case consideration.

There is the issue of decision implementation taken by the parties with mediator involvement. Such a legal decision takes the form of a civil law agreement and in case of non-compliance, protection methods of civil rights are used. The state mechanism begins to work only when such methods have really taken place. On the one hand, this aspect is positive due to the reduction of financial tension, on the other hand negative due to the lack of a form of influence and security. Thus, possibility of involving an expert in the mediation procedure in case of regulatory changes in procedural legislation is minimized; forensic expert provides an conclusion that is evidence in court and (to some extent) a guarantee of the issue research objectivity.

The last group of problems are technical. It is because of them, according to experts, that the adoption of the draft *On Mediation* has been postponed. Thus, the President of the National Association of Mediators of Ukraine D. Protsenko [1] claims that age of mediators at 30 is unjustifiably high: a single register of mediators which judges will have access to creates additional requirements and the mediator status with 40 hours of training is not an indicator of regulating dispute quality. Therefore, to reduce further risks of mediation, it is necessary to more carefully and in detail determine the mediator training, his status in court.

Given these mediation issues, it can be concluded that procedure of peaceful settlement of disputes in an out of court format is not prohibited, however, there is no direct possibility of mediation. In other words, for mediation development it is necessary to carry out legislative actions that will meet the needs of all parties to the proceedings and will enable the introduction of mediation at the

[1] Парламент провалив голосування за законопроєкт … . URL: https://zmina.info/news/parlament_provaliv_golosuvannjia_za_zakonoprojekt_pro_mediacijiu (date accessed:16.06.2020).

level of the current judicial system. In addition, administrative offenses have certain specific features through their participants, but should not be limited to the peaceful settlement of disputes.

An alternative way of resolving conflicts such as mediation has a number of advantages, namely: it allows to increase the satisfaction of participants (thereby reducing appeals in courts), to reach balanced decisions in the negotiation process, reduce the cost of conflict, reduce time.

Since the current legal framework does not allow mediation to be legally used as an alternative way to resolve the conflict, the parties often start negotiations only on the court recommendation and mediation introduction is still stretched in time. Resolving the issues will significantly bring the mediation process closer to the desired level, so it is proposed to re-adopt the Law *on Mediation* but with certain amendments that would provide for transitional provisions for the mediation introduction in the court. In other words, to build an effective mediation system, it should be implemented gradually, in stages. *First stage* is due to mandatory mediator participation in trial, providing an alternative at the pre-trial stage; *second stage* in case of a positive experience in resolving cases with mediator participation to move to a mediator-oriented system with the selective participation of a judge acting as observer; *third stage* is the final transition to a system that involves participants voluntarily choosing an alternative between mediation and court. If mediation application is positive, the mediator status will increase significantly and he will become an equal participant in resolving conflict while the administrative procedure.

While these stage implementation, it is necessary to procedurally outline the actions of mediation participants (in particular, experts). General requirements for forensic expert are defined by the Law of Ukraine: *On Judicial Examination*, that does not provide for his participation in alternative dispute resolution, although if mediation is perceived as an opportunity for expert research, this process is permissible. In other words, mediation introduction will inevitably affect forensic expert and raise a number of questions about his activities, role of expert conclusion while alternative dispute resolution also needs to be clarified.

The presented stages are based on the positive practice of mediation abroad. Thus, the foreign practice of applying mediation mechanism [1] emphasizes the

[1] E.g., Медіація в державах Європейського Союзу//*Інформаційне агентство «Українське право».* 2016. 26 черв. URL: https://ukrainepravo.com/international_law/european_union_law/mediatsiya-v-derzhavakh-evropeyskogo-soyuzu (date accessed:: 16.06.2020) ; de la Rosa C. G. Mediation in the administrative courts: difficulties for its effective implementation//*Revista general de derecho procesal*. 2018. URL: https://apps.webofknowledge.com/full_record.doproduct=WOS&search_mode=GeneralSearch&qid=1&SID=F5fwxB6qxBSnoiGif4Q&page=1&doc=1 (date accessed: 16.06.2020) ; Bousta R. Mediación administrativa en derecho comparado: Perspectivas y prospectivas//*IDP. Revista de Internet, Derecho y Política.* 2019. Sept. № 29. DOI: 10.7238/idp.v0i29.3212 (date accessed:: 16.06.2020) ; de Graaf K. J., Marseille A. T., Tolsma, H. D. Mediation in Administrative Proceedings: A Comparative Perspective//

need to divide the actions of the parties between the settlement of dispute in court and out of court and in view of this divides the procedure into:

- private mediation (completely independent of the trial it is used without further litigation);
- mediation accompanying the trial (initiated by the court but taking place without further court involvement in resolving conflict);
- judicial mediation (conducted during the trial and includes advice and assistance from legal advisers and lawyers but excludes the participation of a judge with legal judicial powers.

In other words, foreign experience presupposes minimal participation of judges in mediation that is aimed at meeting the needs of the parties and not at making a unilateral court decision. In addition, mediation as a process of alternative dispute resolution abroad has equal status with court proceedings.

Conclusions. Certainly, the stages of transition to the use of an alternative method of conflict resolution (mediation) include not only the adoption of the Law of Ukraine: *On Mediation* but also changes in all regulations, codes of Ukraine governing the judiciary in general. Forensic science is an integral part of this system, so any changes will affect forensic science activity. Introduction of foreign experience should be adaptive in nature, taking into account the relevance of Ukrainian present.

It should be noted that mediation is necessary for society primarily due to its ability to reach a compromise as the main goal of the settlement procedure. Given all recommendations provided for resolving controversial issues, it takes a long time to implement mediation. Thus, for Ukraine, a gradual transition is the most acceptable option. Mediation is an important step towards a socially oriented system of human rights protection, it opens up options for a free and peaceful way of resolving disputes but its greatest advantage is ability of the parties to resolve the conflict on their own taking into account the wishes of each party. Although the administrative process is a specific type of law (through its subjects) introduction of mediation will provide new opportunities for the country and everyone the right to choose alternative ways to protect their interests.

References

Bousta, R. (2019). Administrative mediation in comparative law: Perspectives and prospects. *IDP-internet law and politics.* DOI: 10.7238/idp.v0i29.3212 (data zvernennia: 16.06.2020) ;

Alternative Dispute Resolution in European Administrative Law. 2014. P. 589—605. URL: https://www.rug.nl/research/portal/files/14920995/ADR_in_European_Administrative_Law_De_Graaf_Marseille_Tolsma.pdf (date accessed: 16.06.2020) ; Vučetić D. Is mediation viable in administrative matters//*Law and Politics.* 2016. № 4. Vol. 14. P. 495—504. DOI: 10.22190/FULP1604495V (date accessed: 16.06.2020).

Bozhenko, N. V. (2017). Mediatsiia yak odyn iz zasobiv vrehuliuvannia administratyvnykh sporiv: teoretyko-istorychnyi aspekt. *Pravo.ua.* №. 1. URL: http://nbuv.gov.ua/UJRN/pravo_2017_1_19 (data zvernennia: 16.06.2020) [in Ukrainian].

De Graaf, K. J., Marseille, A. T., Tolsma, H. D. (2014). *Mediation in Administrative Proceedings: A Comparative Perspective.* Alternative Dispute Resolution in European Administrative Law. URL: https://www.rug.nl/research/portal/files/14920995/ADR_in_European_Administrative_Law_De_Graaf_Marseille_Tolsma.pdf (data zvernennia: 16.06.2020) ;

De la Rosa, C. G. (2018). *Mediation in the administrative courts:* difficulties for its effective implementation. Revista general de derecho procesal. URL: https://apps.webofknowledge.com/full_record.do?product=WOS&search_mode=GeneralSearch&qid=1&SID=F5fwxB6qxBSnoiGif4Q&page=1&doc=1 (data zvernennia: 16.06.2020)

Korinnyi, S. O. (2019). *Vprovadzhennia mediatsii v administratyvnyi protses Ukrainy.* (Abstract of candidates thesis: 12.00.07). Uzhhorod [in Ukrainian].

Mediatsiia v derzhavakh Yevropeiskoho Soiuzu (2016). Informatsiine ahentstvo «Ukrainske pravo». URL: https://ukrainepravo.com/international_law/european_union_law/mediatsiya-v-derzhavakh-evropeyskogo-soyuzu (data zvernennia: 16.06.2020) [in Ukrainian].

Memel, F.-Y. *Mediatsiia v administratyvnomu sudochynstvi Ukrainy.* Pro mozhlyvosti vprovadzhennia mediatsii v ramkakh diiuchoho Kodeksu administratyvnoho sudochynstva Ukrainy (KASU). URL: http://www.voas.gov.ua/upload/337_mediac2.pdf. (data zvernennia: 16.06.2020) [in Ukrainian].

Parlament provalyv holosuvannia za zakonoproekt pro myrne vyrishennia konfliktiv poza sudom. (2019). ZMINA. Tsentr prav liudyny. URL: https://zmina.info/news/parlament_provaliv_golosuvannjia_za_zakonoprojekt_pro_mediacijiu (data zvernennia: 16.06.2020) [in Ukrainian].

Pro mediatsiiu: proekt Zakonu Ukrainy vid 17.12.2015 r. № 3665. URL: http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_2?pf3516=3665&skl=9 (data zvernennia: 16.06.2020) [in Ukrainian].

Shynkar, T. I. (2016). Zarubizhnyi dosvid pravovoho zabezpechennia mediatsii ta mozhlyvist yoho vykorystannia v Ukraini. *Nashe pravo.* № 2. URL: http://nbuv.gov.ua/UJRN/Nashp_2016_2_11 (data zvernennia: 16.06.2020) [in Ukrainian].

Sydielnikov, O. D. (2017). *Instytut prymyrennia storin v administratyvnomu sudochynstvi*. (Abstract of candidates thesis: 12.00.07). Kharkiv [in Ukrainian].

Sydorenko, D. (2018). Mediatsiia v administratyvnomu protsesi: v chomu problema? *Iurydychna Hazeta online.* URL: https://yur-gazeta.com/publications/events/mediaciya-v-administrativnomu-procesi-v-chomu-problema.html (data zvernennia: 16.06.2020) [in Ukrainian].

Uhoda pro asotsiatsiiu mizh Ukrainoiu, z odniieiu storony, ta Yevropeiskym Soiuzom, Yevropeiskym spivtovarystvom z atomnoi enerhii i yikhnimy derzhavamy-chlenamy, z inshoi storony (zi zminamy ta dopovnenniamy): vchyn. (u riznykh chastynakh) 21.03.2014 r. ta 27.06.2014 r. № 984_011; ratyfik. Zakonom Ukrainy vid 16.09.2014 r. № 1678-VII. URL: https://zakon.rada.gov.ua/laws/show/984_011/ed20151130 (data zvernennia: 16.06.2020) [in Ukrainian].

Vučetić, D. (2016). Is mediation viable in administrative matters? *Law and Politics.* № 4. Vol. 14. DOI: 10.22190/FULP1604495V (data zvernennia: 16.06.2020).

Д. О. Давиденко

ПЕРСПЕКТИВИ РОЗВИТКУ МЕДІАЦІЇ В АДМІНІСТРАТИВНОМУ ПРОЦЕСІ УКРАЇНИ ТА ЇЇ ВПЛИВ НА СУДОВО-ЕКСПЕРТНУ ДІЯЛЬНІСТЬ

Розглянуто основні напрями розвитку процедури медіації в Україні відповідно до чинного законодавства та її перспективи в адміністративному процесі. Схарактеризовано наявний стан медіації в Україні. Досліджено спірні аспекти чинного законодавства, зокрема напрями вдосконалення проєкту Закону України «Про медіацію». Визначено перелік проблем введення медіації в адміністративному процесі, які розподілено на групи. Надано рекомендації щодо шляхів подолання цих проблем, що сприятиме поступовому переходу до медіації як альтернативного способу розв'язання спорів. Визначено аспекти впливу «узаконеної» медіації на діяльність судового експерта як учасника судового розгляду. Розглянуто закордонний досвід медіації, який слід брати до уваги в сучасній практиці мирного врегулювання спорів.

Ключові слова: медіація, адміністративний процес, альтернативний спосіб врегулювання конфлікту, спір, медіатор, суддя, позасудовий розгляд, судово-експертна діяльність.

Д. А. Давиденко

ПЕРСПЕКТИВЫ РАЗВИТИЯ МЕДИАЦИИ В АДМИНИСТРАТИВНОМ ПРОЦЕССЕ УКРАИНЫ И ЕЁ ВЛИЯНИЕ НА СУДЕБНО-ЭКСПЕРТНУЮ ДЕЯТЕЛЬНОСТЬ

В статье рассмотрены основные направления развития процедуры медиации в Украине в соответствии с действующим законодательством и её перспективы в административном процессе. Охарактеризованы существующее положение медиации в Украине и опыт предыдущего внедрения данной процедуры. Исследованы труды отечественных учёных, выделены пути становления медиации как категории правовых отношений. Определён статус медиатора в настоящее время, в том числе рассмотрен законопроект «О медиации» и его основные положения. Исследованы спорные аспекты существующего законодательства, а именно проблемы внедрения медиации и возможные направления совершенствования проекта Закона Украины «О медиации».

Определён перечень проблем введения медиации в административный процесс, который предложено разделить на три группы: общие, административно ориентированные, технические. Общие проблемы обусловлены концептуальными проблемами внедрения медиации, административно ориентированные не предусматривают возможности развития альтернативных способов разрешения споров именно в административном процессе, а технические — это пробелы законодательства, касающиеся процедурных аспектов медиации. Также даны рекомендации о способах

преодоления этих проблем, которые будут способствовать постепенному переходу к медиации как альтернативному способу разрешения споров. В качестве основной рекомендации предложено поэтапное внедрение Закона Украины «О медиации».

Переход на следующий этап предполагает уменьшение участия суда в процедурах медиации и дальнейшее её выделение в самостоятельно действующую систему альтернативного разрешения споров. Рассмотрен зарубежный опыт медиации, который учитывается в современной практике мирного урегулирования споров и подтверждает необходимость внедрения предложенных рекомендаций.

Ключевые слова: медиация, административный процесс, альтернативный способ урегулирования конфликта, спор, медиатор, судья, внесудебное рассмотрение, судебно-экспертная деятельность.

Received by Editorial Board: 17.06.2020

Davydenko D. O. Prospects for the development of mediation in the administrative process of Ukraine and its influence on forensic activity//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 250—259. DOI: https://doi.org/10.32353/khrife.2.2020.19.

DOI: https://doi.org/10.32353/khrife.2.2020.20
UDC [342.9:343.98](477)

A. O. Kazarov,
Senior Researcher of the Laboratory of Road Accident Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-5560-8652, e-mail: exp2014@ukr.net

Principles of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic collisions

The issues related to the principles of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic collisions are considered. Attention is focused on division of the principles of forensic activity into general and special ones. The general and special principles of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic collisions are defined. Currently, the number of traffic collisions in Ukraine is growing at a high pace resulting in increase in the number of trials on administrative offenses related to traffic collisions and, as a result, the number of road-accident analyses in cases of administrative offenses is increasing. Many scientists considered issues related to the principles of administrative and legal regulation of forensic activity. However, they did not study issues concerning the principles of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic collisions. In connection with the above, the issue of principles of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic accidents has become more topical. Research results have shown that special principles are closely linked to general principles. It was also established that general principles of administrative law which are applied in the field of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic collisions, are the principles of the rule of law, legality, independence; objectivity; research integrity, responsibility, independence. Accordingly, special principles are also independence, objectivity and integrity of research, the principle of integrated study of materials on cases of administrative offenses, the principle of narrow specialization. While conducting research, it also have been established that special principles are closely linked to general principles.

Keywords: principles, forensic activity, administrative offenses, traffic collision, administrative and legal regulation, law, administrative law.

Formulation of Research Problem. The number of traffic collisions in Ukraine is increasing every year. As a result, the number of cases of administrative offenses related to traffic collisions and the number of forensic examinations and researches in these cases is also increasing. Conducting

© A. O. Kazarov, 2020

forensic examinations and researches is regulated by the laws of Ukraine and other regulations that specify forensic science activity principles in Ukraine [1]. In scientific legal literature the issues concerning principles of administrative and legal regulation of forensic science activity are considered. However, the issues related to these principles in cases of administrative offenses related to traffic collisions have not yet been fully addressed and finally resolved. That is why the issue consideration of administrative and legal regulation principles of forensic science activity in cases of administrative offenses related to traffic collisions is becoming increasingly important.

Analysis of Essential Researches and Publications. O. Kliuiev notes that the requirements of the world community to the standardization of forensic activity actualize the need to form its theoretical and legal foundations and create preconditions for reforming forensic support of justice [2]. E. Simakova-Yefremian researched the issue of reforming forensic science activity and the need to improve the legislation of Ukraine on forensic science activity [3]. In addition, the principles of administrative and legal regulation of forensic science activity were studied by V. Galunko, R. Topolya, O. Yeshchuk, R. Saunin, O. Oliynyk, E. Simakova-Efremyan [4] and others.

Article Purpose. Determination of principles on which the administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic accidents is carried out; considering concept of principles of forensic science in cases of administrative offenses related to traffic collisions.

Main Content Presentation. Principles are the basis of any industry. Forensic science activity and administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions are no exception.

---

[1] Про судову експертизу: Закон України від 25.02.1994 р. № 4038-XII (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 1994. № 28. Ст. 232.

[2] Клюєв О. М. Удосконалення експертного забезпечення правосуддя: теоретичні, правові та організаційні аспекти//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2019. Вип. 19. P. 102. URL: https://doi.org/10.32353/khrife.1.2019.08 (date accessed: 01.12.2020).

[3] Сімакова-Єфремян Е. Б. Про необхідність удосконалення законодавства щодо здійснення судово-експертної діяльності в Україні//*Ibid.* P. 118. URL: https://doi.org/10.32353/khrife.1.2019.09 (date accessed: 01.12.2020).

[4] Галунько В. В., Тополя Р. В., Єщук О. М., Саунін Р. Д. Адміністративно-правове регулювання експертно-криміналістичних досліджень транспортних засобів: монографія. Херсон, 2015. 179 р. ; Олійник О. О., Галунько В. В., Єщук О. М. Адміністративно-правове регулювання судово-експертної діяльності: монографія. Херсон, 2015. 224 р. ; Сімакова-Єфремян Е. Б. До питання удосконалення деяких положень нормативно-правових актів щодо експертного забезпечення правосуддя України//*Актуальні питання судової експертизи та криміналістики:* мат-ли Міжнар. наук.-практ. конф., присвяч. 90-річчю створення ХНДІСЕ ім. Засл. проф. М. С. Бокаріуса (Харків, 7—8.11.2013). Харків, 2013. P. 36—38.

Based on the analysis of scientific legal literature, use of knowledge of the theory of law, legal acts in this area, we formulate general and special principles of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions.

In the dictionary of foreign words *principle* is defined as: "1) inner conviction of human; basic behavior rule; 2) it underlies a certain theory of science" [1].

According to G. Gubin, the *"principle" term (from the Latin principle is the beginning, the basis) is accepted by all science including jurisprudence. Theoretical and practical significance of this concept, or rather, the category cannot be overestimated"* [2].

Scholars comment on the philosophical principle as follows: "Philosophical principle of dynamic balance of internal opposites is the desire of any system to self-preservation as a whole with an internally balanced structure under the universal law of disorder causes the existence of a closed system law — offense" [3]. According to this principle, any offense creates a right that will terminate the offense and each right will be violated. There are no exceptions to this rule, as they violate both commandments of the Bible and internal documents of institutions. In this regard, specially appointed persons (in particular, officials) are obliged to do everything possible to maintain in modern society the regime of observance of all rights and to prevent these violations.

In the most general form, scholars in the field of law express their understanding of the principles of law as a guiding principle (idea) determining direction and content of legal regulation of social relations. Significance of the principles of law is they concentrate on the most essential features of law are its quintessence and essence [4].

Directing his views on the understanding of the principles of administrative law. In our opinion, Yu. Bytyak is appropriate to believe that these are the initial, objectively determined fundamental principles which according to the system and content of this branch of law function and are formed [5].

V. Golovanov's opinion is also correct in the part that principles, as well as laws are a reflection of the objective content of reality acting as a kind of means of organizing any cognition process. Their content has common features:

[1] Чаговець Р. В., Самсонов Г. В., Шлепаков А. М., Пересипкін В. Ф. та ін. Словник іншомовних слів. Київ, 1975. P. 547.

[2] Губін Г. Ефективність дотримання принципів судово-експертної діяльності/ Офіційний сайт громадської організації «Наукова спільнота». URL: http://www.spilnota.net.ua/ua/article/id-1358 (date accessed: 10.03.2019).

[3] Бачинін В. А., Журавський В. С., Панов М. І. Філософія права. Київ, 2003. P. 58.

[4] Юридична енциклопедія: у 6 т./редкол.: Ю. С. Шемшученко (відп. ред.), М. П. Зюблюк, В. П. Горбатенко та ін. Київ, 2003. Т. 5. P. 128.

[5] Галунько В. В., Тополя Р. В., Єщук О. М., Саунін Р. Д. Зазнач. твір. P. 55.

historical existence, content objectivity, logical form etc. Thus, the principle is the law in the epistemological function and the law is the principle of cognition methodology [1].

Summing up, we can conclude that principles reflect the objective content of reality (in this case, administrative and legal regulation of forensic science activity in Ukraine). We can also say that principles play the role of the means by which any cognition process is organized. Principles are the basis, foundation not only of this activity type but also of the whole mechanism of administrative and legal regulation of forensic activity (in particular, in Ukraine) [2].

Thus, in the right opinion of legal scholars, the principles of forensic science activity (in particular, in Ukraine) are guiding fundamental theoretical and practical principles that build the basis of forensic expert practical activities of the within his powers, rights and responsibilities under law and principles specific forensic examination. These are the principles of forensic expert independence (expert should not be in any dependence (material or official on any party); completeness and objectivity of expert research (rational and correct selection of methods adopted in expert practice for a comprehensive systematic study in order to clarify the most objective truth); observance of professional forensic expert ethics (professional conduct of a forensic expert in accordance with normative documents, awareness and observance of moral norms taking into account professional deformation); maximum preservation of objects provided for forensic research (efforts to minimally harm the research object); legality (all actions while forensic science activity should be within the law and comply with); observance of legitimate interests, rights and freedoms of individuals and legal entities; admissibility of use of means, methods and techniques of forensic research (chosen method should adequately correspond to forensic expert research nature) [3].

In his research papers, G. Gubin notes that forensic science activity is based on a number of principles that ensure forensic expert independence and impartiality while forensic examinations and guarantee the expert the freedom to choose necessary research method. As practice shows, the principle of scientific nature should be added to the list of principles, because it helps to improve the research methodology to introduce new methods, techniques, guidelines and others [4].

Forensic science activity (particularly in Ukraine) should be based on the scientific nature principle. This means that expert research tools (methods,

[1] Голованов В. Н. Законы в системе научного знания. Москва, 1970. P. 82.

[2] Галунько В. В., Тополя Р. В., Єщук О. М., Саунін Р. Д. Зазнач. твір.

[3] Принципи судово-експертної діяльності/Офіційний сайт судової незалежної експертизи України. URL: https://www.ekspertiza.com.ua/uk/tse-korisno-znati/109-printsipi-sudovo-ekspertnoji-diyalnosti (date accessed: 01.03.2019).

[4] Губін Г. Op. cit. URL: http://www.spilnota.net.ua/ua/article/id-1358 (date accessed: 10.03.2019).

techniques and other technologies) should correspond to scientific data, forensic research should be conducted using modern advances in science and technology. However, there is currently no understanding why principle of scientific nature is not specified in the current law. Although with the establishment of expert institutions, attention was paid to scientific nature, even noting this in the names of forensic science institutions (for example: forensic science institutes, forensic science institutions, Scientific Research Forensic Center of the MIA, etc.).

We fully agree with R. Sopilnyk who notes that the completeness, correctness and objectivity of the expert study are due to compliance of research methods and conclusions of forensic experts with modern requirements and the level of scientific and technical knowledge [1].

Forensic expert conclusions are formulated while forensic examination and notes in the forensic examination conclusion should be based on a comprehensive and complete study research object analysis provided by investigator (court) using specific expertise and necessary set of tools, methods, guidelines and research methods officially approved for use while the forensic examination.

It should be noted that forensic science activity quality in general and forensic activities in cases of administrative offenses related to traffic collisions, so that forensic expert answering the questions was competent, aware and built his work on compliance with the general and special principles of administrative and legal regulation of forensic science activity, system of professional and psychological training of forensic experts should be organized at fairly high level.

The principles which the system of professional and psychological training of forensic experts is based on are determined on the basis of the purpose, tasks and specifics of their general and special professional training, as well as the main tasks of psychological training of forensic experts [2].

According to Art. 3 of the Law of Ukraine: *On Judicial Examination* [3], forensic science activity is carried out on the principles of:

- legality;
- independence;
- objectivity;
- research completeness.

According to O. Oliynyk, the principles stipulated by the legislators will be special in relation to the administrative and legal regulation of forensic activity.

---

[1] Сопільник Р. Л. Наукова обґрунтованість, об'єктивність, повнота експертного дослідження//*Medzinárodná vedecká konferencia «Právna veda a prax v treťom tisícročí»* (Кошице, 27—28.02.2015). Кошице, 2015. P. 194—196.

[2] Шевцов С. О., Лозова С. М. Судовий експерт: психологічні аспекти практичної діяльності: метод. посіб. Київ, 2011. P. 49.

[3] Про судову експертизу: …//*Відомості Верховної Ради України (ВВР).* 1994. № 28. Ст. 232.

At the same time, they are closely linked to general principles, i.e. general principles are the basis which special principles are developed on [1].

O. Oliynyk also notes that principle of the rule of law is a principle according to public administration, carrying out administrative and legal regulation of forensic activities, recognizes such values of natural law as humanity, ensuring human and civil rights and freedoms, justice and others; these acquisitions are at the highest hierarchical level of the structured system [2]. M. Sambor and N. Smilyk supplement O. Oliynyk, noting that "introduction and establishment of the rule of law, the principle that combines the rule of human rights and freedoms with the principle of legality in the activities of state bodies and their officials should be decisive for the country and in no way can the significance of this principle be underestimated" [3].

In his research papers, O. Oliynyk also explores principles of legality, publicity and independence. While analysis of principles of administrative and legal regulation of forensic activities in cases of administrative offenses related to traffic collisions, we can take as a basis the views of O. Oliynyk. Thus, the principle of legality in this area of activity is manifested in three aspects: 1) immediate behavior of individuals; 2) legal consolidation of competence of the structures of executive, legislative and judicial powers in matters of forensic science and state (non-state) forms of its conducting, its implementation on the basis of law, in compliance with constitutional rights and human (citizen) freedoms; 3) requirement for all subjects of law to strictly and accurately comply with requirements of laws and regulations based on forensic science activities in cases of administrative offenses related to traffic collisions [4]. It should be noted that principle of publicity regarding the administrative and legal regulation of forensic science activities (in particular, in cases of administrative offenses related to traffic collisions) is limited. However, as required by law, forensic expert has no right to disclose information that became known to him while forensic examination. The principle of independence in this area is fully applied, as forensic expert while forensic examination (in particular, selecting methods, research methods and reference literature) acts independently according to their own beliefs and competence based on his specific expertise.

Understanding principles expressed by O. Oliynyk can be perceived as a basis for further development of principles of administrative and legal regulation of forensic science activities in Ukraine. In addition, provisions that principles of administrative and legal regulation of forensic science activities

[1] Олійник О. О. Адміністративно-правове регулювання судово-експертної діяльності: автореф. дис. … канд. юрид. наук. Київ, 2014. P. 7.

[2] Олійник О. О. Op. cit.

[3] Самбор М. А., Смілик Н. О. Окремі питання правового регулювання участі експерта у справах про адміністративні правопорушення//*Юридична наука.* 2014. № 1. P. 60.

[4] Олійник О. О. Op. cit.

should be classified into general and special deserve attention [1]. We can assume that general principles are the same for all administrative and legal relations and special ones only on issues of administrative and legal regulation of forensic science activities.

Adhering to the proposal of O. Oliynyk, we should note that defined in Art. 3 of the Law of Ukraine: *On Judicial Examination* the principles of forensic science activity(legality, independence, research objectivity and completeness) are general for the administrative and legal regulation of forensic activities in cases of administrative offenses related to traffic collisions.

Thus, the analysis of the Law of Ukraine: *On Judicial Examination* revealed general principles of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions, for further definition and formation of specific principles that have not found their legal form.

The principles of administrative law should be understood as the basic ones, objectively determined principles that are the basis of human and civil rights and freedoms, activities of administrative law subjects, proper functioning of the state and civil society [2].

V. Halunko and O. Yeschuk believe that general principles of administrative law enshrined in the Constitution of Ukraine are concretized and developed in legislative and other regulations of the state [3]**.** These include: the principle of mutual responsibility of the state and person; principle of the rule of law; principle of democracy of law-making and realization of law; principle of priority of citizen rights and freedoms; principle of equality of citizens under the law; principle of humanism and justice in the relationship between the State and person; principle of legality [4].

It is appropriate for our research to divide the principles of public administration in the organization of forensic activities into sectoral and intersectoral, territorial, the principles of single-headedness and collegiality [5]. Effective organization of the system of forensic institutions in Ukraine and public administration in this area is also important for solving specific tasks (such as compliance with principles of administrative and legal regulation of forensic science activity in cases of administrative offenses related to road accidents).

---

[1] Галунько В. В., Тополя Р. В., Єщук О. М., Саунін Р. Д. Op. cit. P. 63.

[2] Галунько В. В., Олефір В. І., Пихтін М. П. та ін. Адміністративне право України: навч. посіб.: у 2 т./за заг. ред. В. В. Галунька. Херсон, 2011. Т. 1. P. 63.

[3] Галунько В. В., Тополя Р. В., Єщук О. М., Саунін Р. Д. Op. cit. P. 64.

[4] Галунько В. В., Олефір В. І., Пихтін М. П. та ін. Op. cit. P. 64—65.

[5] Репешко П. І. Реалізація спеціальних принципів державного управління в організації судово-експертної діяльності//*Теорія та практика державного управління.* 2011. Вип. 1 (32). P. 152—158.

The above opinions, views, observations and definitions give grounds to assert that the general principles of administrative law are foundation for development of specific principles.

It should be noted that special principles of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic accidents should be considered in conjunction with the general principles [1].

Usually, for conducting forensic examination in cases of administrative offenses related to traffic collisions, specialist should have and be able to apply specific expertise (in particular, in the field of automotive and transport trace evidence), because such forensic examinations require attention, professional skills and competence and etc.

Thus, the main tasks of forensic examinations in cases of administrative offenses related to traffic collisions are as follows: 1) assess actions of traffic collision participants in terms of how they should have acted in accordance with the requirements of Traffic codes of Ukraine; 2) determine whether the participants in traffic collision had technical ability to avoid the traffic collision; 3) find out whether there were non-compliance with the requirements of Traffic codes of Ukraine in the actions of the participants of the road accident; 4) investigate (in case of non-compliance of the actions of the participants of the traffic accident with the requirements of the Traffic codes of Ukraine), whether these discrepancies are in causal connection with the occurrence of the traffic accident. Solving these problems in the future will help the court to make an objective decision on the guilt of the participants in traffic collision.

Thus, one of the specific principles of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions is the principle of specific expertise applying in the field of automotive engineering.

The next specific principle of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions is the principle of niche specialization that is quite relevant and important today.

Another specific principle is the principle of priority of citizen rights to receive an objective, reasonable, independent and impartial forensic examination results.

Anyway no less important specific principle of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions is the principle of comprehensive research on case materials on administrative offenses. It is impossible to consider separately explanations of traffic collision participants and witnesses and the protocol of inspection of the accident site and the scheme of the accident site (in some cases, damage

[1] Галунько В. В., Тополя Р. В., Єщук О. М., Саунін Р. Д. Op. cit. P. 66.

to vehicles), because this procedure should be carried out only in a complex, systematic, as these elements are interrelated.

Regarding importance of the principles of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions, it should be noted that they are the basis of the administrative and legal mechanism, central (albeit theoretical) element in the formation and development of effective system of public relations that is formed in this area.

Conclusions. Taking into account the above research and analysis, as well as normative and scientific content, we determined that general principles of administrative law applied in the field of administrative and legal regulation of forensic science activity in cases of administrative offenses related to traffic collisions are principles of the rule of law, legality and independence; objectivity; completeness of research, independence and responsibility. Specific principles include the principles of objectivity, independence and completeness of research; complexity of research on case files of administrative offenses; niche specialization.

References

Bachynin, V. A., Zhuravskyi, V. S., Panov, M. I. (2003). *Filosofiia prava.* Kyiv [in Ukrainian].

Halunko, V. V., Olefir, V. I., Pykhtin, M. P. ta in. (2011). *Administratyvne pravo Ukrainy:* navch. posib.: u 2 t. Ed.: V. V. Halunko. Kherson. T.1. [in Ukrainian].

Halunko, V. V., Topolia, R. V., Yeshchuk, O. M., Saunin, R. D. (2015). *Administratyvno-pravove rehuliuvannia ekspertno-kryminalistychnykh doslidzhen transportnykh zasobiv:* monohrafiia. Kherson [in Ukrainian].

Golovanov, V. N. (1970). *Zakony v sisteme nauchnogo znaniia.* Moscow [in Russian].

Hubin, H. *Efektyvnist dotrymannia pryntsypiv sudovo-ekspertnoi diialnosti*. Ofitsiinyi sait hromadskoi orhanizatsii «Naukova spilnota». URL: http://www.spilnota.net.ua/ua/article/id-1358 (data zvernennia: 10.03.2019) [in Ukrainian].

Kliuiev, O. M. (2019). Udoskonalennia ekspertnoho zabezpechennia pravosuddia: teoretychni, pravovi ta orhanizatsiini aspekty. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 19. URL: https://doi.org/10.32353/khrife.1.2019.08 (data zvernennia: 01.12.2020) [in Ukrainian].

Oliinyk, O. O. (2014). *Administratyvno-pravove rehuliuvannia sudovo-ekspertnoi diialnosti.* (Abstract of candidates thesis). Kyiv [in Ukrainian].

Oliinyk, O. O., Halunko, V. V., Yeshchuk, O. M. (2015). *Administratyvno-pravove rehuliuvannia sudovo-ekspertnoi diialnosti:* monohrafiia. Kherson [in Ukrainian].

Pryntsypy sudovo-ekspertnoi diialnosti/Ofitsiinyi sait sudovoi nezalezhnoi ekspertyzy Ukrainy. URL: https://www.ekspertiza.com.ua/uk/tse-korisno-znati/109-printsipi-sudovo-ekspertnoji-diyalnosti (data zvernennia: 01.03.2019) [in Ukrainian].

Pro sudovu ekspertyzu (1994): Zakon Ukrainy vid 25.02.1994 r. № 4038-KhII (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* № 28. St. 232 [in Ukrainian].

Repeshko, P. I. (2011). Realizatsiia spetsialnykh pryntsypiv derzhavnoho upravlinnia v orhanizatsii sudovo-ekspertnoi diialnosti. *Teoriia ta praktyka derzhavnoho upravlinnia.* Vyp. 1 (32) [in Ukrainian].

Sambor, M. A., Smilyk, N. O. (2014). Okremi pytannia pravovoho rehuliuvannia uchasti eksperta u spravakh pro administratyvni pravoporushennia. *Iurydychna nauka*. № 1 [in Ukrainian].

Simakova-Yefremian, E. B. (2013). Do pytannia udoskonalennia deiakykh polozhen normatyvno-pravovykh aktiv shchodo ekspertnoho zabezpechennia pravosuddia Ukrainy. *Aktualni pytannia sudovoi ekspertyzy ta kryminalistyky:* materialy Mizhnar. nauk.-prakt. konf., prysviach. 90-richchiu stvorennia KhNDISE im. Zasl. prof. M. S. Bokariusa (Kharkiv, 7—8.11.2013). Kharkiv [in Ukrainian].

Simakova-Yefremian, E. B. (2019). Pro neobkhidnist udoskonalennia zakonodavstva shchodo zdiisnennia sudovo-ekspertnoi diialnosti v Ukraini. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 19. URL: https://doi.org/10.32353/khrife.1.2019.09 (data zvernennia: 01.12.2020) [in Ukrainian].

Sopilnyk, R. L. (1975). *Naukova obgruntovanist, obiektyvnist, povnota ekspertnoho doslidzhennia*. Medzinárodná vedecká konferencia «Právna veda a prakh v treťom tisícročí» (Koshytse, 27—28.02.2015). Koshytse [in Ukrainian].

Chahovets, R. V., Samsonov, H. V., Shlepakov, A. M., Peresypkin, V. F. ta in. (1975). *Slovnyk inshomovnykh sliv.* Kyiv [in Ukrainian].

Shevtsov, S. O., Lozova, S. M. (2011). *Sudovyi ekspert: psykholohichni aspekty praktychnoi diialnosti:* metod. posib. Kyiv [in Ukrainian].

Yurydychna entsyklopediia: u 6 t. (2003). Eds.: Yu. S. Shemshuchenko, M. P. Ziubliuk,. V. P. Horbatenko ta in. Kyiv. T. 5 [in Ukrainian].

А. О. Казаров

ПРИНЦИПИ АДМІНІСТРАТИВНО-ПРАВОВОГО РЕГУЛЮВАННЯ СУДОВО-ЕКСПЕРТНОЇ ДІЯЛЬНОСТІ У СПРАВАХ ПРО АДМІНІСТРАТИВНІ ПРАВОПОРУШЕННЯ, ПОВ'ЯЗАНІ З ДОРОЖНЬО-ТРАНСПОРТНИМИ ПРИГОДАМИ

Розглянуто принципи адміністративно-правового регулювання судово-експертної діяльності у справах про адміністративні правопорушення, пов'язані з дорожньо-транспортними пригодами. Принципи судово-

експертної діяльності розподілено на загальні та спеціальні. Виявлено загальні та спеціальні принципи адміністративно-правового регулювання судово-експертної діяльності у справах про адміністративні правопорушення, пов'язані з дорожньо-транспортними пригодами. Визначено також, що спеціальні принципи тісно пов'язані із загальними.

Ключові слова: принципи, судово-експертна діяльність, адміністративні правопорушення, дорожньо-транспортна пригода, адміністративно-правове регулювання, право, адміністративне право.

А. А. Казаров

ПРИНЦИПЫ АДМИНИСТРАТИВНО-ПРАВОВОГО РЕГУЛИРОВАНИЯ СУДЕБНО-ЭКСПЕРТНОЙ ДЕЯТЕЛЬНОСТИ ПО ДЕЛАМ ОБ АДМИНИСТРАТИВНЫХ ПРАВОНАРУШЕНИЯХ, СВЯЗАННЫХ С ДОРОЖНО-ТРАНСПОРТНЫМИ ПРОИСШЕСТВИЯМИ

Рассмотрены вопросы, касающиеся принципов административно-правового регулирования судебно-экспертной деятельности по делам об административных правонарушениях, связанных с дорожно-транспортными происшествиями. Принципы судебно-экспертной деятельности разделены на общие и специальные. В настоящее время количество дорожно-транспортных происшествий в Украине растёт высокими темпами, что приводит к увеличению числа судебных процессов по административным правонарушениям, связанным с дорожно-транспортными происшествиями, в результате увеличивается количество судебных экспертиз по указанным категориям дел.

Многие учёные рассматривали вопросы, связанные с принципами административно-правового регулирования судебно-экспертной деятельности. К сожалению, в этих исследованиях не уделено внимание вопросам, касающимся принципов административно-правового регулирования судебно-экспертной деятельности по делам об административных правонарушениях, связанных с дорожно-транспортными происшествиями. В связи с вышеизложенным вопрос о принципах административно-правового регулирования судебно-экспертной деятельности по делам об административных правонарушениях, связанных с дорожно-транспортными происшествиями, стал более актуальным.

Исследование показало, что специальные принципы тесно связаны с общими принципами. Также было установлено, что общими принципами административного права, применяемыми в административно-правовом регулировании судебно-экспертной деятельности по делам об административных правонарушениях, связанных с дорожно-транспортными происшествиями, являются принципы верховенства права, законности, независимости; объективности; полноты исследования, ответственности и независимости. Соответственно, специальными являются принципы

самостоятельности, объективности и полноты исследования; комплексного изучения материалов по делам об административных правонарушениях; узкой специализации.

Ключевые слова: принципы, судебно-экспертная деятельность, административные правонарушения, дорожно-транспортное происшествие, административно-правовое регулирование, право, административное право.

Received by Editorial Board: 27.05.2020

Kazarov A. O. Principles of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic collisions//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 260—271. DOI: https://doi.org/10.32353/khrife.2.2020.20.

DOI: https://doi.org/10.32353/khrife.2.2020.21
UDC 340.6

V. O. Olkhovsky,
Doctor of Medicine, Professor, Professor Emeritus, Medical Law at Kharkiv National Medical University, Corresponding Member of the International Academy of Integrative Anthropology, Head of the Department of Forensic Medicine, Medical Law named after honored prof. M. S. Bokarius at Kharkiv National Medical University, Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-2843-2692,
e -mail: prof_olkhovsky@ukr.net
E. K. Grygorian,
PhD student at the Department of Forensic Medicine, Medical Law at Kharkiv National Medical University, Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-5634-015X,
e -mail: 8520148@gmail.com
R. S. Myroshnychenko,
Doctor of Medicine, Associate Professor at the Department of Pathological Anatomy at Kharkiv National Medical University, Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-6920-8374,
e -mail: msmyroshnychenko@ukr.net

Approaches to determining post-mortem interval

The main approaches and problems that arise when evaluating postmortem interval are defined, ways to avoid such problems are suggested. According to the results of scientific papers analysis on that topic, it was established that in the context of post-mortem changes studies such changes developed differently during a specific period of time passed from the time of death, they also appeared in a variety of forms as a result of environmental factors influence. The factors having a significant impact on postmortem changes were specified. A review of modern methods for determining post-mortem interval was conducted and methods for further improvement of the assessment of postmortem interval were proposed.

The use of methods for assessing the PMI by means of the cadaveric phenomena does not always provide for investigating authorities necessary information due to the relatively large time interval in methods based on such

© V. O. Olkhovsky, E. K. Grygorian, R. S. Myroshnychenko, 2020

changes. Researchers also note the presence of certain shortcomings in the use of existing methods.

Current research using laser polarimetry methods have made it possible to establish post-mortem interval with relatively high accuracy. However, high prices and limited availability of equipment used in laser polarimetry methods preclude from using them in everyday practice of forensic medical examiners.

When conducting studies on histological and biochemical changes in tissues of internal organs, certain morphological (decrease in optical density) and biochemical (changes in the levels of biochemical markers) changes in the early post-mortal period were identified, which will enable the development of specific tables where such changes would be linked to a specific post-mortem time period during certain short periods of time. Although changes in the conducted research were recognized only in the early post-mortem period and only in muscle tissue, further research on other tissues that are more resistant to post-mortem changes are likely to provide results that would be less affected by individual characteristics and environmental factors (such as ambient humidity, ambient temperature, exposure of a corpse to the sun rays, amount of clothing on a corpse, etc.) and also would be more accurate than most existing methods.

Keywords: forensic medicine, forensic medicine examination, post-mortem interval, thanatology.

Formulation of Research Problem. Post mortem interval estimation (hereinafter referred to as PMI) is a priority while forensic examination of corpses. Most decisions of investigative bodies raise the question of such a definition, however, given the diverse nature and death circumstances, PMI correct evaluation is one of the most important problems of medico-legal expertology [1]. Despite the large number of research on determining PMI features, scientists have had difficulty in defining uniform criteria for establishing PMI estimation due to a large number of aspects determining development of postmortem changes. Determination of postmortem change peculiarities was carried out by studying changes in both classical (cadaveric phenomena) and various modern methods, however, latter either had a low level of practicality in application and/or were carried out using uncommon devices, that made impossible to use in everyday work of most forensic experts [2].

---

[1] Мішалов В. Д., Михайличенко Б. В., Завальнюк А. Х., Войченко В. В., Юхимець І. О. Визначення давності настання смерті у судово-медичній експертизі: метод. рекоменд. 3-тє вид., доопр. і д. , опов. Київ, 2016. P. 3.

[2] E.g., Визначення давності настання смерті: монографія/за заг. ред. В. О. Ольховського і Л. Л. Голубовича. Харків, 2017. P. 7—8 ; Мішалов В. Д., Дунаєв О. В., Костенко Є. Я., Козлов С. В. Перспективи дослідження біологічних рідин для визначення давності смерті//*Український журнал медицини, біології та спорту.* 2019. Т. 4. № 4 (20). P. 218—223.

On the other hand, the use of methods for PMI estimation using cadaveric phenomena does not always provide necessary information to investigators due to relatively long time interval used in methods based on such changes. Researchers point to certain shortcomings in the use of methods for PMI estimation by measuring the corpse temperature (for example, invasiveness of certain methods of measuring corpse temperature) that leads to a violation of the integrity of corpse cavities [1]. In addition, according to some scientists, certain corpse phenomena can occur at different intervals that can be due to environmental factors and/or individual corpse peculiarities [2].

Analysis of Essential Researches and Publications. Measurements of the temperature of piglet carcasses revealed a probable dependence of carcass cooling on the weight of piglets (direct relationship between weight and rate of decrease in the temperature of piglet carcasses) [3]. Researchers note the effect of lowering the temperature of rabbit carcasses that has heat-insulating properties and can indicate dependence of lower body temperature on materials that have heat-insulating characteristics (clothing, carpet, etc.) or conversely, materials with high thermal conductivity (some metals, stones, etc.) [4].

Late postmortem changes (putrid venous network, putrid blisters, dirty green color of the skin) can also have certain development peculiarities while exposure to electricity. Researchers note local nature and difference of such changes from the general dynamics of cadaveric phenomena [5]. However, due to small number of corpses examined (n = 2), this research can require the analysis of more cases to obtain more plausible results.

The **Article Purpose** is to analyze the approaches used in PMI evaluation, identify problems and identify ways to their solving.

Main Content Presentation. Given influence of the above-mentioned environmental factors and individual corpse peculiarities of PMI estimation by

---

[1] Бачинський В. Т., Ванчуляк О. Я., Саркісова Ю. В., Колачова А. Ю. Сучасний погляд на проблему встановлення давності настання смерті в практиці судово-медичної експертизи//*Актуальні проблеми сучасної медицини.* 2018. Т. 18. Вип. 3 (63). P. 280—281.

[2] Ольховський В. О., Голубович Л. Л., Хижняк В. В., Коновал Н. С., Дмитренко Ю. О. Визначення тривалості посмертного періоду в судово-медичній експертній практиці: сучасний стан і перспективи//*Експериментальна і клінічна медицина.* 2016. № 4 (73). P. 27—28.

[3] Борисевич Б. В., Лісова В. В., Карюхін О. С., Бурдейний О. І. Встановлення критеріїв давності настання смерті в поросят//*Науковий вісник Львівського національного університету ветеринарної медицини та біотехнологій імені С. З. Ґжицького.* 2010. Т. 12. № 2 (44). P. 27—29.

[4] Борисевич Б. В., Лісова В. В., Бурдейна Т. М. Встановлення критеріїв давності настання смерті у кролів//*Ibid.* p. 21—24.

[5] Войченко В. В., Сулоєв К. М., Титарчук І. П., Зрожевський Р. С. Встановлення давності настання смерті, яка настала за особливих обставин//*Судово-медична експертиза.* 2014. № 1. P. 66—68.

forensic experts, there is an urgent need to develop and implement new methods of such determination. Recent studies using laser polarimetry (in particular, PMI evaluation using the method of spatial-frequency filtering of polarization-inhomogeneous images of polycrystalline films of cerebrospinal fluid) allowed to determine PMI with an accuracy of $\Delta T = 45$ min (by two-dimensional Stokes-polarimetric mapping) [1], statistically significant difference was also found in PMI estimation by laser polarimetry, mean asymmetry and excess phase distributions of laser images of sections of biological tissues between deaths from coronary heart disease (control) and deaths from blood loss and mechanical asphyxia [2]. The use of crystal morphological method for forensic PMI evaluation was informative in the 7-day period after death (in crystallograms of the brain, heart, lungs, liver, kidneys, spleen and blood) that allows to use it even while development of late cadaveric phenomena [3]. However, due to rarity and high cost of the equipment used in these methods, forensic experts are not yet widely used.

Other methods of PMI estimation include histological and biochemical studies (particularly of the heart muscle) that in the early postmortem period revealed significant changes in specific biochemical markers (decrease in glycogen content in the heart and skeletal muscle and dynamic increase in lipofuscin content) and morphological changes (decrease in the optical density of the nucleus and cytoplasm of cardiomyocytes) every 2 hours during the early postmortem period that further allows to create certain tables of correspondence of such changes to the postmortem time interval for certain short periods of time [4]. Although changes in the heart muscle are detected only in the early postmortem period, further researches on other tissues more resistant to postmortem changes are likely to yield results less dependent on the influence of individual characteristics and environmental factors (such as humidity, ambient temperature, sunlight, amount of clothing, etc.) and will be more accurate than most existing methods.

---

[1] Гараздюк М. С. Визначення давності настання смерті за методом просторово-частотної фільтрації поляризаційно-неоднорідних зображень полікристалічних плівок ліквору//*Збірник наукових праць співробітників НМАПО імені П. Л. Шупика.* 2016. № 26. P. 83—95.

[2] Павлюкович О. В. Визначення давності настання смерті при деяких видах механічної асфіксії та масивній крововтраті методами лазерної поляриметрії: автореф. дис. … канд. мед. наук. Київ, 2011. 20 р.

[3] Федорова О. А. Особливості кристалографічних змін тканин трупа під час його гнильної трансформації//*Морфологія.* 2013. Т. 7. № 4. P. 73—77.

[4] Коновал Н. С. Обгрунтування критеріальної значимості структурно-біохімічних змін м’язової тканини міокарду в судово-медичній діагностиці давності настання смерті//*Вісник проблем біології і медицини.* 2019. Т. 2. № 1 (149). P. 385—389 ; Idem. Структурно-біохімічні зміни тканини міжреберних м`язів та їх значення в судово-медичній діагностиці давності настання смерті//*Український журнал медицини, біології та спорту.* 2019. Т. 4. № 4. P. 211—217.

Conclusions. The methods used by forensic experts while PMI estimation cannot always meet the needs of investigative bodies due to considerable period between death and the result of the examination, as well as due to a significant number of factors (external environment or individual characteristics of the corpse). This necessitates the search for other, more accurate and less labile methods for PMI estimation.

Among the modern methods currently being developed by professionals, it is worth noting the methods using laser polarimetry that demonstrate accurate results, however, their high cost and limited availability of the equipment make it impossible to use them in everyday practice of forensic medical examiners.

While PMI estimation by studying the biochemical and morphological changes of the heart and skeletal muscles in the early postmortem period, significant changes are observed after a significantly short period of time. The use of such methods for research on other tissues and body fluids can be the basis for detailed development and implementation of new, more accurate criteria for postmortem interval estimation.

References

Bachynskyi, V. T., Vanchuliak, O. Ya., Sarkisova, Yu. V., Kolachova, A. Yu. (2018). Suchasnyi pohliad na problemu vstanovlennia davnosti nastannia smerti v praktytsi sudovo-medychnoi ekspertyzy. *Aktualni problemy suchasnoi medytsyny.* T. 18. Vyp. 3 (63) [in Ukrainian].

Borysevych, B. V., Lisova, V. V., Burdeina, T. M. (2010). Vstanovlennia kryteriiv davnosti nastannia smerti u kroliv. N*aukovyi visnyk Lvivskoho natsionalnoho univertytetu veterynarnoi medytsyny ta biotekhnolohii imeni S. Z. Gzhytskoho.* T. 12. № 2 (44) [in Ukrainian].

Borysevych, B.V., Lisova, V.V., Kariukhin, O.S., Burdeinyi, O.I. (2010). Vstanovlennia kryteriiv davnosti nastannia smerti v porosiat. *Naukovyi visnyk Lvivskoho natsionalnoho univertytetu veterynarnoi medytsyny ta biotekhnolohii imeni S. Z. Gzhytskoho.* T. 12. № 2 (44) [in Ukrainian].

Fedorova, O. A. (2013). Osoblyvosti krystalohrafichnykh zmin tkanyn trupa pid chas yoho hnylnoi transformatsii. Morfolohiia. T. 7. № 4 [in Ukrainian].

Harazdiuk, M. S. (2016). Vyznachennia davnosti nastannia smerti za metodom prostorovo-chastotnoi filtratsii poliaryzatsiino-neodnoridnykh zobrazhen polikrystalichnykh plivok likvoru. *Zbirnyk naukovykh prats spivrobitnykiv NMAPO imeni P. L. Shupyka.* № 26 [in Ukrainian].

Konoval, N. S. (2019). Obhruntuvannia kryterialnoi znachymosti strukturno-biokhimichnykh zmin miazovoi tkanyny miokardu v sudovo-medychnii diahnostytsi davnosti nastannia smerti. *Visnyk problem biolohii i medytsyny.* T. 2. № 1 (149) [in Ukrainian].

Konoval, N. S. (2019). Strukturno-biokhimichni zminy tkanyny mizhrebernykh m`iaziv ta yikh znachennia v sudovo-medychnii diahnostytsi davnosti nastannia smerti. *Ukrainskyi zhurnal medytsyny, biolohii ta sportu.* T. 4. № 4 [in Ukrainian].

Mishalov, V. D., Dunaiev, O. V., Kostenko, Ye. Ya., Kozlov S. V. (2019). Perspektyvy doslidzhennia biolohichnykh ridyn dlia vyznachennia davnosti smerti. *Ukrainskyi zhurnal medytsyny, biolohii ta sportu.* T. 4. № 4 (20) [in Ukrainian].

Mishalov, V. D., Mykhailychenko, B. V., Zavalniuk, A. Kh., Voichenko, V. V., Yukhymets, I. O. (2016). *Vyznachennia davnosti nastannia smerti u sudovo-medychnii ekspertyzi* (metodychni rekomendatsii), tretie vydannia. Kyiv [in Ukrainian].

Olkhovskyi, V. O., Holubovych, L. L., Khyzhniak, V. V., Konoval, N. S., Dmytrenko, Yu. O. (2016). Vyznachennia tryvalosti posmertnoho periodu v sudovo-medychnii ekspertnii praktytsi: suchasnyi stan i perspektyvy. *Eksperymentalna i klinichna medytsyna.* № 4 (73) [in Ukrainian].

Pavliukovych, O. V. (2011). *Vyznachennia davnosti nastannia smerti pry deiakykh vydakh mekhanichnoi asfiksii ta masyvnii krovovtrati metodamy lazernoi poliarymetrii:* (Abstract of candidates thesis) Kyiv [in Ukrainian].

Voichenko, V. V., Suloiev, K. M., Tytarchuk, I. P., Zrozhevskyi, R. S. (2014). Vstanovlennia davnosti nastannia smerti, yaka nastala za osoblyvykh obstavyn. *Sudovo-medychna ekspertyza.* № 1 [in Ukrainian].

Vyznachennia davnosti nastannia smerti (2017): monohrafiia. V. O. Olkhovskyi i L. L. Holubovych (eds.). Kharkiv [in Ukrainian].

В. О. Ольховський, Е. К. Григорян, М. С. Мирошниченко

ПІДХОДИ ДО ВИЗНАЧЕННЯ ДАВНОСТІ НАСТАННЯ СМЕРТІ

Розглянуто основні підходи та виявлено проблеми, що виникають під час визначення давності настання смерті, запропоновано шляхи уникнення цих проблем. За результатами аналізу наукових праць за цією тематикою встановлено, що можна, досліджуючи післясмертні зміни у певний відомий проміжок часу, який минув з моменту настання смерті, з'ясувати, що ці зміни мали різну вираженість через вплив факторів навколишнього середовища, і визначити фактори, що істотно вплинули на післясмертні зміни.

Проведено огляд сучасних методів визначення давності настання смерті та запропоновано способи подальшого вдосконалення визначення давності настання смерті.

Ключові слова: судова медицина, судово-медична експертиза, давність настання смерті, танатологія.

В. А. Ольховский, Э. К. Григорян, М. С. Мирошниченко

ПОДХОДЫ К ОПРЕДЕЛЕНИЮ ДАВНОСТИ НАСТУПЛЕНИЯ СМЕРТИ

Рассмотрены основные подходы и выявлены проблемы, возникающие при определении давности наступления смерти, предложены пути избегания этих проблем. По результатам анализа научных работ данной тематики было установлено, что в условиях исследований посмертных изменений в определённый известный промежуток времени, прошедший с момента наступления смерти, такие изменения имели разную выраженность из-за влияния факторов окружающей среды. Определены факторы, существенно повлиявшие на посмертные изменения. Проведён обзор современных методов определения давности наступления смерти и предложены способы дальнейшего совершенствования определения давности наступления смерти.

Использование методов определения ДНС с помощью трупных явлений не всегда даёт необходимую следственным органам информацию из-за относительно большого временного интервала в методиках, основанных на таких изменениях. Также исследователи отмечают наличие определённых недостатков в использовании существующих методов.

Современные исследования методами лазерной поляриметрии позволяют установить ДНС довольно точно. Однако, высокая цена и ограниченная доступность оборудования, используемого в этих методах, делают невозможным их использование в повседневной практике судебно-медицинских экспертов.

При проведении исследований гистологических и биохимических изменений тканей внутренних органов были выявлены определённые морфологические (уменьшение оптической плотности) и биохимические изменения (изменения уровней биохимических маркеров) в раннем постмортальном периоде, что может позволить в дальнейшем создать таблицы соответствия таких изменений посмертному временному интервалу в течение определённых коротких промежутков времени.

Хотя изменения в проведённых исследованиях обнаружены только в раннем постмортальном периоде и только в мышечной ткани, дальнейшие исследования других тканей, более устойчивых к посмертным изменениям, вероятно, предоставят результаты, которые будут менее подвержены воздействию индивидуальных особенностей и факторов внешней среды (таких, как влажность и температура окружающей среды, воздействие солнечных лучей, количество одежды на трупе и т. д.), а также будут точнее большинства существующих методов.

Ключевые слова: судебная медицина, судебно-медицинская экспертиза, давность наступления смерти, танатология.

Received by Editorial Board: 28.05.2020

Olkhovsky V. O., Grygorian E. K., Myroshnychenko R. S. Approaches to determining post-mortem interval//*Theory and Practice of Forensic Science and Criminalistics*: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 272—279. DOI: https://doi.org/10.32353/khrife.2.2020.21.

DOI: https://doi.org/10.32353/khrife.2.2020.22
УДК 343.98:81´27

Ye. V. Kovkina,
Senior Researcher of the Laboratory of Handwriting Analysis,
Forensic Linguistics, Forensic Psychology and Art Forensics at National
Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-8693-9868,
e-mail: kovkina@hniise.gov.ua
L. V. Svyrydova,
PhD in Law, Head of the Laboratory of Handwriting Analysis,
Forensic Linguistics, Forensic Psychology and Art Forensics at National
Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-6667-2852,
e-mail: ludmila.sviridova@hniise.gov.ua
N. Ia. Didushok,
Leading Forensic Expert of the Laboratory of Handwriting Analysis,
Forensic Linguistics, Forensic Psychology and Art Forensics at National
Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-4822-0830,
e-mail: didushok-n@meta.ua

Semantic and textual analysis of calls

The article is devoted to consideration of main results of semantic and textual analysis of calls in the modern Ukrainian socio-political discourse. Forensic linguistic (semantic and textual) examination of speech to identify statements expressed as calls is one of the most relevant ones while pre-trial investigation and trial of criminal proceedings.

The Article purpose is defining of a subject and object in forensic linguistic (semantic and textual) examination of writing, analysis of publicity criterion as one of fundamental during the establishment of appeal illocution in text content.

The research was conducted on the basis of general scientific methods as well as on the basis of linguistics special methods and techniques, namely, using the method of observation, method of linguistic-stylistic analysis of a text, method of modeling, methods of semantic-syntactic and lexical-grammatical analysis, etc. Communicative intention of the author of the research in general was established with the help of the discursive method and the method of intent-analysis.

The main result of the study is to obtain practical data on establishing the role of connotations of verbs of different modes of action in the structure of calls. The analysis of utterances with such a component as an indirect appeal is significant, its grammatical features are determined, and competence boundaries

© Ye. V. Kovkina, L. V. Svyrydova,
N. Ia. Didushok, 2020

of a forensic expert in the field of forensic linguistic examination of a text are reflected in the article. It is established that nominalization is often used in the structure of constructions with the call illocution which belongs to the transformational speech process of transforming words of the verb grammatical form into a noun structural unit. The main characteristics of such types of appeals common in modern Ukrainian socio-political communicative discourse as call-slogan, call-appeal, call-program, evaluation-motivational call, etc., are outlined in the article. It is proved that main factors influencing type differences of calls are their semantic load and grammatical design.

So far, the results of linguistic, semantic-textual research of appeals are the basis of a single algorithm for the study of speech structures of this type, they are relevant and significant for modern forensic practice.

Keywords: appeal, indirect appeal, forensic linguistic (semantic-textual) examination of speech, call-slogan, call-appeal, call-program.

Formulation of Research Problem. Modern development of Ukraine as an independent, sovereign European state is accompanied by an active growth of political and information conflicts which focus is the media. In this way, main programs of representatives of various political and social groups are revealed through propaganda public distribution and motivational content. Media constantly publish articles, brief messages and notes on current events expressing opinions on the social and socio-political situation in the country.

At the present development stage of new research areas, one of the most important is forensic linguistics (textual semantic analysis) of speech to determine statements expressed in the form of appeals. The reasons for the rapid development of this analysis are seen in the urgent social needs accumulating the impetus for development of its scientific foundations and detailed study of the topic and object.

Appeals are a component of socio-political communication characterized via addresses to mass audience, accessibility to many people, campaign information popularization. Public information messages are usually publicly available and open; they should cover depicted events and pressing issues of the present time. Definition in statements of expressions expressed in the form of public appeals, today is one of the main tasks of linguistic (textual semantic analysis) researches on speech.

It is necessary to conduct a linguistic analysis of information messages, articles, individual brochures and publications related to the Ukrainian political discourse, as well as to develop methods for identifying and interpreting speech structures containing expressions in the form of appeals.

Analysis of Essential Researches and Publications. Definition of utterances in speech content expressed in the form of appeals requires a meaningful basis based on educational and professional special theoretical basis. In modern linguistics there is experience accumulation on these issues. Forensic linguistics (textual semantic analysis) and forensic researches on speech conducted by

linguists based on generally accepted methods of speech content analysis using practical linguistic experience and results of empirical observations.

The most capacious appeal interpretation in linguistics is the definition of A. M. Baranov according to which *appeal* is a speech act addressed to the addressee in order to motivate him to perform a certain action or cumulative action perceived as an important component of socially significant activities or to encourage recipient to take these guidelines into account in his or her habitual behavior, given that addresser and the addressee are political entities or their representatives. Speech act itself is considered as a component of socio-political communication [1]. A. M. Baranov examines appeal communicative act taking into account differentiation of speech acts by communicative purpose, because with help of motivational constructions it is possible to transmit communicative acts of different nature (for example, requests, orders, proposals, etc.). Peculiarity of a typical speech act of appeal is that it should be associated with socially important activities and contribute to achievement of tasks, because one of the main components of the speech act of the call is the condition for successful implementation of these actions. K. I. Brynyov [2], shares the same opinion, emphasizing that instructing the addressees on specific actions for illocutionary purpose of the appeal is not a mandatory condition: sometimes it is enough to announce the goal.

Considering *appeal* as a speech purpose and a type of persuasion, O. V. Kukushkina, Yu. O. Safonova and T. M Sekerazh emphasize such a special component of this concept as *persuasion*, namely: belief in the need to perform an action that is mandatory complemented by addressee motivation to perform this action [3]. Thus, appeal sign is different from other types of speech motivation, is availability in motivation appeal to change one's mind according to the formula "agree that it is necessary for you/us!". This obligatory combination of persuasion and motivation makes it possible to separate appeal from other "directive speech acts and genres" [4].

Instead, M. A. Osadchyi notes that appeal genre has no clear boundaries, because while speech activity it is combined with the incitement genres of motivation, excitement, persuasion, etc. [5]. Modern Ukrainian language

[1] Баранов А. Н. Лингвистическая экспертиза текста: теория и практика: учеб. пособ. Москва, 2007. P. 420.

[2] Бринев К. И. Теоретическая лингвистика и судебная лингвистическая экспертиза: монография/под ред. Н. Д. Голева. Барнаул, 2009. 252 p.

[3] Кукушкина О. В., Сафонова Ю. А., Секераж Т. Н. Теоретические и методические основы судебной психолого-лингвистической экспертизы текстов по делам, связанным с противодействием экстремизму. Москва, 2011. P. 89.

[4] Ibid.

[5] Осадчий М. А. Использование лингвистических познаний в расследовании преступлений, предусмотренных статьей 282 Уголовного кодекса РФ//*Право и безопасность.* 2007. № 3—4 (24—25). URL: http://dpr.ru/pravo/pravo_21_17.htm (date accessed: 16.06.2018).

researchers rightly study appeals as one of "forms of propaganda influence in modern Ukrainian political discourse." [1].

Today it is important to study the issue of distinguishing between the addressee goals such as *thought demonstration* and *appeal to action*. O. V. Kovbasenko and I. Yu. Paramonova [2] emphasize that only a detailed contextual analysis of entire speech act makes it possible to distinguish the named speech acts in each case.

Specificity of linguistic research in defining statements expressed in the form of appeals is also the need to distinguish between linguist competencies and psychologist competencies, as motivational focus of the whole text and its impact on the addressee is beyond the of a forensic linguist competence such issues should be considered by forensic psychologist). Supporting the opinion of O. V. Kukushkina that motivational orientation should be determined by psychological means of analysis (by analyzing the cognitive, emotional, volitional guidelines that are formed in recipient through the text) [3], we note that task of forensic linguist is to determine whether appeal illocution is expressed in the text as a speech purpose. Such a marker in speech material is the lexical expression of illocutionary appeal power, namely: statement should have a grammatical form of motivation for a certain action.

This **Article Purpose** is to determine the main signs of statements expressed in the form of appeals; to find out characteristic grammatical expression forms of constructions with appeal illocution; to characterize the main types of appeals which delimitation occurs at the level of their semantic content and grammatical design.

Main Content Presentation. According to the practice of applying specific expertise to determine statements expressed in the form appeals, *objects* of forensic linguistics (textual semantic analysis) speech are speech activity products (from a single word to a whole text or group of texts) recorded in writing (oral texts written in letters or their textual reproduction) written with letters or their text reproduction). Accordingly, the *topic* of this research species of is factual data that have in their structure motivating to certain actions of speech (speech constructions) that experts can determine based on specific linguistic knowledge and which are relevant to the case.

---

[1] Лось О. А. Заклик як прагмалінгвістична складова агітаційного впливу в політичному дискурсі//*Наукові праці Чорноморського державного університету імені Петра Могили.* Серія: Філологія. Мовознавство. 2009. Т. 105. Вип. 92. Р. 72.

[2] Ковбасенко О. В., Парамонова І. Ю. Інваріанти закликів за їх комунікативними функціями//*Актуальні питання судової експертизи та криміналістики:* зб. матеріалів Міжнар. наук.-практ. конф., присвяч. 100-річчю від дня народж. д-ра юрид. наук. проф., заслуж. діяча науки і техн. України М. В. Салтевського (Харків, 07—08.11.2017). Харків, 2017. Р. 110—113.

[3] Кукушкина О. В., Сафонова Ю. А., Секераж Т. Н. Op. cit. P. 91.

Research on speech content in order to determine in its structure of statements expressed in the form of appeals is based on general scientific methods and special methods and techniques of linguistics. Using *observation method* information is selected about special lexemes containing semantic color of motivation for certain actions; method of linguistic-stylistic analysis makes it possible to determine the style and genre of the text, its functions, stylistic means and techniques, identify the range of intended recipients and other extralinguistic factors; *modeling method* helps in version formation of the statement meaning expressed in the form of appeals, as well as in the construction of typical analogues; on the basis of the method of intent analysis determine the communicative intention that means author intention of the studied statement (message); methods of *semantic-syntactic* and *lexical-grammatical* analysis are used to clarify the meaning of words, phrases, sentences in the context of statements and super phrase unity.

At communicative level, an enough various motivating acts are distinguished which names are semantically derived from specific verbs: *order (from order), invitation (from invite), proposal (from propose), request (from request), disposition (from dispose), persuasion (from persuade), threat (from threaten), warning (from warn), prohibition (from prohibit)*, etc. These types of speech acts are used to convey communicative intentions that have differences at the semantic level. For example, the *order* speech act correlates with a significant impact on the addressee and requires mandatory, unconditional execution and invitations, advice allow the recipient to select a solution and advice is primarily from the addressee's point of view, in favor of the addressee and does not contain illocutionary component.

Given complexity of modern appeal, *concept* and researching public texts on contemporary socio-political issues, linguists should pay attention to statements with such component as a hidden appeal, as there is a possibility of mixing it with a similar concept in psychology. Keep in mind that in linguistics, the term: *covert appeal* is used as a synonym for an *indirect appeal* to describe a text or statement where the appeal is implicit, i.e. it does not specify a specific addressee or clearly indicates the actions to be performed.

At quantitative level, between grammatical motivation forms with illocutionary appeal component, two types predominate. The first includes predicate constructions of different grammatical expression among which are common:

a) verb in the form of imperative mood both in the singular and in the plural (for example, *rise, join, start, join, get up*);
b) compound verbs in the form of the imperative mood, where auxiliary words (*become, begin, want, continue, strive*, etc.) are consistent with the topic indicating method and time of action, its desirability, beginning,

duration or end called the main a verb expressed by infinitive (for example, s*tart creating, keep trying, start acting, start uniting*, etc.);

c) predicate adverb plus infinitive, where adverbs need, necessary, time and others reinforce obligation semantics to perform actions which meaning is revealed by infinitive form of the verb (for example, *need to rise, need to organize, need to liberate, time to gather, time to join, need to act etc.*).

Expression categoricalness and the semantic nuances of the semantic content of motivation construction to perform certain actions in direct appeals are also conveyed by the verb form. Perfective aspect of verbs is marked by categoricalness for example, *leave* (perfective aspect), *gather* (perfective aspect), *stand up* (perfective aspect), *begin* (perfective aspect), etc. while the imperfective aspect of verbs translates the semantics of the order in the plane of request or wish, *leave* (imperfective aspect), *gather* (imperfective aspect), *get up* (imperfective aspect), *start* (imperfect form), *join* (imperfective aspect), etc., but contextually taking into account other content-forming factors, preserves appeal illocution.

The second grammatical type of expression with appeal illocution is *nominalization*. The noun as one of the main parts of speech not only names a person or object, it also denotes an action that "thinks in itself, abstracted from the objects (persons) that perform it" [1]. Nominalization refers to the transformational speech process of transforming words of a verb grammatical form into a noun structural unit preserving semantics of creative basis. Sentences with nominalization are characterized by a deep concentration of lexical and syntactic content and hence the greatest veiling of their internal meaning, that provide the appeal with indirect form.

More often, nominative sentences are used in such types of appeal structures as *slogans* that is due to the clarity requirement and conciseness of this type of speech structure. Based on the linguistic analysis of expression grammatical forms of slogans in modern socio-political discourse, several varieties are distinguished:

- emphasis on key components of a situation occurs through Metonymy, when meaning of the words *Kharkiv, Odessa, Kyiv, Donbass* means the specified territory or its inhabitants, for example: *"Kharkiv, get up!"* [2], *"Donbass, wake up!", "Donetsk is not Ukraine!" ," Donbass is Russia!"," "Ukraine, wake up!";*
- appeal illocution is transmitted through verb nouns (nominalization) which denotative core meaning contains the lexical content of the creative verb base. For example, the noun death in context carries the semantics of the verb to destroy, kill with the meaning to cease to exist someone, something, to cause death, but through the *Peace*

[1] Матвіяс І. Г. Іменник в українській мові. Київ, 1974. P. 5.

[2] Архів ХНДІСЕ за 2016—2019 рр.

noun in a certain context can convey the urge to stop hostilities (for example: "*For Peace! For Donbass!*") in the meaning of the noun force is contextually embodied meaning of a certain action ("*Together we are a force!*").

Based on empirical linguistic generalization (textual semantic) analysis of expressions expressed in form of appeals, it is determined that most used in modern socio-political communicative discourse are such as *appeal-slogan, appeal- address, appeal-program, evaluative and motivational appeal,* etc. The main components containing species differences of appeals are semantic content and grammatical design of studied statements.

Appeal-slogan is a small lexically capacious phrase in terms of grammatical design, marked by the internal semantic concentration of the appeal idea expression and most often has several sub textual interpretations. Through slogans, slogans convey the leading ideas of a political entity. Appeal-slogan is a kind of lexical marker, by which means identification (self-identification) of a political subject takes place and by which this subject can be recognized. For the most part, appeal-slogan can serve as a *motto* that from the point of view of modern linguistics is understood as a concise figurative expression, aphorism or call that conveys a deep and instructive idea, chosen by someone as a life credo or main activity. One of the features of appeal-slogan is its inclusiveness, as it means that speaker expresses leading ideas addressed to everybody and everyone. Grammatically, this kind of appeals can be expressed in impersonal, nominative sentences or embodied in a single speech unit, in sentence structure there is almost always an exclamation mark or even several such signs. Slogans are usually placed at the end of the address (sometimes at the beginning) in order to emphasize the main idea of what is being said or to express goal of the whole appeal (for example: *"Time to unite!", "Time has come, it's time to act!!!" "Only people has the right to decide its own destiny!", "Kharkiv is a free city!"," "No one but us!", "There are many of us and our strength is in our hands! Truth is with us!" , "Choice is yours!").*

Appeal-address is a complex act of speech within the framework of socio-political communication. Appeal-address (in contrast to the above type of constructions) has a significant structural complexity developed syntactic structure that can contain several simple appeals or appeals-slogans. Address encourages the addressee(s) to take certain actions that will contribute to achievement of provisions set out in the context or to take into account the above in everyday life. Grammatical feature of appeals is existence in their structure of such lexemes as *I address, we address, address* with a direct reference to the addressee. These words are usually located at the beginning of speech construction (for example: *"Address to Dnieper inhabitants!"*, *"We appeal to all concerned!"*, *"I appeal to representatives of Western region!"*). They can also be used as the title of a large amount of text (for example:

"*Appeal!*", "*Appeal to all who care!*", "*Appeal to Kharkiv residents!*", etc.). Appeals by variety can be both inclusive and exclusive. In a call for inclusive action, the author usually relates himself to future performers using the pronoun we in different cases, thus emphasizing his own position and emphasizing the importance of that is being reported.

Appeal-program is a complex speech act within the framework of socio-political communication that is a text which content highlights a thought-out project of activity of socio-political organization, society or individual political, state, public figure. This project should be implemented (according to the addressee) to achieve the main goal highlighted at the appeal beginning or stated in the conclusion. Usually this text is called *"Program"* and has a detailed structural design: it starts with the varying degrees of appeal, then it indicates importance of further program (for example: *"These are just the necessary steps to move forward!"*, "*Implementation of our plan will change all for the better!*", *Possible results of implementation of the above program*). The main part consists of items that can either take the form of simple appeals, appeal-slogans or expressed in narrative sentences indicating necessary actions and justifying their importance to society or a group of people. The most frequent items of the program are devoted to covering ideas on improving population living conditions, resolving internal political or other conflicts in the country, resolving social and religious conflicts, establishing foreign relations (trade, political ones, etc.). At the end of the appeal-program usually contains a key statement that embodies the main idea and communicative focus of the whole message (for example: "In this way we can build a new state!", "*Only these changes will help restore peace and development of our state!*"). The communicative purpose of the call-program is to inform readers about the need to comply with these points, encouraging them to fight for the program implementation.

Appeal-program in its expression can vary depending on the compositional structure and volume. In the structure of a large-scale appeal-program, it is mostly possible to single out the beginning that necessarily explains the reasons for the appeal, names the type of program presented to readers (for example: *"proclamation"*) and states that such an action plan is necessary for *"further forward"*. Main part of the text is often divided into two key thematic blocks. For example, the first can contain a story about the historical or cultural state development, territory from ancient times to the present day that influenced formation of national consciousness. The second thematic block on the compositional structure usually belongs to the campaign program (for example: *proclamations*), namely: proposed list of actions (according to the authors) to be performed to achieve the projects discussed in introductory part. In the *final part*, attention is paid, accompanied by slogans, to the main purpose of the whole message. According to lexicographic definition, proclamation is a public

proclamation of an action program that has an agitational character and belongs to the semantic program field. The communicative purpose of this message type, given the objective meaning of the name of the *proclamation* is to inform readers about the need to comply with these points encouraging to fight for this implementation program.

Evaluative and motivational appeal is a complex verbal act of inducing certain actions within the framework of socio-political communication where due to the negative characteristics of certain persons and events, positive assessment of others was passed. This type of call structures is common in modern Ukrainian socio-political discourse, its content is *"based on the explicit opposition of several national, racial and religious groups"* [1]. This assessment is used as a means of motivating the action to which the addressee calls. Statements are presented both in the form of statements (as evidenced by special marker words, such as: *"we must"*, *"we have a chance"*, "*our chance*"), and in the form of evaluative judgments conveyed by appropriate labeled vocabulary with the meaning of opposition (*"Legal*", *"illegal"*, *"peaceful"*, "*armed*", *"forced"*, "*legitimate*", "*illegitimate*", etc.). *Evaluative and motivational appeals* often involve slogan appeals which at the grammatical level are expressed in the form of exclamatory sentences using the adverb "for" with the noun (*"For better future !"*, "*For Novorossiya!*", *"For Republic"*, "*Victory will follow us!* ").

A kind of persuasive statement is an *appeal* which objective content of is about territorial change. First, it is a complex act of speech within the framework of socio-political communication that can have different forms of expression (*appeal-slogan*, *address-appeal*, *appeal-program*, etc.) but a prerequisite is the presence in the context of motivation to such actions that will contribute to certain territorial changes in the country.

Lexical and grammatical indicators of the specified appeal type:

- verbs and verb constructions with the semantics of motivation (for example: *"Wake up"*, *"Stand up"*, *"Stand up & Fight"*, *"Unite"*). Adverbs or adverb constructions are supplemented with constructions with the semantics of obligation (*"it's time"*, *"it is long overdue"*, *"one must"*, *"enough to procrastinate"*, etc.);
- verbs with the semantics of changing the boundaries of object (country, region, region) that at the connotative level contain the seventh territorial change (*"create"*, *"separate"*, *"delimit"*, *"unite"*, *"join"*, *"separate", "unite"*, "*establish*", etc.);
- proper names of regions, oblasts, cities and countries (for example: *Kharkiv, Donetsk, Ukraine, Luhansk region, Donetsk region*, etc.).

[1] Стасюк Н. Заклик як агітаційна форма політичного дискурсу: прагмалінгвістичний аспект//*Рідний край.* 2014. № 1 (30). P. 80.

In the final parts of the analyzed speech constructions the involvement of slogans with the purpose of emphasizing, highlighting the main goal or accentuation of the message is traced (for example: *"Enough to wait!"*, *"We will decide our own destiny!"*, "*Together we are the force!*", *"Citizens of Ukraine!"*, *"DNR and LNR are independent states!"*. etc.).

Expressions with illocutionary force of appeal, in which objective sense we are talking about territorial changes, have quite different grammatical expressions, as they depend on various factors. For example, if the statement is spread on the Internet through reposts of messages on social networks, it is usually a small laconic phrase (for example: *"Kharkiv land should be united with Russia! We are Russia, not Ukraine !!!"*). There are cases when territorial changes are referred to in large scale texts that have the form of a program or appeal, letter, article. In this case, linguist should conduct a research on entire semantic content of textual content, be sure to identify lexical and syntactic constructions that are about certain territorial changes.

Conclusions. The practice of conducting linguistic textual semantic analyses proves that statements expressed in the form of appeals are a modern powerful linguistic-stylistic means of communication which has quite different grammatical expression forms. In the system of pre-trial (investigative) and judicial practice today there is an increase in forensic examinations and researches appointed in order to determine in public communications statements of such nature.

Textual semantic analysis of appeals is based on the analysis of grammatical constructions and to some extent requires in-depth linguistic analysis. The results of such semantic-textual explorations become a source for development of a single algorithm for research on this type speech structures. While textual semantic analysis of statements expressed in the form of appeals, it is important to adhere to the limits of linguist's competence taking into account essence of the specific expertise of psychologist and lawyer.

The types of constructions with appeal illocution presented in the article are the main ones as of today but it should be noted that such a list is not exhaustive, as lexical and compositional content of the expression form of illocutionary appeal power can change depending on its components and specific speech (communicative) situation.

References

Arkhiv KhNDISE za 2016—2019 rr [in Ukrainian].

Baranov, A. N. (2007). *Lingvisticheskaia ekspertiza teksta: teoriia i praktika:* ucheb. posob. Moscow [in Russian].

Brinev, K. I. (2009). *Teoreticheskaia lingvistika i sudebnaia lingvisticheskaia ekspertiza:* monografiia. N. D. Golev (ed.). Barnaul [in Russian].

Kovbasenko, O. V., Paramonova, I. Yu. (2017). Invarianty zaklykiv za yikh komunikatyvnymy funktsiiamy. *Aktualni pytannia sudovoi ekspertyzy ta kryminalistyky:* zb. materialiv Mizhnar. nauk.-prakt. konf., prysviach. 100-richchiu vid dnia narodzh. d-ra yuryd. nauk. prof., zasluzh. diiacha nauky i tekhniky Ukrainy M. V. Saltevskoho (Kharkiv, 07—08.11.2017). Kharkiv [in Ukrainian].

Kukushkina, O. V., Safonova, Iu. A., Sekerazh, T. N. (2011). *Teoreticheskie i metodicheskie osnovy sudebnoi psikhologo-lingvisticheskoi ekspertizy tekstov po delam, sviazannym s protivodeistviem ekstremizmu*. Moscow [in Russian].

Los, O. A. (2009). Zaklyk yak prahmalinhvistychna skladova ahitatsiinoho vplyvu v politychnomu dyskursi. *Naukovi pratsi.* Vyp. 92. T. 105 [in Ukrainian].

Matviias, I. H. (1974). *Imennyk v ukrainskii movi*. Kyiv [in Ukrainian].

Osadchii, M. A. (2007). Ispolzovanie lingvisticheskikh poznanii v rassledovanii prestuplenii, predusmotrennykh statei 282 Ugolovnogo kodeksa RF. *Pravo i bezopasnost.* № 3—4 (24—25). URL: http://dpr.ru/pravo/ pravo_21_17.htm (data zvernennia: 16.06.2018) [in Russian].

Stasiuk, N. (2014). Zaklyk yak ahitatsiina forma politychnoho dyskursu: prahmalinhvistychnyi aspekt. *Ridnyi krai.* № 1 (30) [in Ukrainian].

Є. В. Ковкіна, Л. В. Свиридова, Н. Я. Дідушок

СЕМАНТИКО-ТЕКСТУАЛЬНІ ДОСЛІДЖЕННЯ ЗАКЛИКІВ

У статті розглянуто предмет і об'єкт лінгвістичного (семантико-текстуального) дослідження висловлювань, виражених у формі закликів. Звернено увагу на критерій публічності як один з основних під час визначення іллокуції заклику в текстовому матеріалі. Приділено окрему увагу висловлюванням із таким компонентом, як непрямий заклик, визначено його граматичні особливості й межі компетенції експерта з лінгвістичного дослідження тексту. Подано основні характеристики поширених у сучасному українському соціополітичному комунікативному дискурсі видів закликів, а саме: заклик-гасло, заклик-звернення, заклик-програма, оцінювально-мотивувальний заклик і т. ін. Доведено, що головними чинниками, які впливають на видові відмінності закликів, є їхнє семантичне наповнення та граматичне оформлення.

Ключові слова: заклик, непрямий заклик, лінгвістична (семантико-текстуальна) експертиза мовлення, заклик-гасло, заклик-звернення, заклик-програма.

Е. В. Ковкина, Л. В. Свиридова, Н. Я. Дидушок

СЕМАНТИКО-ТЕКСТУАЛЬНЫЕ ИССЛЕДОВАНИЯ ПРИЗЫВОВ

Статья посвящена основным результатам семантико-текстуальных исследований призывов в современном украинском социально-политическом дискурсе. Лингвистическая (семантико-текстуальная) экспертиза речи по установлению высказываний, выраженных в форме призывов,— одна из актуальных во время проведения досудебного расследования и судебного рассмотрения уголовных производств.

Целью работы является определение предмета и объекта лингвистического (семантико-текстуального) исследования письменной речи, анализ критерия публичности как одного из основных при установлении иллокуции призыва в текстовом материале.

Исследование проводилось на основе общенаучных методов, а также специальных методов и приёмов языкознания (в том числе с помощью методов наблюдения, лингвостилистического анализа текста, моделирования, семантико-синтаксического и лексико-грамматического анализа и т. д.). Путём дискурсивного метода и метода интент-анализа устанавливалось коммуникативное намерение автора исследуемого сообщения.

Основным результатом исследования является получение практических данных по установлению роли смысловых оттенков глаголов разного способа действия в структуре призывов. Значимым является анализ высказываний с таким компонентом, как косвенный призыв, определены его грамматические особенности, указаны пределы компетенции эксперта в сфере лингвистического исследования текста. Установлено, что в структуре конструкций с иллокуцией призыва часто встречается номинализация, относящаяся к трансформационному речевому процессу преобразования слов глагольной грамматической формы в именные структурные единицы. В статье представлены основные характеристики таких распространённых в современном украинском социально-политическом коммуникативном дискурсе видов призывов, как призыв-лозунг, призыв-обращение, призыв-программа, оценочно-мотивировочный призыв и т. д. Доказано, что главными факторами, влияющими на видовые различия призывов, являются их семантическое наполнение и грамматическое оформление.

На сегодняшний день результаты лингвистических, семантико-текстуальных исследований призывов положены в основу единого алгоритма по исследованию речевых конструкций названного вида, они актуальны и значимы для современной экспертной практики.

Ключевые слова: призыв, косвенный призыв, лингвистическая (семантико-текстуальная) экспертиза речи, призыв-лозунг, призыв-обращение, призыв-программа.

Received by Editorial Board: 27.05.2020

Kovkina Ye. V., Svyrydova L. V., Didushok N. Ia. Semantic and textual analysis of calls//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 280—292. DOI: https://doi.org/10.32353/khrife.2.2020.22.

DOI: https://doi.org/10.32353/khrife.2.2020.23
UDC 343.98:81

N. V. Syrotenko,
Senior Researcher of the Laboratory of Handwriting Analysis,
Forensic Linguistics, Forensic Psychology and Art Forensics at National
Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-2023-6518,
e-mail: shunya1964@gmail.com
R. Tamošiūnaitė,
Senior Forensic Expert at Forensic Science Centre of Lithuania
of the Ministry of Justice of the Republic of Lithuania,
Vilnius, Republic of Lithuania,
ORCID: https://orcid.org/0000-0003-0972-8391,
e-mail: rasele.tam@gmail.com
V. G. Abrosymova,
Department Head of the Laboratory of Handwriting Analysis,
Forensic Linguistics, Forensic Psychology and Art Forensics at National
Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-3767-5303,
e-mail: abrosymova@gmail.com

Forensic research on short signatures

This article is devoted to the topical problem of forensic handwriting analysis: research on short simple signatures and on solution of identification and diagnostic problems regarding such objects.

On the basis of examples from forensic expert practice in National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", the possibility of solving forensic handwriting problems while the study of short and simple signatures is illustrated. It is noted that current methodical state of forensic science institutes of the Ministry of Justice of Ukraine allows to conduct forensic handwriting analysis as well as forensic handwriting research on these objects using traditional methods.

While solving such issues, the general method of scientific cognition: dialectical materialism; Empirical research method; the method of analysis and synthesis; observation, experimentation and modelling methods; instrumental method, measuring method; qualitatively descriptive method have been used.

Research proved possibility of identification and diagnostic forensic handwriting tasks solution while the study of short simple signatures provided that forensic experts have a sufficient amount of informative comparative material. The present subjective approach in defining "suitability" of low-informative objects for solution of identification and diagnostic issues is stressed

© N. V. Syrotenko, R. Tamošiūnaitė,
V. G. Abrosymova, 2020

in the article. Success while solving the indicated forensic handwriting tasks depends on the professional level of forensic expert.

Keywords: short signature, identification mark, signs of signature, signature, transcription, stroke, non-alphabetic elements.

Formulation of Research Problem. For centuries, signature has remained subject of handwriting research by scientists as, as well as forensic experts, due to constant need of law enforcement agencies to handwriting analyses for signature research, development of expertology and methods of forensic researches.

Analysis of Essential Researches and Publications. The issue of examining signatures in order to identify individuals has been attracting attention of forensic scientists for a long time. Formerly, in the *Forensic Document Examination* … treatise by E. F. Burynskyi, outstanding criminologist, we find information about signature stability over time and signature forgery signs [1]. Later, especially in the middle of twentieth century, handwriting scholars tried to create appropriate methods for research on signatures (among them L. Yu. Arotsker, V. F. Orlova, V. V. Lipovskyi, L. G. Lekanova, A. V. Smirnov and others). It was then *Research on Signatures* methods were developed that is still in the arsenal of forensic experts [2]. Trying to improve researching on uninformative signatures add more confidence to forensic expert conclusions, their research has developed quantitative methods related to measuring structural and geometric signature characteristics, curvature of strokes, pressure indicators using IT technology [3]. It should be noted these methods are quite time consuming, their use in manual execution (especially in conditions of significant forensic expert workload) is almost impossible. All authors of scientific publications consider research on signatures to be the most difficult forensic science species, some of them dispute possibility of person identifying by a short signature [4]. An important step in conducting such forensic examinations is research to determine its suitability for solving forensic handwriting tasks. Scientists tried to develop an algorithm

---

[1] Буринский Е. Ф. Судебная экспертиза документов, производство ее и пользование ею: пособие для гг. судей, судеб. следователей, лиц прокурор. надзора, поверенных, защитников, судеб. врачей и граф. экспертов. Санкт-Петербург, 1903. P. 178—277.

[2] АроцкерЛ. Е., Богачкина Г. Р., Доброславская Е. Е., Кузина В. М., Манцветова А. И., Орлова В. Ф., Трубникова В. Е., Шахтарина Н. И., Шляхов А. Р., Эджубов Л. Г. Судебно-почерковедческая экспертиза/редкол.: Е. Д. Добровольская, А. И. Манцветова, В. Ф. Орлова. Москва, 1971. P. 25.

[3] Комплексная методика установления подлинности (неподлинности) кратких и простых подписей: метод. пособ. для эксп-в/отв. ред. В. Ф. Орлова, Н. В. Дутова. Москва, 1987. P. 117 ; Ли Л. Е., Орлова В. Ф., Панова Р. Х., Смирнов А. В. Методы исследования нажима в подписи//*Актуальные вопросы судебно-почерковедческой экспертизы:* сб. науч. тр. ВНИИСЭ. Москва, 1985.

[4] Агушевич А. М., Лельчин В. А. Идентификационное значение росчерка подписи//*Вопросы советской криминалистики.* Алма-Ата, 1959. P. 70—72.

for calculating informativeness of such objects [1] but relevant methods were interdisciplinary ones, involved specialists in mathematical research and required significant time and labor costs [2].

The **Article Purpose** is to prove possibility of solving forensic handwriting identification and diagnostic tasks while research on short signatures on the example of cases from forensic expert practice using available methods of handwriting experts of the FSI of the Ministry of Justice of Ukraine.

Main Content Presentation. In our opinion, consideration of the issue of research on short signatures should begin with the basics of signature formation.

It should be noted that signature is a personal identification mark of a certain person that he uses throughout his life. It serves as a necessary requisite for many vital documents certifying various facts and events.

It is possible to provide signature with the following definition: it is a graphic mark certifying identity of its performer and is performed by him for certification purposes.

Signature has always been a difficult object of forensic research. Its complexity is due to the limited handwriting content contained in signature and difficulty of separating a certain set of general and individual signs enough for identification.

Signature identity as an object of handwriting research directly depends on specifics of its formation. There is usually a direct connection between signature and handwriting at the level of technical and graphic writing skills based on a general psychophysiological approach.

Signature formation of certain person occurs in several conditional stages. The first or initial stage is signature formation while schooling and acquisition of writing skills. The second stage corresponds to time spent in a higher education institution or starting work. The third stage is the main human activity.

Conditionality of such distribution is caused by personal individuality of each signature owner.

Mastering writing and motor skills while learning to write at school, a child first writes his or her full name. As a teenager, he/she tries to invent (find) her own signature to prove her identity on paper or fictitious documents.

Initially, full letter surname record becomes shorter while signature formation provided that last letters disappear. In the final part, flourish is added: the final stroke that does not create a single letter and (to some extent)

---

[1] Каюнов О. Н., Орлова В. Ф. Об одном подходе к определению информативности подписи//*Современное состояние судебно-почерковедческой экспертизы и перспективы ее развития:* мат-лы Всесоюз. науч.-практ. семинара (Куйбышев, 1980). Москва, 1981. P. 177—190.

[2] 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. P. 153.

is intended to decorate and complete the signature as a graphic image. Usually flourish formation occurs by deforming the last letter taking into account the letter composition reduction. Initials are often added to the signature that can be transformed into monograms over time.

While inventing a signature, student tries to give his own signature an "adult" look. At this formation stage, the procedure of signature writing has a clear control, structure often changes, because the previous child forgets and he/she invents the next again.

Such a specific signature sign, as letter-less strokes also appears by deformation (simplification) of letters, loss of elements.

Adult life beginning is marked by an almost formed signature, that evolves further depending on person signature practice. This is done by both simplifying and complicating individual letters, losing or gaining, changing configuration and location of superscript and subscript strokes in separate letters.

These specific features that are characteristic of signature make it a more complex object of forensic handwriting research than handwritten notes. Research practice determines approximate completion of signature formation up to 30 years. Frequent signature use leads to automation of movements that is a general dynamic stereotype causing greater stability of signature signs than handwriting signs.

Stability sign in high and medium degree production signatures is their variability. Sometimes a person has several signature versions depending on the scope of its application. In this case, factor contributing to changes in signature structure is insufficient (limited) area for its location (column, form line, place relative to other document details). In the case of limited area, signature is changed in the direction of simplification and reduction.

By transcription (composition) signatures are divided into letter, letter-free and mixed, on the other hand they can be complex, simple and simplified [1]. A simple signature is one that contains letters that are structurally consistent with letter-free strokes that are cyclic and do not contain a significant number of intersections ("и"-like or "п"-like). Short signatures have the following composition:

a) in letter transcription: no more than 4 letters and a flourish;
b) in mixed: 1—3 letters, 3—5 strokes and flourish;
c) in letter-less (dashed): 5—7 strokes and flourish.

Signature can be considered simple and short only if it meets the specified conditions, i.e. if it meets the criteria of brevity and simplicity [2].

Therefore, handwriting experts are guided by the rule: the simpler signature, the more difficult it is to solve forensic handwriting tasks.

[1] Ароцкер Л. Е., Богачкина Г. Р., Доброславская Е. Е. и др. Op. cit. P. 269.
[2] Комплексная методика установления подлинности … . P. 29—30.

It should be noted that there is a certain connection between the graphic signature features due to skill automaticity. Only a general feature assessment of all signature parts allows forensic expert to reach correct conclusion [1].

Because the set of graphic signature signs of automated skill reflection, even a short signature can be suitable for performer identifying. A significant role belongs to flourish: its beginning should be considered the last touch in signature, where implementation speed is growing rapidly. In other words, stroke is the final part of the signature performed with the greatest degree of automatism. Additional strokes and dots at the end of the signature should also be considered as a flourish, as a direct continuation.

Depending on construction nature, flourish differs from other signature parts in the direction of base line and other handwriting signs. Stability of flourish signs (its variants) is also due to automaticity of its implementation.

The current state of forensic handwriting analysis proves that handwriting experts often solve identification questions regarding short simple signatures that contain one letter of simple structure or 1—2 letter-less strokes. The reason for refusal can be the limited comparative material provided or its lack that will not allow forensic expert to distinguish an individual set of general and individual features characteristic of the signature handwriting of a person enough to identify him. Thus, the guaranty to the successful conclusion of the forensic handwriting analysis of these objects are provided for research free signature samples that in time belong to the period of the disputed document [2] and are like it in scope; as well as a significant number of free specimen signatures located in documents of different purpose, experimental specimen signatures of the person to be verified.

Thus, at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" (by decision of one of district courts of the city) a forensic handwriting analysis was conducted to study five signatures of Ms. L., located in two copies of the loan agreement and a receipt to. Identification (whether the signatures were made directly by Mrs. L.) and diagnostic questions (conditions for the execution of signatures in the studied receipt) were put to the decision.

At forensic expert request, the court provided a significant number of free and conditionally free signature samples, as well as the Ms. L. handwriting samples. The samples were contained in various documents including payment documents, procedural documents from the case, official documents and more. Experimental samples of signature and handwriting of the person being inspected were also provided.

---

[1] Лельчин В. А. Некоторые вопросы оценки графических признаков при исследовании подписей//*Судебная экспертиза документов:* мат-лы науч. конф., посвящ. пробл-м судебн. экспертизы (Москва, 04—08.07.1961). Москва, 1961. Сб. № 2. P. 66—69.

[2] Лисиченко В. К. Значение свободных образцов, исполненных в период оформления исследуемых документов, для экспертизы подписи//*Практика криминалистической экспертизы*. Москва, 1961. Сб. 1—2. P. 96.

Transcription of the signatures contained the letter “Л” and flourish; one of the signatures had an additional stroke (see: Figs. 1—5).

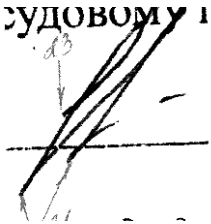


Fig. 1

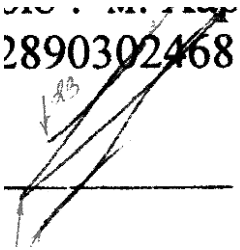


Fig. 2

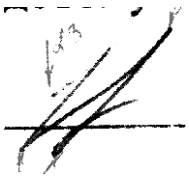


Fig. 3

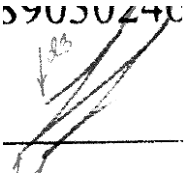


Fig. 4

Fig. 5

Figs. 1—5. General view of the investigated signature on behalf Ms. L.

Each investigated signature as a separate handwriting object was compared with other disputable signatures and with signature samples and Ms. L. handwriting.

After examining signatures, forensic expert found they were made with movements of a high degree of production at a rapid pace. Despite short and simple composition of the studied signatures, a set of important signs that characterize them are singled out and studied (convergent individual features (options): forms of movements while connecting elements of written signs: 4 manifestations; forms and directions of movements while flourish performing; directions of movements during execution: 3 manifestations; placement of movements vertically: 1 manifestation; placement of the starting point of movements: 1 manifestation).

It should be noted that before defining each selected feature as one of the individual populations, forensic expert analyzed qualitative characteristics of each sign, its identification value. [1] Importance degree of identification graphic features that characterize written implementations in each case is different. Common information features include: signature location relative to the blank line, direction of the signature line, signature transcription (variability missing), degree of elaboration, pace and coherence. Some features include: the direction

[1] Кеворкова Н. И. Методика исследования подписей. Москва, 1970. P. 18—19.

and shape of movements during execution of letter-less strokes and flourish (especially in the middle of signature); means of flourish connecting with the previous written mark; comparison of the size of the main signature strokes; relative location of individual strokes.

Synthesizing research results, forensic expert came to a categorical positive conclusion for each investigated signature on their carrying-out by Ms. L. Significant amount of comparative content allowed forensic expert to solve diagnostic issues regarding implementation of one of the studied signatures under influence of natural and artificial confusing factors.

There were no signs that would indicate carrying-out of the investigated signature under influence of natural confusing factors; signs that would indicate implementation of the investigated signature under influence of artificial confusing factors not found [1].

Striking example of a positive solution of identification and diagnostic tasks while research on simple signatures is the conclusion of a multidisciplinary forensic handwriting analysis of two signatures on behalf of Mr. V. that were contained in the promissory note on his behalf [2].

This forensic examination was conducted by a commission of forensic experts by decision of the Regional Court of Appeal. For comparative research, forensic experts were provided with a significant number of free samples, conditionally free ones and experimental samples of the signature and Mr. V. handwriting. Free samples were in documents of working, official and personal nature made at different times.

Signatures under research had the following transcription and coherence: “B” + letter bar + flourish. They were performed by simple movements of high production degree at a fast speed (see Fig. 6, 7).

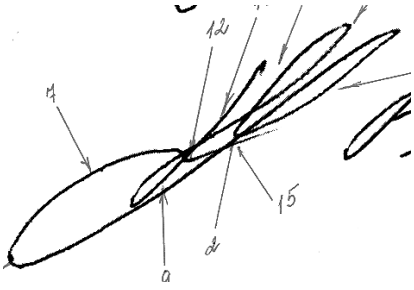


Fig. 6

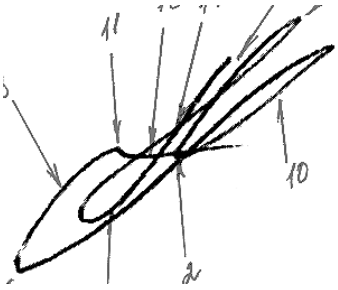


Fig. 7

Figs. 6, 7. Overview of investigated signature on behalf of Mrs. V.

[1] Архів Харківського науково-дослідного інституту судових експертиз ім. Засл. проф. М. С. Бокаріуса за 2019 рік.

[2] Архів ХНДІСЕ … за 2014 рік.

Conducting a comparative research, forensic experts found an individual set, enough for a categorical conclusion about performing disputed signatures directly by Mr. V. This set contained stable, significant common and distinctive signs (in particular, transcription and connectivity, large letter-less stroke, overclocking from small to medium, right slope (general features), structure of movements in the general structure during the execution of the "B" letter , shape of movements while execution of letter elements and parts of the letter-less stroke, shape of movements during the connection of letter elements and letter-less stroke written mark, variants of the direction of movements while execution of the "B" letter element, placement of movements vertically and horizontally while execution of parts of the written signs of the signature, placement of the starting point of movements in the initial part of the first element of the letter.

Forensic experts identified and analyzed common features and a significant number of individual signs. A significant amount of comparative content allowed to reach a diagnostic conclusion on the non-display of signs that would indicate carrying-out of studied signatures under influence of any natural (internal, external) confounding factors.

Conclusions. The given examples of forensic handwriting analyses prove that it is not necessary to refuse to solve handwriting tasks at the stage of studying simple short signatures submitted for research. If forensic experts have a significant amount of comparative material (especially: free samples of signature and handwriting of the person being inspected), there is a real possibility to solve them and provide categorical identification and diagnostic conclusions.

It should be noted while research on complicated objects, such a subjective component as forensic expert professional level is important, because successful result of handwriting analysis directly depends on the constant improvement of forensic expert professional level, his study of professional readings, participation in research work, etc.

References

Agushevich, A. M., Lelchin, V. A. (1959). Identifikatcionnoe znachenie roscherka podpisi. *Voprosy sovetstkoi kriminalistiki.* Alma-Ata [in Russian].

Arkhiv Kharkivskoho naukovo-doslidnoho instytutu sudovykh ekspertyz im. Zasl. prof. M. S. Bokariusa za 2019 rik [in Ukrainian].

Arkhiv Kharkivskoho naukovo-doslidnoho instytutu sudovykh ekspertyz im. Zasl. prof. M. S. Bokariusa za 2014 rik [in Ukrainian].

Bondar, M. E. (2007). O sovershenstvovanii metodiki pocherkovedcheskoi ekspertizy. *Sovremennoe sostoianie, problemy i perspektivy razvitiia sudeb-*

noi ekspertologii: materialy Mezhdunar. nauchno-prakt. Konf. (Avtonomnaia Respublika Krym, 20—21.09.2007). Simferopol [in Russian].

Burinskii, E. F. (1903). *Sudebnaia ekspertiza dokumentov, proizvodstvo ee i polzovanie eiu:* posobie dlia gg. sudei, sudebnykh sledovatelei, litc prokurorskogo nadzora, poverennykh, zashchitnikov, sudebnykh vrachei i graficheskikh ekspertov. Sankt-Peterburg [in Russian].

Kaiunov, O. N., Orlova, V. F. (1981). Ob odnom podkhode k opredeleniiu informativnosti podpisi. *Sovremennoe sostoianie sudebno-pocherkovedcheskoi ekspertizy i perspektivy ee razvitiia:* materialy Vsesoiuz. nauchno-prakt. seminara (Kuibyshev, 1980). Moscow [in Russian].

Kevorkova, N. I. (1970). *Metodika issledovaniia podpisei.* Moscow [in Russian].

Kompleksnaia metodika ustanovleniia podlinnosti (nepodlinnosti) kratkikh i prostykh podpisei (metodicheskoe posobie dlia ekspertov). (1987). Eds.: V. F. Orlova, N. V. Dutova. Moscow [in Russian].

Lelchin, V. A. (1961). Nekotorye voprosy otcenki graficheskikh priznakov pri issledovanii podpisei. *Sudebnaia ekspertiza dokumentov.* Sb. № 2. Materialy nauch. konf., posviashchennoi problemam sudebnoi ekspertizy (Moscow, 04—08.07.1961). Moscow [in Russian].

Li, L. E., Orlova, V. F., Panova, R. Kh., Smirnov, A. V. (1985). Metody issledovaniia nazhima v podpisi. *Aktualnye voprosy sudebno-pocherkovedcheskoi ekspertizy:* sb. nauch. trudov VNIISE. Moscow [in Russian].

Lisichenko, V. K. (1961). Znachenie svobodnykh obraztcov, ispolnennykh v period oformleniia issleduemykh dokumentov, dlia ekspertizy podpisi. *Praktika kriminalisticheskoi ekspertizy.* Sb. 1—2. Moscow [in Russian].

Arotcker, L. E., Bogachkina, G. R., Dobroslavskaia, E. E., Kuzina, V. M., Mantcvetova, A. I., Orlova, V. F., Trubnikova, V. E., Shakhtarina, N. I., Shliakhov, A. R., Edzhubov, L. G. (1971). *Sudebno-pocherkovedcheskaia ekspertiza.* Eds.: E. D. Dobrovolskaia, A. I. Mantcvetova, V. F. Orlova. Moscow [in Russian].

Н. В. Сиротенко, Р. Тамошюнайте, В. Г. Абросимова

ЕКСПЕРТНЕ ДОСЛІДЖЕННЯ КОРОТКИХ ПІДПИСІВ

Публікацію присвячено актуальній проблемі судової почеркознавчої експертизи — дослідженню коротких підписів та вирішенню ідентифікаційних і діагностичних завдань за такими об'єктами.

На прикладі окремих випадків експертної практики Національного наукового центру «Інститут судових експертиз ім. Засл. проф. М. С. Бокаріуса» (нині — Національний науковий центр «Інститут судових експертиз ім. Засл. проф. М. С. Бокаріуса») показана можливість вирішення судово-почеркознавчих завдань з дослідження коротких підписів.

Під час вирішення поставлених питань використано діалектичний метод, метод емпіричного дослідження, аналізу й синтезу, спостереження, експерименту й моделювання.

Дослідженням доведено можливість вирішення судово-почеркознавчих завдань під час дослідження коротких підписів, наявність суб'єктивного підходу в разі визначення «придатності» малоінформативних об'єктів для вирішення ідентифікаційних і діагностичних питань, а також залежність успішності вирішення зазначених судово-почеркознавчих завдань від професійного рівня експерта-почеркознавця.

Ключові слова: короткий підпис, засвідчувальний знак, ознаки підпису, підпис, транскрипція, розчерк, безлітерні штрихи.

Н. В. Сиротенко, Р. Тамошюнайте, В. Г. Абросимова

ЭКСПЕРТНОЕ ИССЛЕДОВАНИЕ КРАТКИХ ПОДПИСЕЙ

Статья посвящена актуальной проблеме судебной почерковедческой экспертизы — исследованию коротких простых подписей и решению идентификационных и диагностических задач относительно подобных объектов.

На примере случаев из экспертной практики Харьковского научно-исследовательского института судебной экспертизы им. Засл. проф. М. С. Бокариуса (сейчас — Национальный научный центр «Институт судебных экспертиз им. Засл. проф. М. С. Бокариуса») показана возможность решения судебно-почерковедческих задач при исследовании кратких и простых подписей. Отмечено, что современное методическое состояние экспертных учреждений Министерства юстиции Украины позволяет проводить судебно-почерковедческие экспертизы, а также экспертные почерковедческие исследования указанных объектов с использованием традиционных методик.

При решении вопросов были использованы методы диалектического материализма, эмпирических исследований, анализа и синтеза, наблюдения, эксперимента и моделирования, а также инструментальный, измерительный и качественно-описательный метод.

Исследование доказало возможность решения идентификационных и диагностических судебно-почерковедческих задач в ходе изучения кратких простых подписей при наличии у экспертов значительного информативного сравнительного материала. Сделан акцент на имеющемся субъективном подходе при определении пригодности низкоинформативных объектов для решения идентификационных и диагностических вопросов и зависимости успеха решения указанных судебно-почерковедческих задач от профессионального уровня эксперта.

Ключевые слова: краткая подпись, удостоверительный знак, признаки подписи, подпись, транскрипция, росчерк, безбуквенные штрихи.

Received by Editorial Board: 26.10.2020

Syrotenko N. V. , Tamošiūnaitė R., Abrosymova V. G. Forensic research on short signatures//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 293—303. DOI: https://doi.org/10.32353/khrife.2.2020.23.

DOI: https://doi.org/10.32353/khrife.2.2020.24
UDC 343.983.2

A. V. Kolomiytsev,
PhD in Technology, Leading Researcher of the Criminalistics Laboratory
at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science
Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-1932-1034, e-mail: sashagun@ukr.net
V. H. Nikitiuk,
Department Head of the Laboratory of Criminalistics Laboratory
at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science
Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-7937-7334, e-mail: nikityuk_sha@ukr.net
O. M. Herman,
Department Head of Laboratory of the Criminalistics Laboratory at National
Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-6522-9381,
e-mail: herman30121966@gmail.com
O. M. Pashkova,
Leading Forensic Expert of the Criminalistics Laboratory
at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science
Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-0222-9995,
e-mail: olgapashkova151001@gmail.com

Peculiarities of the lead traces in a bore of smoothbore firearm

The article is devoted to review of the problem of studying traces of metallizing in a smoothbore firearm bore when firing various types of kinetic projectiles. The features of the mechanism of formation of lead traces in a bore as well as conditions contributing to lead plating are considered. The main cases of detecting traces of lead on bore surface in the course of corresponding multidisciplinary forensic ballistic and chemistry analysis are considered. The main methods for detecting traces of lead in the bore of the studied sample of weapon are described, as well as signs on the basis of which it is possible to establish the type of projectile that was fired in cases when a bore has not been thoroughly cleaned. In the course of the survey on the study of traces of metallization, it was found that the contact-diffusion method is suitable only for qualitative analysis of lead traces, it can be used to determine only the presence of lead and visualize the degree of concentration of the studied metal in the contact zone based on the intensity of color display of chemical reaction. To establish quantitative indicators of the chemical elements that make up the traces

© A. V. Kolomiytsev, V. H. Nikitiuk,
O. M. Herman, O. M. Pashkova, 2020

of metallization, this method is unpromising. Particular attention is paid to the study of traces of metallization in a bore of traumatic guns. The possible problematic aspects of this kind of research are indicated. It is obvious that research in this direction requires the introduction into practice of more advanced equipment and new approaches aimed at identifying individualizing signs of the nature of traces origin.

Keywords: smoothbore firearm, buckshot, bore of gun, canister shot, bullet, layering, lead plating, metallization marks, lead-based alloys, contact-diffusion method.

Formulation of Research Problem. Determining which kinetic projectile was fired from the investigated smoothbore firearm used while illegal actions is one of the main tasks of forensic weapon and ammunition examination and one of leading aspects in the case when the victim's body (material object) is inflicted with gunshot wounds and it is necessary to determine the specific sample of the weapon which shot was fired from. The results of such researches are priority for investigation of crimes committed during riots and protests, as both parties to a conflict typically use a variety of affection means (including smoothbore firearms, namely pump and hunting rifles, hunting rifle butts, traumatic and improvised weapons). Availability of hunting cartridges equipped with single (bullets) and multiple (shot, canister shot) kinetic projectiles, unification of calibers of hunting and service smoothbore weapons, possibility of rearranging pistol and revolver cartridges of traumatic action with metal elements of protection severity with a high percentage of deaths. Since most of these elements are made of lead-based alloys, detection of traces in the barrel of smoothbore weapons used in the conflict is a priority of forensic multidisciplinary weapon and ammunition examination and forensic chemistry.

Analysis of Essential Researches and Publications. As of today, the issue of lead trace origin of and peculiarities of the mechanism of their formation have received insufficient attention. For a long time, there was a well-founded statement that detection of lead traces in the barrel of a smoothbore firearm necessarily indicates that a shot (shots) with a lead kinetic projectile [1], was fired from this sample or that such a projectile has structural elements made of alloy-based alloys [2]. This is quite consistent with cases where the lead kinetic projectile or its elements were in direct

[1] Гущин В. Ф. Значение металлизации каналов стволов гладкоствольных ружей в судебно-баллистических исследованиях//*Криминалистика и судебная экспертиза.* Киев, 1978. Вып. 16. P. 290—294.

[2] Нікітюк В. Г., Коломійцев О. В. Про вид снаряда, що використовувався для останнього пострілу з гладкоствольної зброї//*Теорія та практика судової експертизи і криміналістики:* зб. наук.-практ. мат-в. Харків, 2003. Вип. 3. P. 284—286.

contact with the walls of the barrel channel resulting in formation of stable and intense traces of metallization. The gradual transition from ammunition to hunting weapons to stainless steel capsules and polymer wads-containers which partially or completely prevents close contact of different types of kinetic shells with the walls of the barrel, contributed to the need to revise the concept of lead barrel origin.

Proliferation of traumatic weapons and ammunition among population and law enforcement agencies equipped exclusively with elastic bullets made of polymeric materials, because of complete lack of any structural elements made of lead-based alloys has led to the fact that while forensic research on such weapons constantly detect lead traces. Data lack on the origin and features of formation mechanism of such traces can lead to an erroneous conclusion about the type of kinetic projectile that was used in the last shots (shot) from a smoothbore weapon of traumatic action. Availability of lead traces in the barrels of this weapon is due not only to the use of reloaded cartridges for firing but also to the fact that stainless steel capsules use initiating explosives containing lead compounds, so after the shot experts reflected traces of lead in research outcome.

Due to a detailed analysis of the lead barrels of smooth-bore weapons, as well as identifying the features of the mechanism of its formation, this article provides a detailed list of conditions and circumstances as a result of which traces of lead can be found in the barrel. It is determined that today there is no set of criteria that allow to accurately differentiate traces of lead that are traces of contact interaction with the surfaces of kinetic projectiles, as well as traces formed during combustion of initiating substance of stainless capsules. This is especially important if the barrel is properly cleaned after firing. In addition, it is determined that modern method of diagnosing lead traces, namely the contact-diffusion method has a limited scope, as it allows to determine only availability of lead layers of varying degrees of concentration on the walls of the barrel of studied sample smoothbore weapons on the surfaces of the test material. On this basis, there is a need to develop new methods of chemical research that would be able to distinguish nature of lead trace origin and determine quantitative composition of substances in traces of metallization.

Article Purpose. Detailed analysis of the of lead trace origin in the barrels of smoothbore weapons identifying the conditions and peculiarities of their formation mechanism and the influence of external factors on their reflection degree. Therefore, it is necessary to determine the method of detecting lead traces, suitable for qualitative and quantitative analysis of these traces and distinguish nature of their origin.

Main Content Presentation. Metallization traces in the barrels of smoothbore weapons are observed:

- after firing kinetic projectiles made entirely from lead-based alloys;
- after firing kinetic projectiles which structural elements are fabricated from lead-based alloys in contact with walls of the barrel channel or were under the erosive action of powder gases during the shot;
- in case of use for firing cartridges equipped with primers which initiating composition contains lead compounds;
- provided that the above cases are combined (after firing cartridges equipped with lead elements and primers containing lead compounds);
- after carrying out repair and restoration works on gun barrels (in case of gun barrel lapping with use of the lead cylinder and abrasive materials).

Each of these cases has its own signs and features of the formation mechanism of lead metallization traces of the barrel channel: barrel lapping.

For firing smoothbore weapons of common calibers (in particular, 12, 16, 20, 32 and 410th) usually use multiple (canister shot, shot) projectiles made from lead-based alloys, as well as single (bullet) kinetic shells completely or partially (main bullet part) is made of such material.

In addition, bullets made of steel, bronze or brass with lead guide belts are often used to fire 12-caliber smoothbore weapons. When firing such destructing agent, their outer surfaces are in close contact with barrel walls. Due to this contact and the resulting high-speed friction [1], as well as due to thermal action of powder gases and plasticity of lead-based alloys, metal particles are separated from the surface of the kinetic projectile or its structural elements and layered on barrel channel walls in the form of long that are almost evenly spaced on the inner surface of the barrel relative to each other [2]. These layers are metallization traces of the barrel channel and their shape, size (width) and quantity can be concluded about the type of kinetic projectile that was the last shot (shots) and determine its individual characteristics. Traces of metallization at the level of the muzzle of the barrels are of particular importance, because they are more accessible for research.

While firing multiple kinetic projectiles, there are certain peculiarities of metallization traces of that are characteristic of canister shot and grist. Thus, when firing canister shot, there are quite wide and long strips (metallization traces) that can be used to determine the number of elements of the canister shot in a row and the probable range of sizes of individual elements of the canister shot. In the case of several shots fired in a row by a canister shot, due to the overlap, partial removal and deformation of traces from one shot to

[1] Балакин В. А. Трение и износ при высоких скоростях скольжения. Москва, 1980. 136 р.

[2] Бойко В. П. Использование освинцевания стволов охотничьих ружей в судебно-баллистической экспертизе//*Криминалистика и судебная экспертиза.* Киев, 1976. Вып. 12. Р. 102—109.

another, it becomes increasingly difficult to determine these parameters. It is only possible to conclude that a canister shot was used to fire from sample of smooth-bore weapons without determining its size.

When firing grist, metallization traces are also formed in the form of longitudinal but rather narrow and short strips that have a significant expression while firing from barrels with muzzle narrowing (in the case of choke or semi-check types of drilling of barrels). If only one grist was fired from barrel, it is possible to determine the range of shot numbers used to equip the cartridge. In the case of multiple shots, only the type of multiple projectile with which the shots were fired can be determined. When firing single kinetic projectiles (bullets), metallization traces are often deposited on the walls of the barrel channel more or less evenly or in the form of segments due to the outer bullet diameter. With a bullet diameter equal to or slightly larger than barrel cross section diameter, in this area are formed solid metallization zones. This is especially pronounced in areas near the muzzle of the barrel and in the presence of narrowing. In the case when the bullet diameter is slightly smaller than barrel channel diameter due to bullet oscillations in the barrel sequentially displayed segmental shape metallization areas from the head and tail of the bullet. However, while firing such bullets from the barrel with a muzzle narrowing in the areas near the muzzle cut, annular zones of continuous metallization are formed.

It should be noted while firing cartridges for smoothbore weapons (due to pajamas and gaskets), the effect of hot powder gases on the material of bullets and meal elements is quite insignificant. Metal erosion of destructing agents of (gas erosion) due to the action of high-velocity flows of powder gases is practically missing, so that the microscopic particles of molten lead are not deposited on the barrel walls.

It should be noted that in the process of passing through the barrel while firing of cartridges such as felt or polymer wads and cardboard gaskets, contact of their surfaces with lead layers on barrel walls leads to partial removal of metal and smoothing these traces.

According to available metallization traces in the barrel channel while chemical research using the contact-diffusion method (using reagents-solvents of metal and reagents-developers of metal) can determine only qualitative composition of metals from which the alloy used to make the elements and determine availability of lead, copper, etc.

Due to the small amount of metal that layers on the surfaces of the barrel channel during firing, it is either impossible to quantify the composition of alloy components while metallurgical research, or it is a rather complex procedure that significantly depends on capabilities of used equipment.

All of the above occurs if destructing agents while shot are in direct contact with the walls of the barrel. When used for firing polymer wads-containers for the placement of meal and cartridges or polymer containers for bullets by industrial or homemade method of equipping cartridges, tight contact of the surfaces of the lead elements of the lesion is impossible due to the walls of the container [1]. Because of this, metallization traces previously described form are not formed. Exceptions are cases while wiping the walls of the polymer wad-container at the end of the barrel may form individual metallization traces that is typical for shooting meal or cartridge, but they are chaotically localized and are uninformative because they do not reflect primary nature of the contact surface with the walls of trunk channel. In the case of self-made equipment of cartridges with the use of cardboard, paper or various films to reduce the scattering of meal and small size of the cartridge, also close contact of their surfaces with the walls of the barrel. Ruptures of the shell of such an improvised container or rubbing in certain areas may result in traces of metallization, similar in nature to traces of metallization that occurred while firing without the use of waders-containers. However, such traces are often also chaotically localized and uninformative for determining the size of meal or cartridge elements. While chemical researches on these traces using the contact-diffusion method, it is also possible to detect traces of f lead availability that allows us to conclude categorically that for the last shot (shots) from the studied weapon sample used a cartridge (cartridges) equipped with elements made of an alloy based on lead.

Due to the small amount of metal deposited on surfaces of the barrel channel during such shots, it is also impossible to accurately quantify and quantitative formulation of alloy components.

It is worth paying special attention to the cases when polymer waddings with a rather short height of the container are used to equip cartridges for smoothbore weapons with shot or canister shot. Because of this, the first 1-2 rows of meal elements (cartridges) protrude beyond the front section of such a short container and can be in close contact with the walls of the barrel channel. Because of this, available metallization traces can determine both the type of kinetic projectile and the range of its possible dimensions. The latter significantly depends on the number of shots fired. Carrying out chemical research using contact-diffusion method in available metallization traces it is also possible to determine only the qualitative composition of metals which the alloy is formed from (to determine availability of traces of lead).

[1] Нусбаум В. И. Некоторые вопросы судебно-баллистического исследования полиэтиленовых пыжей//*Теоретические проблемы и практика трасологических и баллистических исследований*. Москва, 1975. Вып. 14. Р. 131—137.

Cleaning barrel channel after firing helps to remove metallization traces, they cannot be observed visually, however, availability of lead traces in the barrel channel can be determined by conducting chemical research using the contact-diffusion method allowing determine only qualitative composition of the metal alloy used to make destructing agents fired from the test sample of smoothbore weapons. Carrying out any metallurgical research is inefficient due to extremely low concentration of studied material.

The second reason for detection of lead traces in the barrel of a smoothbore weapon are lead compounds contained in initiating explosives of primers and which are used to equip cartridges for this weapon. Transition to the use of stainless primers to equip cartridges is due to the fact that previous composition of initiating explosives contained explosive mercury that caused severe corrosion of the barrels and their premature failure.

As of today, the composition of stainless initiating explosives includes: lead styphnate (29—35%), tetrazine (2—4%), barium nitrate (39—45%), lead dioxide (3—7%), shellac (0,09—0.11%), antimony and aluminum powder (6—8%). As a shot result, combustion products contain lead oxide deposited on the walls of the barrel channel [1].

Visually, such metallization traces are not observed, lead traces can be determined only by contact-diffusion method of chemical research. Conducting any metallurgical research is also ineffective due to extremely low concentration of content under research.

Therefore, in the case of firing a cartridge equipped with a polymer wadding, availability of lead traces can be explained by the spread of combustion products of stainless steel initiating explosive primer equipped with a cartridge. Increasing the number of shots leads to an increase in the concentration of substances containing lead compounds and the spread of zones of their localization along the barrel in the direction from chamber to the muzzle.

While research cleaned barrel, where metallization traces are completely removed, availability of lead traces can be determined only by the contact-diffusion method of chemical researches. However, it is impossible to determine (distinguish) the trace origin nature: whether they are formed by firing destructing agents made lead-based alloy and left after cleaning, or due to combustion of stainless explosive primer(s). Thorough cleaning and the number of cleansings affect only the concentration of compounds containing lead, and almost always (as evidenced by expert practice) they are detected

[1] Коломійцев О. В., Зарубіна М. В. Проблемні аспекти комплексного дослідження гладкоствольної зброї травматичної дії//*Ароцкерівські читання:* зб. мат-в Міжнар. наук.-практ. конф., присвяч. 90-річ. від дня народж. видатн. вчен.-криміналіста, д-ра юрид. наук, проф. Л. Ю. Ароцкера (Полтава, 25.05.2017). Харків, 2017. P. 87—88.

by contact-diffusion method of chemical research. Removal of lead traces is possible only in a chemical (etching, etc.) or mechanical method with the removal of a significant thickness of the metal layer.

Cases of firing smoothbore weapons with elastic bullets of traumatic action should be considered separately. In the case of shots from a 12-caliber smoothbore weapon with «Терен-12П» traumatic cartridges, equipped with polymer elastic bullets and stainless capsules, products of combustion of stainless initiating explosives of primers containing lead compounds are deposited on the barrel walls. The more shots fired, the greater the concentration of these compounds and the greater the area of their localization.

Therefore, in the case of application of the contact-diffuse method of chemical researches on weapon barrels which the shots were fired from «Терен-12П», experts will always find lead traces.

If weapon barrels of the are examined immediately after firing or weapon barrel is not cleaned, it can be determined that shots were fired by elastic bullets of traumatic action by layers of their material that remain in the barrel due to high-speed friction. Traces of lead can also be found in combustion products of initiating explosive of the primers.

In the case of cleaning weapons after firing traumatic cartridges «Терен-12П», as a result of which all particles of bullet material are removed while chemical researches using contact-diffusion method, forensic experts are sure to detect lead traces.

Availability of lead traces in this case cannot be unambiguously interpreted as the fact that from the investigated weapon before its cleaning between the shots of traumatic cartridges also fired a shot (shots) of the element made of lead-based alloy, as similar traces are formed due to deposits on barrel channel walls of combustion products of stainless steel initiating explosive primer (primers) of traumatic cartridges: the greater intensity of firing cartridges of traumatic action, the greater degree of expression will be lead traces in the barrel of such weapons.

It is impossible to distinguish nature of lead traces by their origin after cleaning the barrel (i.e. to determine whether they were formed due to contact with the surfaces of lead destructing agent, whether combustion products of initiating explosive are a primer) as well as equipment that will allow to differentiate lead compounds of different origin. The use of only the contact-diffuse method without taking into account peculiarities of formation mechanism of metallization traces can lead to erroneous conclusions about the type of projectile that fired the last shot, because the combustion products of the initiating explosive primer traumatic action «Терен-12П» contain lead compounds enough to detect them using this method.

Therefore, in case of research on 12-caliber smoothbore weapons, which fired cartridges of traumatic action «Терен-12П»; it is impossible to determine whether it was also fired lead elements (in particular, canister shot), because of combustion products of initiating explosive primers will almost always show characteristic lead trace. Forensic experts reflect this in conclusions noting that researches on cleaned barrels of smoothbore weapons revealed lead traces, which origin is associated with both the firing of lead elements and the deposition of explosive combustion products of cartridge primers, because it is impossible to determine true nature of origin of such lead traces.

The last case when lead traces can be found on the walls of weapon barrel channel is barrel lapping. This procedure is carried out during repair and restoration works to remove shells and other defects of corrosion origin, as well as to change profiling of the barrel channel in order to improve shot grouping.

While barrel lapping, the barrel is cleaned in a circle with abrasive paste based on fine abrasive sand and oil that is applied to the surface of a lead cylinder (lead mold) made by pouring molten lead into the barrel channel near the muzzle. The barrel channel is polished and defects are removed by rotating a lead cylinder with abrasive paste attached to the ramrod end.

While rotation and longitudinal movements in the barrel channel, the lead mold can be in close contact with the walls and due to friction and plasticity, particles of its material from the outer surface can layer on the barrel channel walls. As a result of the action of abrasive materials, most layers are removed, localization of such traces (metallization) is uneven and is characterized by small areas of arbitrary shape, however, a small amount of lead may remain on the walls; this will suffice for its detection by means of a contact-diffuse method of chemical researches of a sample of the smoothbore weapon.

It is necessary to separately determine research problems of lead traces in the barrels and pantries of the drums of pistols and revolvers of traumatic action. Although the law prohibits any changes to design of certified traumatic weapons and ammunition that increase vulnerability and penetration of bullets, some owners of pistols and revolvers are looking for ways to “improve” their design and modify the ammunition . One of the areas of “improvement” of the “weapon — cartridge” complex is the rearrangement of cartridges consisting in the replacement of elastic elements of the bullet on bullets made of different metals and alloys. For the most part, these bullets are made of lead or alloys based on or ready-made destructing agents (shield or cartridges of appropriate diameter) are used to equip cartridges. To detect lead traces using contact-diffusion method, gun barrel channel or the barrel channel and the chamber of the revolver drum are examined. It should be noted that modern pistol and revolver cartridges

of traumatic action are equipped with primers with a stainless steel composition of initiating explosives. Therefore, as a shot result, lead oxide will be contained between combustion products that has been deposited on the barrel channel walls (cylinder chambers).

The analysis of these data allows us to state that while application of the contact-diffusion method in the barrel channel (cylinder chambers) it is possible to determine lead trace both in the case of firing shells made from alloy based on and in the case of firing elastic bullets certified cartridges of traumatic action. To refute/confirm this, forensic experts conducted experimental researches. The barrel and cylinder barrel of the traumatic revolver of the *Safari 820G*, model, for firing 9.0 (.380 R), which uses 9.0 mm (.380 R) revolver cartridges, were wiped tightly with filter paper swabs moistened with a reagent (diluted with acetic acid). The swabs were then treated with a developer reagent (0.2 % Sodium Rhodizonate solution). As a result, forensic experts found that on the surfaces of the tampons that were in contact with the walls of the barrel and the walls of the cylinder chambers formed a characteristic crimson color indicating availability of lead traces [1]. It should be noted that the revolver has been in operation since the early 2000s, at the time of the research was in an uncleaned condition. Researches were also performed with a traumatic revolver model *Safari 820G* that has a drum, which chambers are designed for firing pistol cartridges 9 mm RA and with a traumatic pistol model *Safari GP-910* for firing from which also use cartridges of this caliber. The revolver at the time of the study was in operation for six months and gun for a year. Both samples of weapons were thoroughly cleaned. As a research result, lead traces were found in barrels of the revolver and in the barrel of the pistol. It is well known that neither revolvers nor pistols have ever fired single (bullets) or multiple (shallow meal) kinetic shells made of lead-based alloys during their entire operation. For the completeness of research on the rebuilt pistol «Форт-12Р» within the expert research in a separate way of equipment experts fired cartridges using pistol idle (noise) cartridges 9 mm RA and spherical elements made of lead-based alloy. After firing, the barrel channel was thoroughly cleaned, however, due to the contact-diffuse method in the pistol barrel channel, forensic experts expected to find lead traces.

Conclusions. Research results allow us to state that in order to detect traces of lead and determine the quantitative composition of substances in traces, it is necessary to develop a new technique by which it is possible to differentiate traces of metallization formed by firing kinetic shells made of lead-based alloys. initiating explosives primers. It should be noted that

[1] Коломійцев О. В., Зарубіна М. В. Op. cit.

a detailed analysis of problems of lead research on barrels of different types of smoothbore weapons indicates lack of clear criteria for distinguishing lead traces formed after contact with the surfaces of kinetic projectiles and traces of lead formed due to gas erosion, substances of stainless primers (in case of research on barrels of cleaned and lubricated weapons). Obviously, research in this direction requires the use of more advanced equipment and new approaches to identify individual signs of origin nature of lead traces.

References

Balakin, V. A. (1980). *Trenie i iznos pri vysokikh skorostiakh skolzheniia.* Moscow [in Russian].

Boiko, V. P. (1976). Ispolzovanie osvintcevaniia stvolov okhotnichikh ruzhei v sudebno-ballisticheskoi ekspertize. *Kriminalistika i sudebnaia ekspertiza.* Kyiv. Vyp. 12 [in Russian].

Gushchin, V. F. (1978). Znachenie metallizatcii kanalov stvolov gladkostvolnykh ruzhei v sudebno-ballisticheskikh issledovaniiakh. *Kriminalistika i sudebnaia ekspertiza.* Kyiv. Vyp. 16 [in Russian].

Kolomiitsev, O. V., Zarubina, M. V. (2017). Problemni aspekty kompleksnoho doslidzhennia hladkostvolnoi zbroi travmatychnoi dii. *Arotskerivski chytannia:* zb. materialiv Mizhnar. nauk.-prakt. konf., prysviach. 90-richchiu vid dnia narodzh. vydatnoho vchenoho-kryminalista, d-ra yuryd. nauk, prof. L. Yu. Arotskera (Poltava, 25.05.2017). Kharkiv [in Ukrainian].

Nikitiuk, V. H., Kolomiitsev, O. V. (2003). Pro vyd snariadu, shcho vykorystavsia dlia ostannoho postrilu z hladkostvolnoi zbroi. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. naukovo-prakt. materialiv. Vyp. 3. Kharkiv [in Ukrainian].

Nusbaum, V. I. (1975). Nekotorye voprosy sudebno-ballisticheskogo issledovaniia polietilenovykh pyzhei. *Teoreticheskie problemy i praktika trasologicheskikh i ballisticheskikh issledovanii.* Moscow. Vyp. 14 [in Russian].

О. В. Коломійцев, В. Г. Нікітюк, О. М. Герман, О. М. Пашкова

ОСОБЛИВОСТІ ПОХОДЖЕННЯ СЛІДІВ СВИНЦЮ В КАНАЛІ СТВОЛА ГЛАДКОСТВОЛЬНОЇ ВОГНЕПАЛЬНОЇ ЗБРОЇ

Статтю присвячено огляду проблематики досліджень слідів металізації в каналах стволів гладкоствольної вогнепальної зброї у процесі стрільби різними видами кінетичних снарядів. Розглянуто особливості механізму утворення слідів свинцю в каналі ствола, а також умови, через які спричиняється свинцювання. Досліджено основні

випадки виявлення слідів свинцю на стінках каналу стволів гладкоствольної зброї під час проведення відповідних комплексних балістичних і хімічних досліджень. Описано основні методи виявлення слідів свинцю в каналі ствола досліджуваного зразка зброї, а також ознаки, що дають змогу визначити вид снаряда, яким було здійснено постріл. Визначено обмеженість застосування контактно-дифузного методу під час проведення якісного аналізу слідів металізації та його безперспективність для проведення кількісного аналізу складових компонентів нашарувань.

Ключові слова: гладкоствольна вогнепальна зброя, шріт, канал ствола, картеч, куля, нашарування, свинцювання, сліди металізації, сплави на основі свинцю, контактно-дифузний метод.

А. В. Коломийцев, В. Г. Никитюк, А. Н. Герман, О. М. Пашкова

ОСОБЕННОСТИ ПРОИСХОЖДЕНИЯ СЛЕДОВ СВИНЦА В КАНАЛЕ СТВОЛА ГЛАДКОСТВОЛЬНОГО ОГНЕСТРЕЛЬНОГО ОРУЖИЯ

Статья посвящена обзору проблематики исследования следов металлизации в каналах стволов гладкоствольного огнестрельного оружия при стрельбе различными видами кинетических снарядов. Рассмотрены особенности механизма образования следов свинца в канале ствола, а также условия, способствующие освинцеванию. Исследованы основные случаи выявления следов свинца на стенках канала ствола в ходе проведения соответствующих комплексных баллистических и химических исследований. Описаны основные методы выявления следов свинца в канале ствола исследуемого образца оружия, а также указаны признаки, на основе которых можно установить вид снаряда, которым был сделан выстрел, в случаях, если ствол не подвергали тщательной чистке. В ходе обзора, посвящённого проблематике исследования следов металлизации, было установлено, что контактно-диффузный метод пригоден исключительно для качественного анализа следов свинца: с его помощью можно установить только факт наличия свинца и визуализировать степень концентрации исследуемого металла в зоне контакта на основе интенсивности отображения цвета химической реакции. Для установления количественных показателей химических элементов, входящих в состав следов металлизации, указанный метод бесперспективен. Особое внимание в статье уделено исследованию следов металлизации в каналах стволов травматического оружия. Указаны возможные проблемные

аспекты подобного рода исследований. Очевидно, что исследования в этом направлении требуют внедрения в практику более совершенного оборудования и новых подходов, направленных на выявление индивидуализирующих признаков природы происхождения следов.

Ключевые слова: гладкоствольное огнестрельное оружие, дробь, канал ствола, картечь, пуля, наслоения, освинцевание, следы металлизации, сплавы на основе свинца, контактно-диффузный метод.

Received by Editorial Board: 08.10.2020

Kolomiytsev A. V., Nikitiuk V. H., Herman O. M., Pashkova O. M. Peculiarities of the lead traces in a bore of smoothbore firearm//*Theory and Practice of Forensic Science and Criminalist*ics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 304—316. DOI: https://doi.org/10.32353/khrife.2.2020.24.

DOI: https://doi.org/10.32353/khrife.2.2020.25
UDC 343.983

O. Iu. Krykunenko,
Principal Forensic Expert of the Department of Forensic Weapon Analysis
at Cherkasy Scientific Research Forensic Center of the Ministry
of Internal Affairs of Ukraine, Cherkasy, Ukraine,
e-mail: a.krik@ukr.net

T. Ie. Sohor,
Principal Forensic Expert of the Department of Forensic Weapon Analysis
at Lviv Scientific Research Forensic Center of the Ministry of Internal Affairs
of Ukraine (Lviv SRFC of the MIA of Ukraine), Lviv, Ukraine,
e-mail: sogtar@ukr.net

Suggestions on amending the methodology of establishing the object belonging to firearms ammunition and its suitability for firing

The article considers structural features of certain types of cartridges in relation to firearms, as well as non-combat cartridges, auxiliary cartridges and products that are structurally similar to cartridges, which are submitted for research as part of forensic firearm examination, especially in connection with the ongoing war in Ukraine, occupation of part of its territory and as a result with mass distribution of illegal weapons and ammunition in Ukraine. The article outlines problematic issues of dismantling cartridges in relation to small arms of large caliber, cartridges loaded with special bullets, particular types of silent bullets, non-combat cartridges. The article also highlights issues of optimizing actions of a forensic expert while research, the objects of which are products that are structurally similar to small arms cartridges, but loaded with propellants, pyrotechnic mixtures, poisonous substances, along with products that coincide with small arms cartridges in size and partially in design.

Backlog of approaches incorporated in the current methodology for researching ammunition is identified in the article and practical need for updates and additions is actualized.

Proposals were raised to amend the Methodology aimed at increasing safety of forensic firearm examinations, regulating actions of a forensic expert in deciding on dismantling cartridges. It is suggested to use modern devices for reloading cartridges in forensic practice to provide a better and safer research. A procedure for a forensic expert course of action while study of cartridges which are sent for forensic examination in a single copy to minimize the impact on both the object under study and its components, is proposed.

Keywords: ammunition, forensic firearm examination, methodology, cartridges of small arms, bullets, dismantling.

© O. Iu. Krykunenko,
T. Ie. Sohor, 2020

Formulation of Research Problem. While conducting forensic ballistic examinations to establish belonging of objects to the category of firearm ammunition, forensic experts in practice always encounter a large group of different objects, structurally similar to firearm ammunition. Available information and reference sources do not systematize or generalize the methods of dismantling such objects and some of this data is information with limited access. There is no clear sequence of forensic expert actions while examining various objects (in particular, containing hazardous substances).

Analysis of Essential Researches and Publications. Soviet scientists E. I. Tikhonov, M. M. Blum, O. V. Zhuk, A. I. Ustinov and others, as well as domestic professionals: P. D. Bilenchuk and A. V. Kofanov, O. F. Sulyava and others devoted their work to the study of the structure of small arms ammunition [1]. This problem is quite clearly outlined in a modern article by V. I. Tyshchenko and O. V. Gretsky [2].

Unfortunately, the issues of dismantling cartridges of different types, feasibility of their dismantling and especially safety while dismantling of a particular category of cartridges have remained out of researcher attention and therefore require further scientific development.

Article Purpose. Systematization of different type cartridges as objects of forensic ballistic examination for further discussion and solution of the issue of optimizing forensic expert actions and increasing the safety level while research on typical objects.

Main Content Presentation. While forensic examinations of firearm ammunition and structurally similar products, employees of state specialized institutions successfully use in their practice the Methods of establishing object belonging to firearm ammunition and its suitability for fire by D. Yu. Gamov [3] (hereinafter referred to as the Methods) [4] (last revised or amended in 2012).

However, the practical application of Methods raises some issues that need accurate definition and clarification.

---

[1] Тихонов Е. И. Боеприпасы к ручному стрелковому оружию: пособ. для эксп. Москва, 1976. 97 р. ; Блюм М. М., Блюм А. С., Жук А. В., Одиночкина Т. Ф., Устинов А. И., Филиппов В. В. Патроны ручного огнестрельного оружия и их криминалистическое исследование. Москва, 1982. 296 р. ; Біленчук П. Д., Кофанов А. В., Сулява О. Ф. Балістика: криміналістичне вогнестрільне зброєзнавство: підруч. для експ.-кримінал., слідч., операт. працiв., прокурор., суддів, адвокат., співробіт. правоохорон. органів та правозахис. орг-й, студ-в, асп-в, наук. працiв., проф.-виклад. складу військ.-юрид. ф-в ун-в, ін-в та акад. Київ, 2003. 377 с.

[2] Тищенко В. І., Грецьких О. В. Особливості дослідження окремих зразків патронів вогнепальної зброї//*Актуальні проблеми вдосконалення чинного законодавства України:* зб. наук. статей. 2019. Вип. 49. Р. 89—99.

[3] Гамов Д. Ю. Методика встановлення належності об’єкта до бойових припасів вогнепальної стрілецької зброї та його придатності для стрільби (проведення пострілів). Київ, 2012. 25 р.

[4] Гамов Д. Ю. Op. cit.

Thus, in accordance with p/p. 6.2.2 Methods [1], determination of structural, dimensional and weight characteristics and other properties of parts and structural object elements is carried out after its dismantling. At the same time, Methods does not regulate dismantling method and does not detail used equipment for this purpose (paragraph 7.1[2]: "devices and tools for dismantling and equipping cartridges") does not take into account the design features of cartridges, their condition and purpose.

In p/p. 6.2.2 Methods [3] also emphasize the expert's compliance with safety rules set out in the regulations governing management of forensic examinations. These safety rules are regulated in the Standard Instruction approved by the order of SSRFC of the MIA № 19/5-173n dated on August 20, 2014 [4] (hereinafter referred to as *Instruction*).

According to p/p. 4.8.10 [5] Instructions prohibit dismantling cartridges equipped with toxic substances, as well as explosive, incendiary, armor-piercing incendiary and other types of bullets which dismantling is associated with danger.

Safety rules are partially duplicated in p/p. 6.2.3 Methods [6] in accordance with the use of inertial-type disassembly devices for disassembly of cartridges with bullets having a detonator and a bursting charge is prohibited.

In other words, Methods [7] describe and regulate the use of dismantling devices of inertial type and only for certain categories of ammunition (granting an unappealable requirement for dismantling to determine structural, dimensional and weight characteristics and other properties of parts and structural elements).

In forensic expert practice, in addition to ammunition for rifled firearm for military hunting and sports purposes equipped with conventional and expansive bullets, other objects are (or may be supplied) for research that raises the issue of studying their design:

- large-caliber military ammunition (50 BMG; 12.7 × 108 mm; 14.5 × 114 mm and (in the future) larger-caliber cartridges;
- military ammunition equipped with special bullets [8];
- ammunition for rifled firearms with special shell design (special cartridges of variable-closed volume ПЗАМ, СП-2, СП-3, СП-4 cartridges for Nagant and Piper's revolvers, etc.) [9];

[1] Гамов Д. Ю. Op. cit.

[2] Ibid.

[3] Ibid.

[4] Типова інструкція із заходів безпеки при поводженні з вогнепальною зброєю, боєприпасами та конструктивно схожими виробами при проведенні експертиз та досліджень: затв. наказом ДНДЕКЦ МВС України від 20.08.2014 р. № 19/5-173н.

[5] Ibid.

[6] Гамов Д. Ю. Op. cit.

[7] Ibid.

[8] Соловцов Е. В. Российские боеприпасы: Промежуточные патроны. Москва, 2015. 134 p.

[9] Idem. Российские боеприпасы: Специальные бесшумные и 9-мм пистолетные патроны. Москва, 2015. 156 p.

- auxiliary cartridges (exemplary, with increased charges, high pressure, for lubrication, training, technological and cartridge cases);
- ammunition for smoothbore hunting weapons;
- traumatic cartridges and Flobert cartridges;
- mounting cartridges [1];
- lighting, signal, noise, marker, sounding (meteorological) cartridges for non-combat purposes [2];
- knockout, incendiary, anti-radar, infrared radiation cartridges, catapult squibs, structurally similar to firearm cartridges [3] (main charges 60, 82 and 120-mm mortar mines; cartridges 26-mm ПРП, 26-mm ППИ-26-1, squibs catapult caliber 28-mm, etc.

If ammunition for smoothbore hunting weapons is dismantled in their typical way using common mounting/dismounting devices (described in detail in hunting literature [4]) and this does not cause any difficulties, dismantling of other objects is prohibited, impossible inertial, impractical, requires use of destructive methods (cutting shells, deforming the muzzle of shells with a common tool, breaking bullet out of the muzzle, etc.) or simply dangerous.

Each category of cartridges which list of is presented above has appropriate design features that should be taken into account while conducting researches.

Design features of different categories of cartridges

1. Large-caliber cartridges (over 12 mm) for military purposes were primarily designed for use in machine guns (in particular, rapid-fire) requiring the use of special design techniques aimed at strengthening the bullet junction with the shell for preventing misalignment in languages of significant accelerating loads in feeders [5]. Therefore, dismantling of such cartridges by available technical means (dismantling devices of inertial type or lever devices for reloading of cartridges of industrial production) is impossible. Disassembly of these cartridges by shell cutting leads to its actual destruction by the time of experimental firing. If the cartridges are equipped with special bullets (МДЗ and ПЗ, especially after long-term storage of the latter) shell cutting is associated with additional danger.

2. Ammunition for military purposes equipped with specific bullets, in practice are common (especially due to Russian aggression). Dismantling of such cartridges by available dismantling devices of inertial type, p/p is forbidden. 4.8.10 Instructions [6]. There are no instructions or recommendations for dismantling this

[1] Тихонов Е. И. Op. cit.

[2] Дик В. Н. Взрывчатые вещества, пороха, боеприпасы отечественного производства. Ч. 1. Минск, 2009. 280 p.

[3] Дик В. Н. Op. cit. P. 231.

[4] Блюм М. М., Шишкин И. Б. Охотничье ружьё. Москва, 1983. 215 p. ; Трофимов В. Н. Охотничьи боеприпасы и снаряжение патронов к охотничьим ружьям. Москва, 2008. 272 p.

[5] Коломийцев Л. В., Собакарь И. С., Никитюк В. Т., Сомов В. В. Патроны к стрелковому оружию. Харьков, 2003. 336 p.

[6] Типова інструкція із заходів безпеки … .

category of cartridges with lever devices for reloading cartridges of industrial production. Disassembly of these cartridges by shell cutting actually destroys research objects until the moment of experimental firing (if such weapons are available). If the cartridges are equipped with specific bullets (МДЗ and ПЗ, especially after long-term storage of the latter), the process of cutting the sleeve is associated with additional danger [1].

3. Disassembly in traditional way of cartridges for rifled firearms with special shell designs (special cartridges of variable-closed volume ПЗАМ, СП-2, СП-3, СП-4 [2], cartridges for Nagant, Piper's revolvers etc.), in default of specialized technical means for their dismantling is impossible and requires the use of destructive methods of dismantling (e.g., shell cutting) causes irreversible changes in the design of research object (cartridges) and their actual destruction.

4. Training, technological cartridges and cartridges (although some of them are made using bullets and cartridges from live ammunition) have clear design differences. Primers of such cartridges are pierced, simulated or missing. Dismantling of this category of cartridges, that a priori are non-combat cartridges is uninformative and, in our opinion, generally impractical. Exemplary cartridges, high-pressure cartridges, lubrication cartridges, cartridges with enhanced charges by design are not fundamentally different from conventional cartridges for rifled firearms, shells do not contain hazardous substances, so they can be dismantled on general terms.

5. The structure, order of assembly/disassembly, devices and tools used for disassembly of cartridges for smoothbore hunting weapons are described in detail in relevant hunting literature. Disassembly of non-combat cartridges is impractical; it can be carried out only for cartridges of self-made equipment to control safety measures in terms of available weight of powder charge and the method of manufacturing their components (if necessary).

6. Disassembly of traumatic cartridges [3] and Flobert cartridges (especially small caliber) is not complicated and is well known.

7. Industrial cartridges have metal sleeves mainly with the sealing of the muzzle "star" and additional marking color of the tops of the sleeves. Cartridges of outdated design with pajamas made using parts of 7.62×54R cartridge cases are uncommon. The design features of these cartridges do not allow to place a projectile in them without leaving traces of interference in their design. Weight characteristics of these cartridges are publicly available. So far, the authors of the article have not found in the public domain any information about devices

[1] Справочник по патронам, ручным и специальным гранатам иностранных армий/под ред. И. С. Мурзаева, Н. М. Хананова. Москва, 1946. 135 р.

[2] Соловцов Е. В. Российские боеприпасы: Специальные бесшумные … .

[3] Іщенко А. В., Грищенко О. В., Ігнатьєв І. В., Назаров В. В. Пістолети та револьвери, призначені для відстрілу патронів, споряджених метальними снарядами «несмертельної дії», та набої до них: судово-баліст. довід. Київ, 2005. 208 р.

for dismantling cartridges which metal sleeves are rolled "star". In practice, dismantling of such cartridges is carried out exclusively in a destructive way (mainly by deformation of the muzzle of the sleeves with a common tool) that is not regulated by any method or instruction and causes actual destruction of cartridges. Dismantling of this category of non-combat cartridges granting information about their weight characteristics and the lack of interference traces in the design is uninformative is generally impractical in our opinion.

8. Lighting, signal, noise (blanc), marker, sounding cartridges, knockouts, incendiary, anti-radar, infrared radiation cartridges, catapult squibs, structurally similar to firearm cartridges (main charges 60, 82 and 120-м mortar mines; cartridges 26-мм ПРП, 26-мм ППИ-26-1, squibs catapult 0f 28 mm caliber, etc.) [1] do not belong to the ammunition for military use. Structurally, they can be similar to cartridges for smoothbore hunting weapons or made using cartridge cases for rifled weapons, as well as have housings of light metal alloys. Availability in the design of these cartridges of checkers with pyrotechnic mixtures does not allow to fully apply the equipment and methods of disassembly of cartridges for smoothbore hunting weapons. It is almost impossible to dismantle such cartridges without causing irreversible changes in their design. The use of destructive methods of dismantling (shell cutting) actually destroys the cartridges, especially granting pyrotechnical mixtures and explosives of metallic action that is dangerous (especially in old cartridges) and is not regulated by any rules for handling cartridges of this type. Disassembly of cartridges in a destructive way, which metal shells are rolled up with a "star" is not regulated by any method or instruction. Dismantling of this category of cartridges granting information about their weight characteristics and lack of interference traces of in the design is uninformative and impractical.

These features of cartridge design and their impractical dismantling significantly increase the time spent on research, in addition, there is no criminal liability for storage of such cartridges.

In the future, we propose to discuss additions to the Methods, where we consider necessary to regulate the method of dismantling for different categories of cartridges (order, equipment and tools for its implementation), namely:

1) check for compliance with safety requirements possibility of using lever devices for reloading (reloading) of industrial cartridges for dismantling of military cartridges equipped with specific purpose bullets, with recommendation development of a certain type;
2) after the requirement achievement of previous paragraph, dismantle military cartridges equipped with specific purpose bullets, exclusively lever devices for reloading cartridges of industrial production or other devices that provide a greater degree of safety while handling cartridges of this category;
3) after finding out on the basis of external signs that cartridge belongs to the cartridges of non-combat auxiliary purpose (training, technological

[1] Дик В. Н. Op. cit.

cartridges, cartridges) proceed directly to the execution of p/p. 6.3.8 Methods [1] without dismantling. The same procedure should be applied to industrial, blank and knockout cartridges with a metal shell rolled with a "star", In default of interference traces in the structure on their surfaces and compliance with the weight characteristics given in references;

4) in the case of providing for examination of single copies of ammunition for military use, their dismantling (provided there are no interference traces in their design) is not carried out.

Calculation of the specific kinetic energy of projectile should be performed based on the results of experimental firing and granting projectile (bullet) after the shot (to determine the weight of the projectile). Under such conditions, the research on properties of the object under study does not distort the error associated with changes in the compression force of the bullet in the muzzle and changes in the properties (especially humidity) of the metal charge and initiating composition of the cartridge.

Conclusions. Taking into account the above described features of cartridge structure of different types, which are the objects of forensic ballistic examinations, we propose to discuss the following additions to the Methods [2]:

1) *p/p.* 6.2.2 after the word "carried out" by the words: "depending on the appearance and external design object features";
2) *p/p.* 6.2.2.1 with the sentence: "Forensic expert independently decides on safety and expediency of dismantling cartridges in case of doubt about their design and granting interference traces in their design";
3) *p/p.* 6.2.3 paragraph: "It is prohibited to dismantle without appropriate equipment (in particular, the use of hand tools of general use) cartridges equipped with toxic substances, light and noise and noise cartridges, specific purpose cartridges of variable-closed volume, mounting cartridges, non-combat cartridges (knockouts, for reloading weapons, marker, sounding, cartridges, etc.), military cartridges of large caliber (over 12 mm) In default of interference traces in their design."

References

Balistyka: kryminalistychne vohnestrilne zbroieznavstvo (2003): pidruch. dlia ekspertiv-kryminalistiv, slidch., operat. pratsivnykiv, prokuroriv, suddiv, advokativ, spivrobitnykiv pravookhoron. orhaniv ta pravozakhys. orh., stud., asp., nauk. pratsivnykiv, prof.-vyklad. skladu viisk.-yuryd. f-tiv un-tiv, in-tiv ta akad. P. D. Bilenchuk, A. V. Kofanov, O. F. Suliava (eds.). Kyiv [in Ukrainian].

Blium, M. M., Shishkin, I. B. (1983). *Okhotniche ruzhe*. Moscow [in Russian].

[1] Гамов Д. Ю. Op. cit.

[2] Ibid.

Dik, V. N. (2009). *Vzryvchatye veshchestva, porokha, boepripasy otechestvennogo proizvodstva*. Ch. 1. Minsk [in Russian].

Hamov, D. Yu. (2012). *Metodyka vstanovlennia nalezhnosti obiekta do boiovykh prypasiv vohnepalnoi striletskoi zbroi ta yoho prydatnist dlia strilby* (provedennia postriliv). Kyiv [in Ukrainian].

Kolomiitcev, L. V., Sobakar, I. S, Nikitiuk, V. T., Somov, V. V. (2003). *Patrony k strelkovomu oruzhiiu.* Kharkiv [in Russian].

Patrony ruchnogo ognestrelnogo oruzhiia i ikh kriminalisticheskoe issledovanie. (1982). M. M. Blium, A. S. Blium, A. V. Zhuk, T. F. Odinochkina, A. I. Ustinov, V. V. Filippov (eds.). Moscow [in Russian].

Pistolety ta revolvery, pryznacheni dlia vidstrilu patroniv, sporiadzhenykh metalnymy snariadamy «nesmertelnoi dii», ta naboi do nykh: sudovo-balistychnyi dovidnyk. (2005). Eds.: A. V. Ishchenko [ta in.]. Kyiv [in Ukrainian].

Solovtcov, E. V. (2015). *Rossiiskie boepripasy: Promezhutochnye patrony*. Moscow [in Russian].

Solovtcov, E. V. (2015). *Rossiiskie boepripasy: Spetcialnye besshumnye i 9-mm pistoletnye patrony.* Moscow [in Russian].

Spravochnik po patronam, ruchnym i spetcialnym granatam inostrannykh armii. (1946). I. S. Murzaev, N. M. Khananov (ads.). Moscow [in Russian].

Tikhonov, E. I. (1976). *Boepripasy k ruchnomu strelkovomu oruzhiiu.* Posobie dlia ekspertov. Moscow [in Russian].

Trofimov, V. N. (2008). *Okhotnichi boepripasy i snariazhenie patronov k okhotnichim ruzhiam*. Moscow [in Russian].

Typova instruktsiia z zakhodiv bezpeky pry povodzhenni z vohnepalnoiu zbroieiu, boieprypasamy ta konstruktyvno skhozhymy vyrobamy pry provedenni ekspertyz ta doslidzhen: nakaz DNDEKTs MVS Ukrainy vid 20.08.2014 № 19/5-173n [in Ukrainian].

Tyshchenko, V. I., Hretskykh, O. V. (2019). Osoblyvosti doslidzhennia okremykh zrazkiv patroniv vohnepalnoi zbroi. *Aktualni problemy vdoskonalennia chynnoho zakonodavstva Ukrainy*: zb. Nauk. statei. Vyp. 49 [in Ukrainian].

О. Ю. Крикуненко, Т. Є. Согор

ПРОПОЗИЦІЇ ЩОДО ВНЕСЕННЯ ЗМІН ДО МЕТОДИКИ ВСТАНОВЛЕННЯ НАЛЕЖНОСТІ ОБ'ЄКТА ДО БОЙОВИХ ПРИПАСІВ ВОГНЕПАЛЬНОЇ СТРІЛЕЦЬКОЇ ЗБРОЇ ТА ЙОГО ПРИДАТНОСТІ ДО СТРІЛЬБИ

Проблемні питання демонтажу патронів висвітлено в межах Методики встановлення належності об'єкта до бойових припасів вогнепальної стрілецької зброї та його придатності до стрільби Д. Ю. Гамова.

Метою статті є обговорення розширення права експерта на прийняття самостійного рішення щодо доцільності та безпеки демонтажу

патронів і конструктивно схожих предметів залежно від їх конструктивних особливостей та цільового призначення.

Наведено пропозиції й доповнення щодо внесення змін до згаданої Методики для оптимізації проведення судово-балістичних експертиз і підвищення рівня безпеки їх виконання.

Ключові слова: судово-балістична експертиза, методика, бойові припаси, зброя, патрони, демонтаж, гільзи, спеціальні кулі, безпека під час виконання робіт, небезпека.

А. Ю. Крикуненко, Т. Е. Согор

ПРЕДЛОЖЕНИЯ О ВНЕСЕНИИ ИЗМЕНЕНИЙ В МЕТОДИКУ УСТАНОВЛЕНИЯ ПРИНАДЛЕЖНОСТИ ОБЪЕКТА К БОЕВЫМ ПРИПАСАМ ОГНЕСТРЕЛЬНОГО СТРЕЛКОВОГО ОРУЖИЯ И ЕГО ПРИГОДНОСТИ ДЛЯ СТРЕЛЬБЫ

В статье рассмотрены особенности строения отдельных видов патронов к огнестрельному оружию, а также патронов небоевого назначения, вспомогательных патронов и конструктивно схожих с патронами изделий, поступающих на исследование в рамках проведения судебно-баллистических экспертиз, особенно в связи с продолжающимися в Украине боевыми действиями и, как следствие, массовым распространением нелегального оружия и боеприпасов. В статье исследованы проблемные вопросы демонтажа патронов к стрелковому оружию крупного калибра, патронов, снаряжённых специальными пулями, специальных видов патронов переменно-замкнутого объёма, патронов небоевого назначения. Также затронуты вопросы оптимизации действий эксперта при проведении исследований, объектами которых становятся изделия, конструктивно схожие с патронами стрелкового оружия, но снаряжённые взрывчатыми веществами метательного действия, пиротехническими смесями, отравляющими веществами, а также изделия, похожие по габаритам и частично по конструкции на патроны стрелкового оружия.

Определено отставание подходов действующей Методики установления принадлежности объекта к боевым припасам огнестрельного стрелкового оружия и его пригодности для стрельбы, разработанной Д. Ю. Гамовым (далее — Методика), и актуализирована практическая необходимость внесения в неё изменений и дополнений.

Авторы предлагают внести в Методику изменения, направленные на повышение безопасности проведения судебно-баллистических экспертиз, регламентирование действий эксперта в принятии решения о демонтаже патронов. Предложено использовать современные приборы для релоадинга патронов в экспертной практике с целью обеспечения более качественного и безопасного проведения исследований.

Предложен порядок действий эксперта при исследовании патронов, направленных для проведения экспертизы в единичном экземпляре, с целью минимизировать воздействие как на исследуемый объект, так и на его составляющие.

Ключевые слова: судебно-баллистическая экспертиза, методика, боеприпасы, оружие, патроны, демонтаж, гильзы, специальные пули, безопасность при выполнении работ, опасность.

Received by Editorial Board: 12.08.2020

Krykunenko O. Iu., Sohor T. Ie. Suggestions on amending the methodology of establishing the object belonging to firearms ammunition and its suitability for firing//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/ Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 317—326. DOI: https://doi.org/10.32353/khrife.2.2020.25.

DOI: https://doi.org/10.32353/khrife.2.2020.26
UDC 343.982.35

O. Iu. Grosheva,
PhD Student at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Presiding Judge of Kharkiv Appellate Court, Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-1858-4502,
e-mail: E.grosheva63@gmail.com

Experimental research as the basis for developing a method for identifying trace formation mechanism

The article examines feasibility of conducting a series of experiments, results of which will serve as the basis for developing a method for establishing the mechanism of formation of plant origin stains on articles of clothing. Based on the analysis of special literature, the author introduces arguments for the need to develop such a methodology. In the course of experimental research, with the help of extras, circumstances of clothing contact with vegetation cover at various sites which can occur while crime commission have been simulated. The obtained data which will become the basis for creating a methodology for establishing a mechanism of grass layers' formation on articles of clothing is obtained. A flowchart of dependence of the mechanism of stains formation on properties, states of interacting objects and nature of contact has been developed. During investigation of the mechanism of stains formation similar to grass stains, a multidisciplinary forensic trace evidence and botany forensic analyses should be initiated. After receiving research objects and materials review, the Expert Commission conducts external examination of provided physical evidence. For this purpose, clothes are laid out one by one on a laboratory bench, each item is described separately and photographed according to the rules of forensic photography. The next stage is the study by a forensic botanist of identified layers of plant origin in order to establish their nature. Then a trace evidence examiner conducts forensic trace evidence analysis of identified layers of grass stains. Based on the analysis of the complex of identified features and properties shown in the flowchart, the Expert Commission formulates the synthesizing part of the conclusion according to which the conclusion as to the mechanism of trace formation is drawn.

Keywords: forensic methodology, grass stains, movement of body.

Formulation of Research Problem. Establishment of trace formation mechanism (layers, damages, exfoliations, etc.) is one of the most difficult tasks of forensic science; it is connected with the forensic expert decision situational tasks directed on definition of crime circumstances on traces. If the crime (murder, traffic collision, rape, etc.) took place in an open area with vegetation, there are questions about determining formation mechanism of green spots on

© O. Iu. Grosheva, 2020

the victim clothing, suspect or other persons involved in contacting. While crime commission in open area, the victim's body can be dragged, offender can fight the victim, the body can fall, and so on. Therefore, the expert can set situational tasks which solution will help the investigator (court) to establish circumstances of contacting the clothes which the victim or other persons were dressed in that will ultimately help to clarify circumstances of a particular illegal event. Therefore, development of theoretical and methodological provisions for solving the situational problem of establishing formation mechanism of layers of green on clothing is very important, because as of today in the Register of methods of forensic examinations such methods are missing.

Analysis of Essential Researches and Publications. First of all, we note that in our previous publications [1] we have already paid attention to research papers on the mechanism of trace formation of biological origin objects, so in this paper we will analyze only some publications on plant origin traces devoted to this issue. It is clear that traces not only reflect external structure of the object surface in contact with the trace surface but also the shape (physical, chemical, biological), direction and strength of interaction; mechanism and conditions of trace contact; properties of objects involved in trace formation, etc. Thus, in trace evidence aspect traces can be considered not only in terms of morphology but as a reflection of conditions and the mechanism of their occurrence. [2]. Analysis of professional readings indicates there are practically no publications on forensic study of spot formation mechanism from plant objects. Thus, in research paper by M. T. Alimbaeva, T. S. Baizhumanova, G. M. Konspayeva on the examination of stains, dust and dirt, the possibility of chemical researches on resin tree traces is indicated [3]. L. E. Chistova paid attention to research on f trace formation mechanism during illegal actions with potent and poisonous substances, narcotic drugs, psychotropic substances (in particular, of plant origin) [4]. V. E. Berger and L. P. Bulyga drew

[1] E.g.,: Грошевая Е. Судебно-биологическая экспертиза в Украине: некоторые аспекты решения экспертных задач//*Criminalistics and Forensic Expertology: Science, Studies, Practice:* XV International Congress. Lietuvos Teismo Centras, Lietuvos Kriminnalistu Draugija, Mikolas Romeris University, 2019. Book II. P. 229—245 ; Грошева О. Ю. Щодо створення методики комплексного експертного дослідження слідів рослинного походження//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2019. Вип. 20. P. 553—569 ; etc.

[2] Кофанов А. В., Волошин О. Г., Літвінова О. В. Трасологічні дослідження: курс лекц. Київ, 2010. P. 12.

[3] Алимбаева М. Т., Байжуманова Т. С., Конспаева Г. М. Химическая экспертиза пятен, пыли и грязи//*Наука и техника Казахстана.* 2004. № 4. P. 5—10.

[4] E.g., Чистова Л. Е. К вопросу о механизме образования следов при незаконных действиях с сильнодействующими и ядовитыми веществами//*Вестник Московского университета МВД России.* 2013. № 11. P. 144—148 ; Eadem. Особенности механизма следообразования при контрабанде наркотических средств, психотропных, сильнодействующих, ядовитых веществ или растений, содержащих наркотические средства или психотропные вещества//*Op. cit.* 2015. № 5. P. 115—119.

attention to relevance of multidisciplinary trace evidence analysis and forensic biological examination of objects of plant origin [1], however, establishment of the mechanism of formation of green spots in their research was not discussed. M. I. Rozanov paid attention to the issue of research on traces of plant objects, however, his research papers mostly covered establishing possibilities of the whole in parts and dendrochronological wood analysis [2]. Regularities of change of time characteristics of objects of biological origin and formation and functioning of system of scientific and technical means and methods for clarification of time factors on objects of biological origin with the purpose to provide detection and investigation of crimes are considered in A. G Ivanov's dissertation [3].

As we can see, scientists have paid almost no attention to development of methodological support for the elucidation of the formation mechanism of plant origin traces on carrier objects. In other words, the main issues were considered by professionals through the prism of identification and diagnostic tasks. That is why in this article we will turn to ways to solve situational problems. In our previous research paper, we presented results of experimental researches to determine the signs indicating contact nature (static, dynamic, etc.) and movement direction [4].

Research paper Purpose is to present the course and results of experiments related to simulation of various situations of reproduction of circumstances similar to those that can occur while crime commission in open area with vegetation (lawns, meadows, lawns, etc.).

Main Content Presentation. First of all, it should be noted that at the regulatory level in the Scientific and methodological recommendations for the preparation and appointment of forensic examinations and expert researches states that professionals in forensic trace evidence in cooperation with experts majoring in other specializations can address the study of layers on clothing (shoes) and provides an indicative list of issues to be addressed: what is the mechanism of formation of layers of green spots and what is the sequence of formation of layers on clothing [5]. There is no more detailed information in

[1] Бергер В. Е., Булыга Л. П. Комплексная трасологическая и судебно-биологическая экспертиза объектов растительного происхождении// Криминалистика и судебная экспертиза. Киев, 1980. Вып. 20. P. 114—117.

[2] E.g., Розанов М. И. Возможности установления целого по частям при исследовании древесины и изделий из нее//*Криминалистика и судебная экспертиза.* Киев, 1964. Вып. 1. P. 208—215 ; Idem. Дендрохронологические методы экспертизы древесины//*Экспертная техника.* Москва, 1971. Вып. 34. P. 45—65.

[3] Иванов А. Г. Установление временных связей при исследовании объектов биологического происхождения. дис. … канд. юрид. наук. Москва, 2003. 205 p.

[4] Грошева О. Ю. Op. cit.

[5] Науково-методичні рекомендації з питань підготовки та призначення судових експертиз та експертних досліджень: затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0705-98#n17 (date accessed: 04.08.2020).

these recommendations that indicates elaboration lack of this issue in terms of methodological support.

In order to create methods for developing a clear algorithm of forensic research, it is necessary to identify the signs and properties affecting formation mechanism of green spots as a result of clothing contact with vegetation surface. Previously, we conducted experimental researches with individual objects to obtain single traces and found signs of individual layers of green indicating contact nature of (static or dynamic) [1]. To carry out the final stage of scientific experiments, different sets of clothes were successively put on the extra and different types of contact of the body with the surface covered with vegetation were performed. Body in the supine or abdominal position was moved by one extra by the arms or legs (the body was dragged); the body in the supine or abdominal position was moved by two extras by the arms and legs (the body was dragged); the body was statically in contact with the surface of the vegetation, lying on his back or abdomen; the body repeatedly made chaotic contact in dynamic and static ways.

Here are the conditions and results of individual experiments. The area was selected with a medium vegetational cover saturation. The experiments were performed in such sets of clothing and under such contact circumstances.

Clothing set № 1: jacket made of white fabric; T-shirt made from a knitted cloth of blue color; jeans made of blue fabric (see Fig. 1). In this set, body of the extra was moved (dragged) by the hands with the head forward (see Fig. 2). Appearance of obtained layers is illustrated in Figs. 3—7.

Fig. 1

Fig. 2

[1] Грошева О. Ю. Op. cit.

Fig. 3

Fig. 4

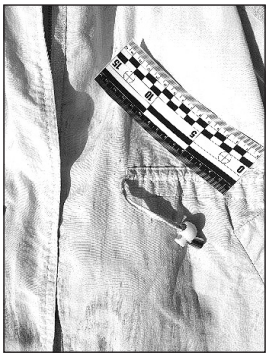


Fig. 5

Fig. 6

Fig. 7

Clothing set № 2: dress made of white knitted fabric with round embroidery with white threads on a black background in front (see Fig. 8). The kit made static contact (without moving) of the extra dressed in, lying on his back (layers of green spots, see Fig. 9) and lying on his stomach (some minor layers of green spots, see Fig. 10). To bring the experiment closer to conditions similar to those possible at the time of crime, the extra's body was subjected to pressure.

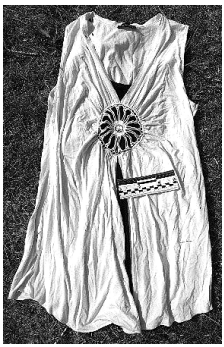


Fig. 8

Fig. 9

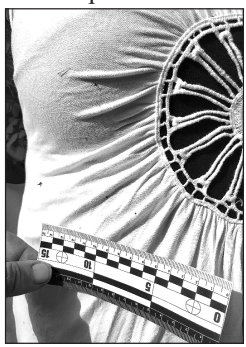


Fig. 10

Clothing set № 3: pants made of white fabric; sweatshirt from a pink knitted cloth. In this set of clothes, the extra body was moved (dragged) by the legs in a supine position with the legs forward (see Fig. 11). As a result, green layers were formed on the front of sweatshirt back (see Fig. 12), as well as on the reverse side (see Fig. 13), as the clothes turned outwards when moving. Appearance of layering on the back of pants and a detailed photo of layering on the back of the pants is shown in Fig. 14, 15.

Fig. 11

Fig. 12

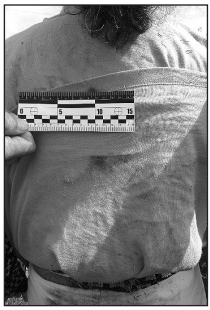


Fig. 13

Fig. 14

Fig. 15

Clothing set № 4 (see Fig. 16): white fabric skirt; sweater from a yellow knitted cloth. The extra body was moved (dragged) in a supine position or on the back with the legs forward of other two extras, holding hands and feet. The part of the body that was sagging came into contact with vegetation (see the traces formed in Figs. 17—20).

Fig. 16

Fig. 17

Fig. 18

Fig. 19

Fig. 20

Set of clothes № 5: trousers from white fabric with pockets in the middle part of trousers; white sweater with a gray ornamental pattern (see Fig. 21). Simulated the body movement of the extra (dragging) in a supine position and abdomen, two extras head and legs forward, respectively. As a result of contact, layers of green spots were formed (see Figs. 22—27). The body sagging part came into contact with the area surface.

Fig. 21

Fig. 22

Fig. 23

Fig. 24

Fig. 25

Fig. 26

Fig. 27

Clothing set № 6: knitted white sweatshirt (see Fig. 28). There was static contact of the extra body in a supine position or abdomen. An illustration of green layers is shown in Figs. 29, 30 (for details, see Figs. 31, 32).

Fig. 28

Fig. 29

Fig. 30

Fig. 31

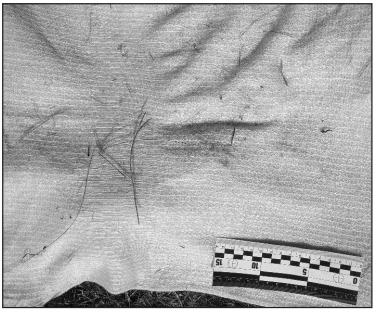


Fig. 32

Thus, as a result of scientific experiments, certain formation patterns of green spots were revealed which primarily depend on contact nature (static or dynamic, dense or loose). The properties of both vegetation and clothing material have a certain influence on the display of signs.

More "juicy" vegetation leaves more informative traces, respectively, the drier one – less informative. The material properties of the garment affect the sign reflection of the trace formation mechanism depending on whether they show hydrophilicity (easily absorb moisture) or hydrophobicity (do not absorb or poorly absorb moisture) because the herb contains up to 95% water.

It is clear that hydrophilic materials are more suitable for displaying on them informative signs of traces. These properties affect display quality of traces, however, do not affect the fact of layer formation. Accordingly, we can conclude that even behind the "weak" in terms of information traces can be established trace formation mechanism.

Thus, given the structure and content of block diagrams of trait classification in the traces proposed by other authors [1], we can distinguish systems of properties and states of contact objects and signs of green layers that can establish the mechanism of their formation under different conditions of contact interaction of dressed person with area vegetation and present them in the block diagram (see Fig. 33).

Conclusions. Therefore, while research on formation mechanism of spots resembling traces of vegetation, a comprehensive forensic trace evidence and forensic botany analyses should be performed. After receiving research objects and reviewing content of proceedings, commission of forensic experts conducts an external review of provided evidence. For this purpose, the clothes are alternately laid out on table laboratory, each object is described separately and photographed according to forensic photography rules. The next stage is research by forensic botanist of identified layers of plant origin to establish their nature. Then trace evidence analytic conducts forensic trace evidence analysis. Based on the analysis of complex of identified signs and properties given in the block diagram, the commission of experts makes the synthesized part of conclusion on which basis the conclusion on trace formation mechanism comes to conclusion.

[1] Грановский Г. Л. Основы трасологии: (Общая часть)/под ред. Е. И. Зуева. Москва, 1965. Р. 37 ; Сімакова-Єфремян Е. Б. Теорія і методологія комплексної експертизи контактно-слідової взаємодії об'єктів: монографія. Харків, 2004. 176 р.

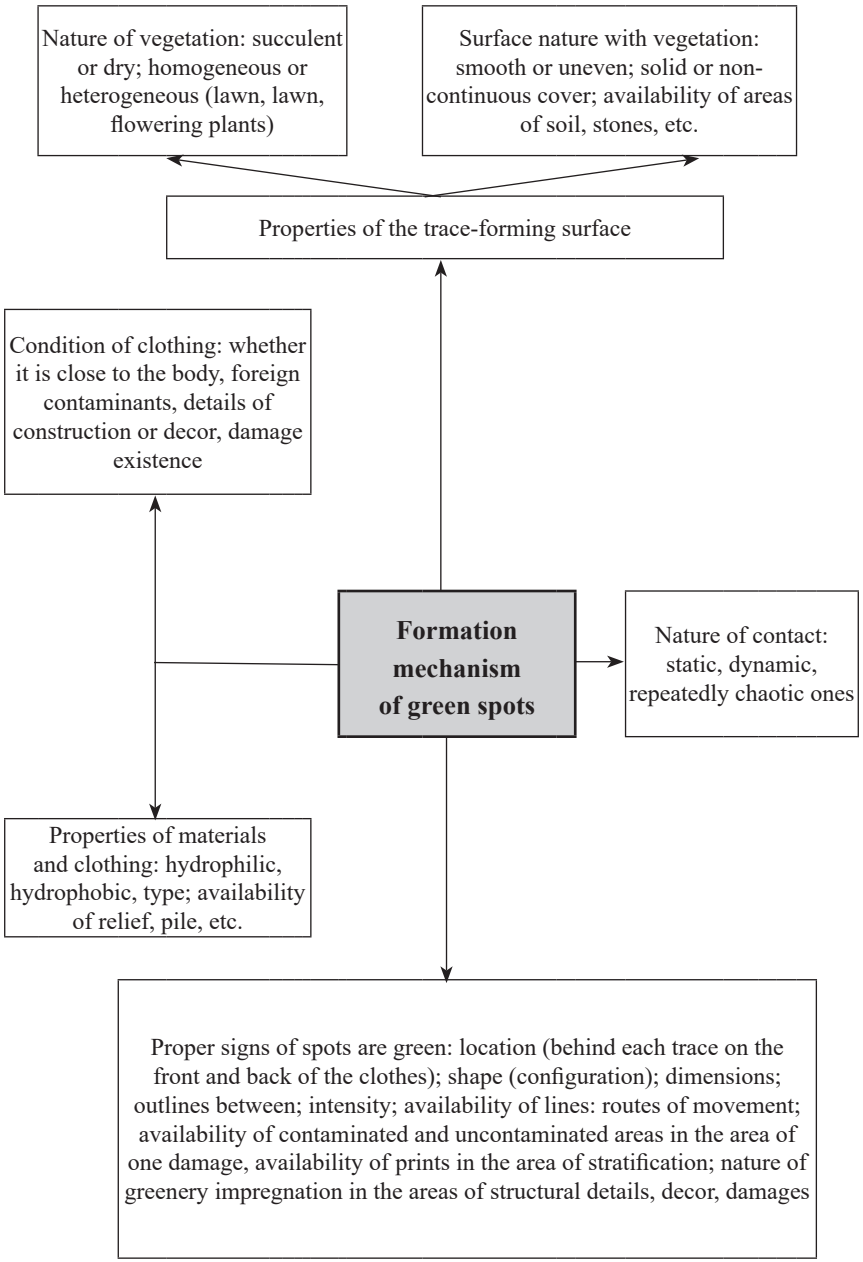


Fig. 33. The block diagram of sign classification of traces, properties and states of objects of interaction during establishment of formation mechanism of green spots

References

Alimbaeva, M. T., Baizhumanova, T. S., Konspaeva, G. M. (2004). Khimicheskaia ekspertiza piaten, pyli i griazi. *Nauka i tekhnika Kazakhstana*. № 4 [in Russian].

Berger, V. E., Bulyga, L. P. (1980). Kompleksnaia trasologicheskaia i sudebno-biologicheskaia ekspertiza obektov rastitelnogo proiskhozhdenii. *Kriminalistika i sudebnaia ekspertiza.* Vyp. 20. Kyiv [in Russian].

Chistova, L. E. (2013). K voprosu o mekhanizme obrazovaniia sledov pri nezakonnykh deistviiakh s silnodeistvuiushchimi i iadovitymi veshchestvami. *Vestnik Moskovskogo universiteta MVD Rossii.* № 11 [in Russian].

Chistova, L. E. (2015). Osobennosti mekhanizma sledoobrazovaniia pri kontrabande narkoticheskikh sredstv, psikhotropnykh, silnodeistvuiushchikh, iadovitykh veshchestv ili rastenii, soderzhashchikh narkoticheskie sredstva ili psikhotropnye veshchestva. *Vestnik Moskovskogo universiteta MVD Rossii.* № 5 [in Russian].

Granovskii, G. L. (1965). *Osnovy trasologii: Obshchaia chast*/pod red. V. N. Zueva. Moscow [in Russian].

Groshevaia, E. (2019). Sudebno-biologicheskaia ekspertiza v Ukraine: nekotorye aspekty resheniia ekspertnykh zadach. *Criminalistics and Forensic Expertology: Science, Studies, Practice.* XV. Book II. Lietuvos Teismo Centras, Lietuvos Kriminnalistu Draugija, Mikolas Romeris University [in Russian].

Hrosheva, O. Yu. (2019). Shchodo stvorennia metodyky kompleksnoho ekspertnoho doslidzhennia slidiv roslynnoho pokhodzhennia. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk. pr. Kharkiv. Vyp. 20 [in Ukrainian].

Ivanov, A. G. (2003). *Ustanovlenie vremennykh sviazei pri issledovanii obektov biologicheskogo proiskhozhdeniia.* (Candidates thesis). Moscow [in Russian].

Kofanov, A. V., Voloshyn, O. H., Litvinova, O. V. (2010). *Trasolohichni doslidzhennia:* kurs lektsii. A. V. Kofanov, , (eds.). Kyiv [in Ukrainian].

Naukovo-metodychni rekomendatsii z pytan pidhotovky ta pryznachennia sudovykh ekspertyz ta ekspertnykh doslidzhen: zatv. nakazom M-va yustytsii Ukrainy vid 08.10.1998 r. № 53/5 (u red. vid 27.07.2015 r. № 1350/5). *Ofitsiinyi visnyk Ukrainy.* 2005. № 5. St. 325 (iz zminamy ta dopov.) [in Ukrainian].

Rozanov, M. I. (1964). Vozmozhnosti ustanovleniia tcelogo po chastiam pri issledovanii drevesiny i izdelii iz nee. *Kriminalistika i sudebnaia ekspertiza.* Respubl. mezhvedom. sb. nauch. i nauch.-metod. rabot. Vyp. 1. Kyiv [in Russian].

Rozanov, M. I. (1971). Dendrokhronologicheskie metody ekspertizy drevesiny. *Ekspertnaia tekhnika.* Vyp. 34. Moscow [in Russian].

Simakova-Yefremian, E. B. (2004). *Teoriia i metodolohiia kompleksnoi ekspertyzy kontaktno-slidovoi vzaiemodii obiektiv:* monohrafiia. Kharkiv [in Ukrainian].

О. Ю. Грошева

ЕКСПЕРИМЕНТАЛЬНІ ДОСЛІДЖЕННЯ ЯК ОСНОВА ДЛЯ РОЗРОБЛЕННЯ МЕТОДИКИ ВСТАНОВЛЕННЯ МЕХАНІЗМУ СЛІДОУТВОРЕННЯ

Пропонована стаття містить викладення результатів завершального етапу серії наукових експериментів, які проводили з метою розроблення методики досліджень механізму утворення нашарувань рослинного походження — плям зе́лені. Проаналізовано спеціальну літературу, експертну практику й експериментальні дослідження з комплектами одягу, у які вдягалися статисти з метою імітувати різні види контактування на відкритій ділянці місцевості з рослинним покривом. На підставі аналізу результатів експериментів виявлено системи ознак і властивостей, за якими судовий експерт має визначити механізм утворення нашарувань зе́лені.

Ключові слова: судово-експертна методика, плями зе́лені, переміщення тіла волоком, статичний контакт, динамічний контакт, механізм утворення слідів.

Е. Ю. Грошевая

ЭКСПЕРИМЕНТАЛЬНЫЕ ИССЛЕДОВАНИЯ КАК ОСНОВА ДЛЯ РАЗРАБОТКИ МЕТОДИКИ ОПРЕДЕЛЕНИЯ МЕХАНИЗМА СЛЕДООБРАЗОВАНИЯ

В статье изложены результаты серии экспериментов, итоги которых являются основой для разработки методики определения механизма образования следов растительного происхождения на предметах одежды. На основе анализа специальной литературы аргументирована необходимость разработки такой методики. В процессе экспериментальных исследований при помощи статистов имитировали обстоятельства контакта одежды с растительным покровом различных участков местности, которые могут происходить во время совершения преступления. Разработана блок-схема зависимости механизма следообразования от свойств и состояний взаимодействовавших объектов и характера контактирования.

В процессе исследования механизма образования пятен, похожих на следы растительности, следует назначать комплексную судебную трасологическую и ботаническую экспертизу. После получения объектов исследования и ознакомления с представленными материалами комиссия судебных экспертов проводит внешний осмотр представленных вещественных доказательств. Для этого одежду поочерёдно выкладывают на лабораторной стол, каждый предмет описывают отдельно и фотографируют

по правилам судебной фотографии. Следующий этап — исследование экспертом в области ботаники выявленных наслоений растительного происхождения с целью определения их природы. Затем эксперт-трасолог проводит судебные трасологические исследования выявленных наслоений пятен зелени. На основании анализа комплекса выявленных признаков и свойств, приведённых в блок-схеме, комиссия экспертов формулирует синтезирующую часть заключения и вывод о механизме следообразования.

Ключевые слова: судебно-экспертная методика, пятна зелени, перемещение тела волоком, статический контакт, динамический контакт, механизм образования следов.

Received by Editorial Board: 26.10.2020

Grosheva O. Iu. Experimental research as the basis for developing a method for identifying trace formation mechanism//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 327—339. DOI: https://doi.org/10.32353/khrife.2.2020.26.

DOI: https://doi.org/10.32353/khrife.2.2020.27
UDC 343.98:636.09

O. Yu. Kaniuka,
Head of the Department of Forensic Biology
at Poltava Scientific Research Forensic Center
of the Ministry of Internal Affairs of Ukraine, Poltava, Ukraine,
e-mail: olekanyuka@gmail.com

Methodological features of research on a Domestic dog intermediate hair

Currently, offenses against animals, in particular, dogs are often committed. Many scientists developed theory and methodology to study animal hair. However, today there remained certain difficulties in establishing genus assignment and species of hair. It is noted that animal hair that belong to related genera is the most difficult to differentiate.

The Article purpose is to establish diagnostic features of an intermediate type of hair of an animal in order to trace its origin from a domestic dog.

Micro-objects similar to hair have been received for study. Objects were examined macroscopically and microscopically. The length was measured with a metal ruler, thickness was determined using an ocular screw micrometer MOV 1-16x on the "MIKMED-2-20" microscope with a binocular body. A cuticle imprint was obtained on the "BF-6" glue; thermochemical treatment (alkaline hydrolysis) was carried out in a 20% sodium hydroxide solution.

The established morphological structure of the objects under study confirms the fact that intermediate hair is somewhere in the middle between down and guard hairs with a different number of features specific to mentioned categories. Objects have features attributed to animal hair of the Canidae family: complex cuticle pattern, medulla begins at some distance from the root end, medulla thickness and the shape of medulla cells. Thus, one feature that is characteristic of guard hairs, namely a complex cuticle pattern in the form of various cones can give a forensic expert a reason to state that objects under study can originate from a domestic dog.

It can be concluded that in order to establish taxonomic identity of an intermediate hair in a domestic dog, it is necessary: 1) to determine features of guard hairs and signs of down hair in an object under study; 2) to identify and evaluate signs of guard hair (in this case, a specific cuticle pattern, medulla thickness) 3) to compare the information obtained while research with literature data and make a positive or negative conclusion.

Keywords: domestic dog, hair, forensic examination.

© O. Yu. Kaniuka, 2020

Formulation of Research Problem. While investigation of a certain event, hair can act as a material carrier of information about the facts that can later become object of forensic examination. Nowadays, crimes are often committed against animals, in particular dogs.

Domestic dog (*Canis familiaris*) as a species belongs to the Mammals (*Mammalia*) species, order of Caniformia (*Caniformes*), Family Canidae (*Canidae*) and the genus Dog (*Canis*). However, forensic expert should take into account that in Ukraine, in addition to species of the genus Dog (Domestic Dog, Wolf, Jackal), there are representatives of 2 other genera of this family: genus Fox (*Vulpes*): Red Fox (*Vulpes vulpes*) and Corsac fox (*Vulpes corsac*); Raccoon dog (*Nyctereutes procyonoides*) [1]. Therefore, it is necessary to have a set of signs that can distinguish hair of a domestic dog from the other 5 species of animals in this family.

Analysis of Essential Researches and Publications. Theories and methodologies for research on animal hair have been developed by many scientists, for example: M. V. Kisin [2], M. L. Mamotyuk [3], Zh. M. Nykyforova and O. I. Razorenova [4], O. V. Suchkova [5] , K. Verma and V. Joshi [6] and others. However, up to this day there are some difficulties in determining the genus and species of hair. It is noted that the most difficult to differentiate the hair of animals belonging to related species [7].

---

[1] Загороднюк І., Ємельянов І. Таксономія і номенклатура ссавців України// *Вісник Національного науково-природничого музею.* Київ, 2012. № 10. P. 5.

[2] Кисин М. В., Булышева Л. К., Мамотюк М. Л., Разоренова О. И. Волосы животных как объект судебно-биологической экспертизы: учеб. пособ. Москва, 1984. 115 p.

[3] Мамотюк М. Л. Методика исследования волос животных. Киев, 1968. 41 p.

[4] Никифорова Ж. М., Разоренова О. И. Исследование волос млекопитающих отряда Грызуны в криминалистических целях: учеб. пособ. Москва, 1991. 48 p.

[5] Сучкова Е. В. Судебно-экспертное исследование волос человека и животных: монография. Москва, 2015. 228 p.

[6] Verma K., Joshi B. Different Animal Species Hairs as Biological Tool for the Forensic Assessment of Individual Identification Characteristics from Animals of Zoological Park, Pragti Maidan, New Delhi, India//*Journal of Forensic Research*. 2012. Vol 3. Is. 7. 4 p. DOI: 10.4172/2157-7145.1000160 (date accessed: 06.06.2020).

[7] Перфилова Т. В., Кисин М. В. Использование морфологических признаков волос домашней собаки для диагностики и идентификации в судебной экспертизе: метод. рекоменд. Москва, 2007. 32 p.

M. V. Kisin [1], T. V. Perfilova [2], O. F. Chernova[3], A. O. Bykova [4], P. P. Wandhare [5], S. R. Tridico [6] studied domestic dog hair. Research papers of the mentioned scientists describe the guide structure, dog guard hair or down hair. However, these authors did not pay attention to such a category of hair as transitional. Researchers are paying attention to availability of transitional hairs in cover of animals that appear especially in large numbers in winter. According to its morphological features, transitional hair occupies an intermediate position between the down and the bristle ones. However, some of them are closer in structure to axillary and others to the down ones [7]. Because taxonomic affiliation of downy hair is not known, it is important to determine that category the hair under research belongs to.

Research Paper Purpose. Find out diagnostic signs of transitional type hair of animals to determine its origin from Domestic dog.

Main Content Presentation. Micro-objects similar to hair, important in the criminal proceedings opened under Part 1 of Art. 299 of the Criminal code of Ukraine were received for research. In this case, cruelty to animals caused the death of a Labrador Retriever. Forensic expert had to determine whether these micro-objects could be derived from Domestic dog.

Objects were studied using *МІКМЕД-2-20* microscopes and *Bresser Biolux LCD 40x-1600*^{x} (Magnification: 100^{x} and 400^{x}, light: artificial, passable). The objects were examined macro- and microscopically, first without the addition of any substances, then by clarification in distilled water. The length was measured with a metal ruler, thickness was determined using a micrometer eyepiece screw MOB-1-16x on *МІКМЕД-2-20* microscope with a binocular nozzle (light: artificial, passable). Cuticle impression was obtained on the glue БФ-6, thermochemical treatment (alkaline hydrolysis) was performed in 20% sodium hydroxide solution.

---

[1] Кисин М. В., Булышева Л. К., Мамотюк М. Л., Разоренова О. И. Op. cit.

[2] Перфилова Т. В., Кисин М. В. Op. cit.

[3] Чернова О. Ф., Целикова Т. Н. Атлас волос млекопитающих. Тонкая структура остевых волос и игл в сканирующем электронном микроскопе. Москва, 2004. 429 p.

[4] Быкова А. А., Савельевна А. Ю. Идентификация конкретной породы собак по гистологическому строению остевых волос//*Научное сообщество студентов XXI столетия. Естественные науки:* электрон. сб. ст. по мат-лам LIII студ. Междунар. заоч. науч.-практ. конф. Новосибирск, 2017. № 6 (52). P. 40—45. URL: https://sibac.info/archive/nature/6(52).pdf (date accessed: 06.06.2019).

[5] Wandhare P. P., Bhosale M. S. Trichology: a Science of Hair Examination in Identification of Dog Breeds//*International Journal of Applied and Pure Science and Agriculture (IJAPSA)*. 2017. Vol. 03. Is. 6. P. 61—66. DOI: 10.22623/IJAPSA.2017.3055.FZ1ES (date accessed: 06.06.2020).

[6] Tridico S. R. Examination, Analysis, and Application of Hair in Forensic Science — Animal Hair//*Forensic science review*. 01 Jan, 2005. Vol. 17. Is. 1. P. 17—28.

[7] Булыга Л. П. Методика дифференциальной диагностики волос животных близких родов//*Криминалистика и судебная экспертиза.* Киев, 1972. № 9. P. 361.

Methodical performance of this kind of forensic examinations is especially difficult, because the hair of Dog and other species of the genus (*Canis*) indicates similarity in most macro and micromorphological signs. Determining the order species of Caniformia *Caniformes*) by their hair often stops at the level of family or kind [1].

While macro and microscopic research, we obtained the following data. Object № 1 in its morphological features showed similarity both to guard hair structure (shape of hair shaft, cuticle pattern) and to the structure of down hairs (hair shape, thickness, core structure, core decay by alkaline hydrolysis, see Table. 1).

Table 1. Morphological signs of the object № 1

Guard hair	Down hair
Spindle-shaped rod	Wavy hair shape
There are areas of the rod with a cuticle pattern in the form of cedar and Christmas cones, which have smooth transitions between	Maximum thickness is 0.037 mm
	Core in the form of a thick continuous cord represented by a series of cells of round-quadrangular and oval shape elongated in the transverse direction
	Pattern of the cuticle is mostly ribbon-shaped
	Hydrolysis: separate cells

Object № 2 also showed signs of both apical and downy hair. However, only one feature characteristic of apical hair was found (see Table 2).

Table 2. Morphological signs of the object № 2

Guard hair	Down hair
Closer to the root end there is a section of the rod with a cuticle pattern in the form of a cedar and Christmas tree cone, that has smooth transitions	Wavy hair shape
	Maximum thickness is 0,030 mm
	Cylindrical shape of the rod

[1] Булыга Л. П. Сравнительное исследование признаков микроскопического строения волос животных некоторых близких родов//*Криминалистика и судебная экспертиза.* Киев, 1971. № 8. P. 305.

Guard hair	Down hair
	Core appears in the form of islands that turn into continuous string represented by a series of cells of round-quadrangular and oval shape, elongated in transverse direction
	Pattern of the cuticle is mostly ribbon-shaped
	Hydrolysis: separate cells

The determined morphological structure of objects № 1, 2 confirms the fact that transitional hair occupies an intermediate position between the down and guard hair with a different number of characteristic signs of these categories.

Features of the Dog family [1] are:

- pattern of the cuticle of apical hairs begins with a ribbon-like type. Then in the place located at the level of emergence of core cells, the cuticle form of cells changes. Cuticle of a cylindrical part in the form of a Christmas tree cone. The cuticle of the peripheral end again has a ribbon-shaped pattern;
- drawing of a cuticle of down hair of ring-shaped type;
- core of guard hair begins at some distance from the root end in the form of individual islands that turn into a continuous multicellular cord. The core is about 2/3 of hair thickness;
- core of downy hair is formed by one row of cells of round-quadrangular and oval shape elongated in the longitudinal or transverse direction.

Objects № 1, 2 have signs of the animal hair of the Dog (Canidae) family: complex changing pattern of the cuticle, the core begins at some distance from the root end corresponding thickness of core and shape of its cells.

Features of species of Domestic dog [2] are:

- changing the pattern of the cuticle along the rod according to the scheme: tape-shaped → cedar cone → Christmas tree cone → cedar cone → tape-shaped;
- core is 50—70 % of hair thickness, narrower than in other species of this family.

Conclusions. Thus, one feature of guard hair, namely the complex variable pattern of cuticle in the form of various cones, provide forensic expert with the reason to believe that objects № 1, 2 can be derived from the Domestic dog.

It can be concluded that in order to determine the taxonomic affiliation of Domestic dog transitional hair, it is necessary to: 1) determine the signs of guard and down hair in the object under research; 2) single out and evaluate the signs of

[1] Булыга Л. П. Op. cit.

[2] Перфилова Т. В., Кисин М. В. Op. cit.

apical hair (in this case, a specific pattern of cuticle, core thickness); 3) compare information obtained while research with the literature data and draw a likely positive or negative conclusion.

In the future, it is necessary to thoroughly analyze hair of all members of the Dog (*Canidae*) family living in Ukraine and compile an appropriate information guide.

References

Bulyga, L. P. (1971). Sravnitelnoe issledovanie priznakov mikroskopicheskogo stroeniia volos zhivotnykh nekotorykh blizkikh rodov. *Kriminalistika i sudebnaia ekspertiza.* Kyiv. № 8 [in Russian].

Bulyga, L. P. (1972). Metodika differentcialnoi diagnostiki volos zhivotnykh blizkikh rodov. *Kriminalistika i sudebnaia ekspertiza.* Kyiv. № 9 [in Russian].

Bykova, A. A., Savelevna, A. Iu. (2017). Identifikatciia konkretnoi porody sobak po gistologicheskomu stroeniiu ostevykh volos. *Nauchnoe soobshchestvo studentov XXI stoletiia.* Estestvennye nauki: elektron. sb. st. po mat-lam LIII stud. Mezhdunar. zaoch. nauch.-prakt. konf. Novosibirsk, № 6 (52). URL: https://sibac.info/archive/nature/6(52).pdf (data zvernennia: 06.06.2019) [in Russian].

Chernova, O. F., Tcelikova, T. N. (2004). *Atlas volos mlekopitaiushchikh. Tonkaia struktura ostevykh volos i igl v skaniruiushchem elektronnom mikroskope.* Moscow [in Russian].

Kisin, M. V., Bulysheva, L. K., Mamotiuk, M. L., Razorenova, O. I. (1984). *Volosy zhivotnykh kak obekt sudebno-biologicheskoi ekspertizy:* ucheb. posob. Moscow [in Russian].

Mamotiuk, M. L. (1968). *Metodika issledovaniia volos zhivotnykh.* Kiev [in Russian].

Nikiforova, Zh. M., Razorenova, O. I. (1991). *Issledovanie volos mlekopitaiushchikh otriada Gryzuny v kriminalisticheskikh tceliakh:* ucheb. posob. Moscow [in Russian].

Perfilova, T. V., Kisin, M. V. (2007). *Ispolzovanie morfologicheskikh priznakov volos domashnei sobaki dlia diagnostiki i identifikatcii v sudebnoi ekspertize:* metod. rek. Moscow [in Russian].

Suchkova, E. V. (2015). *Sudebno-ekspertnoe issledovanie volos cheloveka i zhivotnykh:* monografiia. Moscow [in Russian].

Tridico, S. R. (2005). Examination, Analysis, and Application of Hair in Forensic Science — Animal Hair. *Forensic science review.* Vol. 17. Is. 1.

Verma, K., Joshi, B. (2012). Different Animal Species Hairs as Biological Tool for the Forensic Assessment of Individual Identification Characteristics from Animals of Zoological Park, Pragti Maidan, New Delhi, India. Journal of Forensic Research. Vol 3. Is. 7. DOI: 10.4172/2157-7145.1000160 (data zvernennia: 06.06.2020).

Wandhare, P. P., Bhosale, M. S. (2017). Trichology: a Science of Hair Examination in Identification of Dog Breeds. *International Journal of Applied and Pure Science and Agriculture (IJAPSA).* Vol. 03. Is. 6. DOI: 10.22623/IJAPSA.2017.3055.FZ-1ES (data zvernennia: 06.06.2020).

Zahorodniuk, I., Yemelianov, I. (2012). Taksonomiia i nomenklatura ssavtsiv Ukrainy. *Visnyk Natsionalnoho naukovo-pryrodnychoho muzeiu.* Kyiv. № 10 [in Ukrainian].

О. Ю. Канюка

МЕТОДИЧНІ ОСОБЛИВОСТІ ДОСЛІДЖЕННЯ ПЕРЕХІДНОГО ВОЛОССЯ ПСА СВІЙСЬКОГО

У сучасному світі нерідко скоюють правопорушення по відношенню до тварин, зокрема — до собак. Теорії та методології дослідження волосся тварин розробляли багато науковців. Однак, до сьогодні під час визначення родової та видової належності волосся залишаються певні складнощі. Зазначено, що найскладніше диференціювати волосся тварин, які належать до близьких родів.

Метою роботи було з'ясувати діагностичні ознаки волосся перехідного типу тварин для визначення його походження від Пса свійського.

На дослідження надійшли мікрооб'єкти, схожі на волосся. Об'єкти досліджували макро- і мікроскопічно. Довжину вимірювали металевою лінійкою, товщину визначали за допомогою мікрометра окулярного гвинтового МОВ-1-16^{x} на мікроскопі «МІКМЕД-2-20» із бінокулярною насадкою. Відбиток кутикули отримували на клею «БФ-6», термохімічну обробку (лужний гідроліз) проводили у 20%-му розчині гідроксиду натрію.

Визначена морфологічна будова досліджуваних об'єктів підтвердила той факт, що перехідне волосся посідає проміжне положення між пуховим та остьовим з різною кількістю ознак, характерних для зазначених категорій. Об'єкти мають ознаки, характерні для волосся тварин родини Псових: складний малюнок кутикули, відповідні товщину серцевини та форму клітин серцевини, серцевина починається на деякій відстані від кореневого кінця. Отже, одна ознака, характерна для остьового волосся, а саме складний малюнок кутикули у вигляді різноманітних шишок, дає експертові підставу стверджувати, що досліджувані об'єкти можуть походити від Пса свійського.

Можна дійти висновку, що для визначення таксономічної належності перехідного волосся Пса свійського необхідно: 1) визначити ознаки остьового й ознаки пухового волосся в досліджуваному об'єкті; 2) виокремити й оцінити ознаки остьового волосся (у цьому разі — специфічний малюнок кутикули, товщину серцевини); 3) порівняти здобуту в ході дослідження інформацію з літературними даними та зробити вірогідно позитивний або негативний висновок.

Ключові слова: Пес свійський, волосся, судова експертиза.

Е. Ю. Канюка

МЕТОДИЧЕСКИЕ ОСОБЕННОСТИ ИССЛЕДОВАНИЯ ПЕРЕХОДНОГО ВОЛОСА СОБАКИ ДОМАШНЕЙ

В современном мире нередко совершаются правонарушения в отношении животных, в частности — собак. Теорию и методологию исследования волос животных разрабатывали многие учёные. Однако, установление родовой и видовой принадлежности волос до сих пор представляет

некоторые сложности. Отмечено, что труднее всего дифференцировать волосы животных, относящихся к близким родам.

Целью работы было выяснить диагностические признаки волоса переходного типа животных для установления его происхождения от Собаки домашней.

На исследование поступили микрообъекты, похожие на волосы. Объекты исследовали макро- и микроскопически. Длину измеряли металлической линейкой, толщину определяли с помощью микрометра окулярного винтового МОВ-1-16^{x} на микроскопе «МИКМЕД-2-20» с бинокулярной насадкой. Отпечаток кутикулы получали на клее «БФ-6», термохимическую обработку (щелочной гидролиз) проводили в 20 %-м растворе гидроксида натрия.

Установленное морфологическое строение исследуемых объектов подтверждается тем фактом, что переходные волосы занимают промежуточное положение между пуховыми и остевыми с разным количеством признаков, характерных для указанных категорий. Объекты имеют признаки, характерные для волос животных семейства Псовых: сложный рисунок кутикулы, толщину сердцевины и форму клеток сердцевины, сердцевина начинается на некотором расстоянии от корневого конца. Таким образом, один признак, характерный для остевых волос, а именно сложный рисунок кутикулы в виде различных шишек, даёт эксперту основание утверждать, что исследуемые объекты могут происходить от Собаки домашней.

Можно сделать вывод, что для установления таксономической принадлежности переходных волос собаки домашней необходимо: 1) определить признаки остевых и признаки пуховых волос в исследуемом объекте; 2) выделить и оценить признаки остевых волос (в данном случае — специфический рисунок кутикулы, толщину сердцевины); 3) сравнить полученную в ходе исследования информацию с литературными данными и сделать вероятно положительный или отрицательный вывод.

Ключевые слова: Собака домашняя; волосы; судебная экспертиза.

Received by Editorial Board: 05.09.2020

Kaniuka O. Yu. Methodological features of research on a Domestic dog intermediate hair//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 340—347. DOI: https://doi.org/10.32353/khrife.2.2020.27.

DOI: https://doi.org/10.32353/khrife.2.2020.28
UDC 343.98:543

I. M. Korotkov,
Principal Forensic Expert of the Department of Forensic Materials,
Substances and Products Analysis at Kirovohrad Scientific Research
Forensic Center of the Ministry of Internal Affairs of Ukraine,
Kropyvnytskyi, Ukraine,
e-mail: viddil_svd@ukr.net

Problems of concentration determination of inorganic acids in a mixture while research on examining objects

Inorganic acids are offered for forensic examination of materials, substances and products mainly in the form of individual aqueous mixtures, however, some of the objects are mixtures containing strong and weak acids or two strong acids, which complicates the process of determining the concentration of each component. For that reason creation of an accurate, correct, reproducible, rapid and simple methodology for determining mass fraction, in particular of sulfuric and hydrochloric acids, is also an important step in a reliable forensic assessment of study results.

To establish applicability of the methods of gravimetric analysis and interpretation of its result for forensic examination, research was carried out on a model three component mixture containing 10 % hydrochloric and 40 % sulfuric acid in an aqueous solution. Determination of sulfuric acid was implemented by means of gravimetric analysis: deposition of SO_4^{2-} *ions by* Ba^{2+} *ions with further calculation of acid mass fraction which is* $39{,}05 \pm 0{,}99\%$ *that is within the limits of an admissible error* ($\Delta_{xmax} \leq 3\sigma$). *The hydrochloric acid was determined by the Volhard method, according to the results of which the mass fraction of acid was* $9{,}56 \pm 0{,}45\%$, *which is within permissible error limits* ($\Delta_{xmax} \leq 3\sigma$).

Taking into account availability of equipment, simplicity, technological effectiveness, the suggested method for analyzing objects offered for research is an effective method for forensic monitoring of inorganic acids content which are the subject to control measures.

Keywords: precursors, mass fraction, sulfuric acid, hydrochloric acid, gravimetric method of analysis.

Formulation of Research Problem. Metallurgy, food production, medicine, these and many other industries today are difficult to imagine without the use of inorganic acids that are indispensable in many industries. However, these acids are also used as precursors at various stages of production of almost all narcotic drugs and psychotropic substances, including heroin, cocaine, amphetamine, methamphetamine, phencyclidine, fentanyl etc.

© I. M. Korotkov, 2020

Forensic science institutions receive a significant amount of substances, in particular inorganic acids which determination as subject to control measures requires clarification of their exact concentration.

Inorganic acids are tested for materials, substances and products, mainly in form of individual aqueous mixtures, however, some objects are mixtures containing strong and weak acids or two strong acids that complicates determining each component concentration. That is why creation of an accurate, correct, reproducible, express and simple method for determining mass fraction of acids, in particular sulfuric and hydrochloric is a necessary and important stage of a reliable forensic evaluation of the research results.

Analysis of Essential Researches and Publications. At different times L. M. Girl, S. Yu. Kelin [1], L. P. Tsyganok, T. O. Bubel, A. B. Vyshkinin, and O. Yu. Vashkevich [2], O. M. Chebotaryov, T. M. Shcherbakova, O. M. Guzenko and others [3] devoted their research papers to the issues of determining qualitative chemical analysis in general and inorganic acids.

Issues of gravimetric analysis of inorganic acids in the scientific literature and periodicals are given undeservedly little attention. Such scientists as A. S. Alemasov, V. M. Zaitsev, L. Ya. Yenalev, N. D. Shchepin, S. M. Gozhdinskyi and others devoted to the topic of quantitative analysis[4].

However, the issue of determining concentration in multicomponent systems has not been developed to date and accordingly requires a scientifically sound research.

Article Purpose. Evaluate fundamental possibilities of using the gravimetric method of analysis to determine their concentration and to develop methods for their control in the objects of expert research on example of a three-component mixture of sulfuric and hydrochloric acids in aqueous solution.

Research Tasks:

1) determine the quantitative content of acids close in strength in multicomponent mixtures in their combined availability;
2) evaluate possibility of using gravimetric methods of analysis in determining acid concentration while expert research.

Main Content Presentation. For research in the 8.6 *Research of narcotic drugs, psychotropic substances, their analogues and precursors specialization* a significant amount of inorganic substances some of which are subject to control measures is received. In accordance with the United Nations Convention against

[1] Гирля Л. М., Кельїна С. Ю. Аналітична хімія: навч. посіб. Миколаїв, 2012. P. 89.

[2] Циганок Л. П., Бубель Т. О., Вишнікін А. Б., Вашкевич О. Ю. Аналітична хімія. Хімічні методи аналізу: навч. посіб. Дніпропетровськ, 2014. P. 23—25.

[3] Чеботарьов О. М., Щербакова Т. М., Гузенко О. М. Аналітична хімія. Якісний та кількісний аналіз: метод. вказ-ки до лаб. роб. для студ. I—II курсів заоч. від. хім. та біол. ф-в. Одеса, 2015. P. 22, 24.

[4] Алемасова А. С., Зайцев В. М., Єнальєва Л. Я., Щепіна Н. Д., Гождзінський С. М. Аналітична хімія: підруч. для внз. Донецьк, 2010. P. 235—245.

Illicit Traffic in Narcotic Drugs and Psychotropic Substances from 1988[1], as well as in accordance with Lists 2 of Tables II and IV of the List of Narcotic Drugs, Psychotropic Substances and Precursors, approved by the Cabinet of Ministers of Ukraine, dated on 06.05.2000 № 770 [2], precursors include two inorganic acids: hydrochloric and sulfuric one.

It should be noted that according to Art. 1 of the Law of Ukraine *On Narcotic Drugs, Psychotropic Substances and Precursors*, precursors of narcotic drugs and psychotropic substances are substances used for the production, manufacture of narcotic drugs and psychotropic substances belonging to the List of narcotic drugs, psychotropic substances and precursor [3]. Affiliation of sulfuric and hydrochloric acids to substances that are subject to control measures requires accurate concentration determination (mass fraction) in mixture (solution) and hence clear methods of its measurement. It should be borne in mind these acids are subject to control measures if their mass fraction in the mixture (solution) is not less than 45% of a precursor such as sulfuric acid and 15% of such a precursor as hydrochloric acid [4].

Let us consider one of the cases when objects received for research in the form of an aqueous solution where hydrochloric and sulfuric acids are available. For analysis, acid content of the test mixture was determined in an aqueous solution containing 10% hydrochloric acid and 40% sulfuric acid.

To determine the content of sulfuric acid in the solution used gravimetric method of analysis consisting in the fact sulfate ions are precipitated as barium sulfate solution of barium nitrate, while hydrochloric acid does not react with reagent remaining in solution:

$$Ba(NO_3)_2 + H_2SO_4 \rightarrow BaSO_4\downarrow + 2HNO_3.$$

Barium sulphate meets the requirements for sediments well: its solubility product is $1{,}1\times10^{-10}$; precipitate is practically insoluble in acids has [5]; a strictly defined composition that corresponds to the molecular formula $BaSO_4$ and hence while calcination, barium sulfate composition does not change, so this compound is a gravimetric form (i.e. in this definition, the gravimetric form coincides the

[1] Прекурсоры и химические вещества, часто используемые при незаконном изготовлении наркотических средств и психотропных веществ: доклад Междунар. ком. по контр. над наркот. за 2019 г. о выполн. ст. 12 Конвенции ООН о борьбе против незак. оборота наркот. ср-в и психотр. в-в 1988 г. Вена, 2020. P. 126.

[2] Про затвердження Переліку наркотичних засобів, психотропних речовин і прекурсорів: Постанова КМУ від 06.05.2000 р. № 770 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/770-2000-п (date accessed: 10.06.2020).

[3] Про наркотичні засоби, психотропні речовини і прекурсори: Закон України від 15.02.1995 р. № 60/95-ВР (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/60/95-вр (date accessed: 10.06.2020).

[4] Про затвердження Переліку наркотичних засобів … . URL: https://zakon.rada.gov.ua/laws/show/770-2000-п (date accessed: 10.06.2020).

[5] Лурье Ю. Ю. Справочник по аналитической химии. Москва, 1989. P. 96.

precipitating) [1]. The following factors should be taken into account during the study: $BaSO_4$ crystals are very small, so they can pass through the filter pores during filtration, in addition, $BaSO_4$ crystals are easily contaminated with foreign ions from the solution. That is why important conditions for aggregation of crystals and their purity are slow addition of the precipitant [2].

Research stages are presented in Table 1.

Table 1. Methods of gravimetric determination of sulfuric acid content

№	Research Stage	Execution Methods	Equipment and Reagents
1	Preparation of Crucible	Wash and dry the crucible, put the crucible in a muffle furnace for 20—25 minutes at t = 500 °C, cool the crucible in a desiccator, weigh crucible on analytical balances	Muffle furnace, analytical balance, crucible, tongs, desiccator
2	Preparation of Sample for Analysis	Place in the box about 0.5 g of the test solution, weigh. Transfer the portion quantitatively to a 100 cm^3 beaker, rinse the beaker with distilled water three times, transfer the rinses to the above beaker and dilute the solution to 50 cm^3 with distilled water	Analytical balance, box, chemical beaker, glass rod, object of research, distilled water
3	Sedimentation	The resulting solution is heat-ed without bringing to a boil. Take 10 cm^3 of $Ba(NO_3)_2$ (0,5 M) solution into a beaker with a cylinder, heat. Remove the test solution from the tile and very slowly, drop by drop, with continuous stirring, add the hot solution of $Ba(NO_3)_2$. Allow the precipitate to settle and check that the precipitate is complete by adding a few drops of $Ba(NO_3)_2$ to the wall of the precipitated beaker and see if there is any turbidity. In case of turbidity, add another 5 cm^3 of $Ba(NO_3)_2$ 2 and check again for completeness of dep-osition. Centrifuge the resulting mixture	Chemical beaker: 2 items, Glass rod, measuring cylinder: 2 items, Electric hob, solution of $Ba(NO_3)_2$ (0,5 M) test mixture

[1] Александрова Э. А., Гайдукова Н. Г. Аналитическая химия: в 2 кн. Кн. 1: Химические методы анализа: учебн. и практ-м для приклад. бакалавр. 3-е изд., испр. и доп. Москва, 2019. P. 309.

[2] Васильев В. П. Аналитическая химия: в 2 кн. Кн. 1: Титриметрические и гравиметрический методы анализа: учеб. для студ. вузов, обуч. по хим.-технол. спец. 7-е изд., стереотип. Москва, 2009. P. 152.

№	Research Stage	Execution Methods	Equipment and Reagents
4	Filtration and washing of precipitate	Filter through a dense ashless filter: *Blue Ribbon*. When all the solution is drained from the beaker, wash the precipitate by decantation. For this purpose, pour into a glass 10—20 cm^3 of distilled water, add 3—4 drops of HNO_3 (0,1 M). Stir the precipitate with a glass rod, allow to settle. Pour the clear solution onto the filter. Repeat washing 2—3 times, then quantitatively transfer the precipitate to the filter. On the filter, wash the precipitate with 10 cm3 of water to remove NO_3-ions	Chemical beaker, glass rod, measuring cylinder, pipette, funnel, conical flask, Blue Ribbon filter, nitric acid solution (0.1 M), distilled water
5	Drying, calcination	Place the filter with the sedi-ment in the prepared crucible, put in the muffle furnace at t = 500 °C for 20 minutes. Then place the crucible in the desic-cator. After cooling, weigh the crucible on analytical balances. Record the mass of the crucible and put back in the muffle furnace for 10 minutes, cool and weigh again. If the difference between the weights does not exceed 0.0002 g, it can be assumed that precipitate is brought to a constant mass. If the difference is greater, the calcination operation is re-peated until a constant mass is reached	Analytical scales, crucible, precipitate $BaSO_4$
6	Evaluation of Analysis Results	Calculate the percentage of sulfuric acid, calculate the error	

Mass fraction of sulfuric acid is calculated by the formula:

$$w = \frac{m \cdot F \cdot 100\%}{g} \quad (1),$$

where:

m is the mass of sediment, g;

F is conversion factor;

g is weight of samples, g.

The result of determining content of sulfuric acid was the arithmetic mean of the results of five parallel determinations which results are presented in Table. 2.

Table 2. Mass fraction of sulfuric acid in solution

№	Obtained Precipitate Mass, g	Mass Fraction H_2SO_4, %
1	0.4712	39.58
2	0.4549	38.21
3	0.4775	40.11
4	0.4641	38.98
5	0.4568	38.37

Therefore, the average mass fraction of sulfuric acid is 39.05%. Statistical processing of the analysis results [1] was performed using capabilities of *Microsoft Excel*; its results are presented in Table 3.

Table 3. Statistical Analysis of Research Results

Parameter	Indicator
Average Value, %	39.05
Absolute Measurement Error, %	0.95
Relative Measurement Error, %	2.4
Dispersion	0.64
Standard Divergence, %	0.8
Relative Standard Divergence, %	2.1
Confidence interval, %	39,05 ± 0,99

Based on research results, obtained content value of sulfuric acid in the mixture is close to true, does not exceed the maximum measurement error and is acceptable. Therefore, determination of the mass fraction of sulfuric acid by gravimetric method is expedient.

Measurement of mass fraction of hydrochloric acid was performed in the filtrate obtained at the previous stage of the study by the Volhard method: to the filtrate was added a precisely measured excess of 0.1 M solution of silver nitrate $AgNO_3$. Titration was performed without separation of AgCl precipitate, so 5—10 ml of nitrobenzene was added to the resulting mixture. The mixture was shaken well for 30—40 s, and the AgCl precipitate acquired a layered structure. 2 0,1-th captured nitrobenzene. Added to the solution 2 ml of saturated solution of iron-ammonium alum and titrated with 0.1 M ammonium thiocyanate solution with gentle stirring until a weak red-brown color [2].

[1] Дёрффель К. Статистика в аналитической химии. Москва, 1994. P. 85—137.

[2] Харитонов Ю. Я. Аналитическая химия. Аналитика 2. Количественный анализ. Физико-химические (инструментальные) методы анализа. Москва, 2014. P. 257—259 ; Пилипенко А. Т., Пятницкий И. В. Аналитическая химия: в 2 кн. Кн. 1. Москва, 1990. P. 173.

Mass fraction of sulfuric acid is calculated by the formula: (2),

$$X = \frac{((VAgNO_3 \cdot k - VNH_4CNS \cdot k) \cdot T)}{m_{load}} \cdot 100\%$$

where

$VAgNO_3$ is volume of $AgNO_3$ spent on titration, cm^3;

VNH_4CNS is volume NH_4CNS spent on titration, cm^3;

k is correction factor;

T is titrant titer, for NH_4CNS, g/cm^3;

m_{load} is weight of the substance portion to be determined.

Result of determining the hydrochloric acid content was the arithmetic mean of results of five parallel determinations presented in Table 4.

Table 4. Mass fraction of sulfuric acid in solution

№	Mass Fraction of HCL
1	10.05
2	9.33
3	9.45
4	9.17
5	9.78

Therefore, the average mass fraction of hydrochloric acid is 9.56%. Statistical processing of analysis results [1] is presented in Table. 5.

Table 5. Statistical Analysis of Research Results

Parameter	Indicator
Average Value, %	9.56
Absolute Measurement error, %	0.44
Relative Measurement error, %	4.6
Dispersion	0.13
Standard Divergence, %	0.36
Relative Standard Divergence	3.8
Confidence interval (Student's t-distribution),%	9,56 ± 0,45

Based on the results of the research, the obtained value of hydrochloric acid content in the mixture is close to true and does not exceed the maximum measurement error. Thus, determination of the mass fraction of hydrochloric acid by the Volhard method after its preliminary separation from the test three-component mixture, makes it possible to obtain a satisfactory result for this method.

[1] Дёрффель К. Op. cit.

Conclusions. The obtained results prove that when determining individual concentrations of sulfuric and hydrochloric acids in a three-component mixture, it is advisable to use the gravimetric method of analysis, which allows to obtain the mass fraction of individual inorganic acids in mixtures (solutions) within the allowable measurement error ($\Delta x_{max} \leq 3\sigma$). their sequential separation. Given the availability of equipment, simplicity and manufacturability, the proposed method of analysis of the objects submitted for research is an effective method of expert control of the content of inorganic acids that are subject to control measures.

Given importance of the scope and lack of comprehensive research in this area, we consider it quite promising and one that requires a broader interpretation, that will be the goal of our further research.

References

Aleksandrova, E. A., Gaidukova, N. G. (2019). *Analiticheskaia khimiia:* v 2 kn. Kn. 1: Khimicheskie metody analiza: uchebn. i prakt-m dlia priklad. bakalavr. 3-e izd., ispr. i dop. Moscow [in Russian].

Alemasova, A. S., Zaitsev, V. M., Yenalieva, L. Ia., Shchepina, N. D., Hozhdzinskyi, S. M. (2010). *Analitychna khimiia:* pidruch. dlia vnz. Donetsk [in Ukrainian].

Chebotarov, O. M., Shcherbakova, T. M., Huzenko, O. M. (2015). *Analitychna khimiia. Yakisnyi ta kilkisnyi analiz*: metod. vkaz-ky do lab. rob. dlia stud-v I—II kursiv zaoch. vid. khim. ta biol. f-v. Odesa [in Ukrainian].

Derffel, K. (1994). *Statistika v analiticheskoi khimii.* Moscow [in Russian].

Hyrlia, L. M., Kelina, S. Yu. (2012). *Analitychna khimiia:* navch. posib. Mykolaiv [in Ukrainian].

Kharitonov, Iu. Ia. (2014). *Analiticheskaia khimiia.* Analitika 2. Kolichestvennyi analiz. Fiziko-khimicheskie (instrumentalnye) metody analiza. Moscow [in Russian].

Lure, Iu. Iu. (1989). *Spravochnik po analiticheskoi khimii*. Moscow [in Russian].

Pilipenko, A. T., Piatnitckii, I. V. (1990). *Analiticheskaia khimiia*: v 2 kn. Kn. 1. Moscow [in Russian].

Prekursory i khimicheskie veshchestva, chasto ispolzuemye pri nezakonnom izgotovlenii narkoticheskikh sredstv i psikhotropnykh veshchestv (2020): doklad Mezhdunar. kom. po kontr. nad narkot. za 2019 g. o vypoln. st. 12 Konventcii OON o borbe protiv nezak. oborota narkot. sr-v i psikhotr. v-v 1988 g. Vena [in Russian].

Pro narkotychni zasoby, psykhotropni rechovyny i prekursory: Zakon Ukrainy vid 15.02.1995 r. № 60/95-VR (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/60/95-vr (data zvernennia: 10.06.2020) [in Ukrainian].

Pro zatverdzhennia pereliku narkotychnykh zasobiv, psykhotropnykh rechovyn i prekursoriv: Postanova KMU vid 06.05.2000 r. № 770 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/770-2000-p (data zvernennia: 10.06.2020) [in Ukrainian].

Tsyhanok, L. P., Bubel, T. O., Vyshnikin, A. B., Vashkevych, O. Yu. (2014). *Analitychna khimiia. Khimichni metody analizu*: navch. posib. Dnipropetrovsk [in Ukrainian].

Vasilev, V. P. (2009). *Analiticheskaia khimiia:* v 2 kn. Kn. 1: Titrimetricheskie i gravimetricheskii metody analiza: ucheb. dlia stud-v vuzov, obuch. po khim.-tekhnol. spetc. 7-e izd., stereotip. Moscow [in Russian].

І. М. Коротков

ПРОБЛЕМИ ВИЗНАЧЕННЯ КОНЦЕНТРАЦІЇ НЕОРГАНІЧНИХ КИСЛОТ У СУМІШАХ ПІД ЧАС ДОСЛІДЖЕННЯ ОБ'ЄКТІВ ЕКСПЕРТИЗИ

Запропоновано методику визначення масової частки неорганічних кислот — об'єктів експертного дослідження, а саме трьохкомпонентних сумішей двох сильних кислот — сульфатної та хлоридної — у водному розчині, визначено способи покращення результатів на етапах аналізу.

Ключові слова: прекурсори, масова частка, сульфатна (сірчана) кислота, соляна кислота, гравіметричний метод аналізу.

И. Н. Коротков

ПРОБЛЕМЫ ОПРЕДЕЛЕНИЯ КОНЦЕНТРАЦИИ НЕОРГАНИЧЕСКИХ КИСЛОТ В СМЕСЯХ ПРИ ИССЛЕДОВАНИИ ОБЪЕКТОВ ЭКСПЕРТИЗЫ

Чаще всего неорганические кислоты поступают на исследования для экспертизы материалов, веществ и изделий в виде индивидуальных водных смесей, однако, часть объектов составляют смеси, содержащие сильную и слабую кислоты или две сильные кислоты, что затрудняет процесс определения концентрации каждой из этих частей. Именно поэтому создание точной, правильной, воспроизводимой, экспрессной и простой методики определения массовой доли кислот, в частности серной и соляной,— необходимый и важный этап достоверной криминалистической оценки результатов исследования.

Для установления применимости методов гравиметрического анализа и интерпретации его результата для экспертизы были исследованы модельные трёхкомпонентные смеси, содержащие 10 % соляной, 40 % серной кислот в водном растворе. Серную кислоту определяли методом гравиметрического анализа: осаждением ионов SO_4^{2-} ионами Ba^{2+} с дальнейшим расчётом массовой доли кислоты, составившей 39,05 ± 0,99 %, что находится в пределах допустимой погрешности ($\Delta_{xmax} \leq 3\sigma$). Соляную кислоту

определяли методом Фольгарда, по результатам которого массовая доля кислоты составила 9,56±0,45 %, что находится в пределах допустимой погрешности ($\Delta_{xmax} \leq 3\sigma$).

Учитывая доступность оборудования, простоту и технологичность, предложенный метод анализа объектов, предоставленных на исследование, является эффективным методом экспертного контроля содержания неорганических кислот, подлежащих мерам контроля.

Ключевые слова: прекурсоры, массовая доля, серная кислота, соляная кислота, гравиметрический метод анализа.

Received by Editorial Board: 03.07.2020

Korotkov I. M. Problems of concentration determination of inorganic acids in a mixture while research on examining objects//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 348—357. DOI: https://doi.org/10.32353/khrife.2.2020.28.

DOI: https://doi.org/10.32353/khrife.2.2020.29
UDC 343.98:543.544

V. A. Rudniev,
PhD in Chemistry, Leading Researcher of Criminalistics Laboratory at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-2550-3515,
e-mail: vasiliy.rudniev@gmail.com
A. F. Klimchuk,
Senior Researcher of Laboratory of Criminalistics Laboratory at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-3472-953X,
e-mail: klimchuk.alla1965@gmail.com
O. D. Bui,
PhD in Chemistry, Leading Researcher of Criminalistics Laboratory at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-2053-3122, e-mail: b.olga.d.75@gmail.com
L. V. Nardid,
Senior Researcher of Laboratory of Criminalistics Laboratory at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-9789-8165, e-mail: nardidlily@gmail.com
V. V. Koval,
Leading Engineer at Ukrainian State Research Institute for Carbochemistry (UKHIN), Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-3771-3293, e-mail: kovalen79@gmail.com

Determination of quantitative content of charge stocks in gasoline and diesel fuel binary mixture

An approach to establishing quantitative indicators of the composition of gasoline and diesel fuel mixtures with determination of the content of charge stocks is presented. Correctness indicator of the method, as a measure of deviation from a true value, was 6.5% volume while studying the model sample. As an auxiliary method for qualitative determination of gasoline or diesel fuel, the method of fractional distillation (distillation) at atmospheric pressure was used.

Determination of the fractional composition of the mixtures was carried out under normal conditions for charge stocks as well as their mixtures with a concentration range of predominantly 10% volume. Research has shown a significant increase in the final boiling point temperature with availability of even a small amount of diesel fuel in gasoline as well as decrease in the initial boiling point when adding gasoline to diesel fuel.

© V. A. Rudniev, A. F. Klimchuk, O. D. Bui, L. V. Nardid, V. V. Koval, 2020

The study by gas-liquid chromatography method made it possible to establish an approximate boundary of gasoline components redistribution: diesel fuel mixtures when their proportions are changed. It was noted that the main redistribution of components occurs before and after adding n-Nonane which content in gasolines and diesel fuels is relatively small. Using the ratio of the sum of point areas eluting before n-Decane (without n-Nonane) and after n-Decane (including n-Nonane), considering unidentified ones, as the distribution coefficient of the source k components , it was possible to establish proportions of source components.

The k coefficient dependence on the content of diesel fuel is nonlinear. Transition to linear relationship in the coordinates of the linear logarithm of the k coefficient and the content of diesel fuel showed the presence of strong negative correlation with the values of the coefficient of reliability of approximation from -0.982 to -0.997 for model mixtures. The practical application of the k coefficient to determine the content of gasoline and diesel fuel can be recommended when constructing narrow calibration dependences in the range from 20 to 40 % (vol.) of the target component.

Keywords: oil product mixtures, gasoline, diesel fuel, gas-liquid chromatography, forensic examination of oil products.

Formulation of Research Problem. Forensic expert practice in researches on petroleum products and fuels and lubricants demonstrates the interest of customers of forensic examinations and researches in solving problems on quantitative determination of gasoline and diesel fuel in their binary mixture. Solving such a task is necessary for further monetary valuation of property or damage caused by negligence, technical malfunction or intentional corruption to petroleum products.

There is no algorithm for resolving such issues in current methods from the Register of methods of forensic examinations [1], as well as comprehensive information in literature are missing. This determines relevance of research to develop an approach to quantitative determination of the content of starting components in mixtures of gasoline and diesel fuel.

Analysis of Essential Researches and Publications. Basic qualitative and operational characteristics of motor fuel are regulated mainly by the state standards and the Technical regulation [2]. Using only technical requirements for

[1] Реєстр методик проведення судових експертиз/Міністерство юстиції України. URL: https://rmpse.minjust.gov.ua (date accessed: 23.05.2020).

[2] ДСТУ 7687:2015. Бензини автомобільні ЄВРО. Технічні умови. In force since 01.01.2016 р. Вид. офіц. Київ, 2015. 19 р. ; ДСТУ 7688:2015. Паливо дизельне ЄВРО. Технічні умови. In force since 01.01.2016 р. Вид. офіц. Київ, 2015. 16 р. ; Про затвердження Технічного регламенту щодо вимог до автомобільних бензинів, дизельного, суднових та котельних палив: Постанова КМУ від 01.08.2013 р. № 927 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/927-2013-п (date accessed: 23.05.2020).

petroleum products, it is impossible to quantify the impurity content. The main physicochemical parameters limiting mutual content of gasoline and diesel fuel in each other are the boiling point (for gasoline) and the flash point in a closed crucible (for diesel fuel) [1].

Successful attempt to quantify the content of diesel fuel in gasoline in the range from 5 to 50% by volume was made by researchers using the method of gas chromatography [2]. Essence of the proposed approach was to determine the ratio of the sum of the planes of the chromatographic peaks of high-boiling n-alkanes from $C_{12\ \text{(by number of carbon atoms)}}$ to C_{22} to the sum of the peak planes of toluene, xylenes and 1,2,4-trimethylbenzene.

Despite the similar to linear dependence of the obtained ratio on diesel fuel content as a component of mixture, this approach in modern conditions for a wide range of fuels is not suitable. This is facilitated by a significant variation in the content of aromatic hydrocarbons contained in gasoline. This method can be recommended only granting separate starting petroleum products to build a calibration dependence that is unacceptable for forensic purposes while studying mixtures with previously unknown starting components.

Analysis of foreign publications indicates interest in this problem mainly in the field of detection of unregulated impurities in fuels: for example, in *Catching Gasoline and Diesel Adulteration* [3] research paper noted availability of such impurities in gasoline and diesel fuel using gas chromatography (with experienced staff and the availability of a database of chromatographic profiles of petroleum products). In addition, importance of using the method of fractional distillation to detect impurities was emphasized. If foreign impurities are detected in petroleum products, viscosity values can also be used [4].

The method of gas chromatography with flame-ionization detection is one of the most common and universal in the analysis of petroleum products, it is advisable to use it to study the composition of mixtures of hydrocarbons with different fractional characteristics [5]. This method is suitable for the detection of impurities in some petroleum products, in particular gasoline. The use of two-

[1] Алиев Р. А., Белоусов В. Д., Немудров А. Г. Трубопроводный транспорт нефти и газа. 2-е изд., перераб. и доп. Москва, 1988. 368 p.

[2] Авакян А. В. Методика газохроматографического исследования бензинов в целях установления марки и факта смещения с другими топливами//*Экспертная практика и новые методы исследования:* Экспресс-информация. 1987. Вып. 5. P. 16—23.

[3] Tharby R., Akbar S., Kojima M. Catching Gasoline and Diesel Adulteration//*South Asia Urban Air Quality Management Briefing Note.* No. 7. Washington DC, 2002. P. 1—4.

[4] More B. P., Malve M. K., Toche R. B., Shinde D. B. Analysis of adulterant kerosene in diesel by kinematic viscosity measurement//*International Journal of Pharmacy and Biological Sciences*. 2012. No. 2. Is. 4. P. 256—261.

[5] Rudnev V. A., Boichenko A. P., Karnozhytskiy P. V. Classification of gasoline by octane number and light gas condensate fractions by origin with using dielectric or gas-chromatographic data and chemometrics tools//*Talanta*. 2011. Vol. 84. Is. 3. P. 963—970.

dimensional gas chromatography is a logical development of the method, as well as acceptable for the detection of impurities in automotive fuel [1].

While determining unregulated impurities, it was effective to combine instrumental methods, in particular IR spectroscopy with chemometric approaches to data processing [2]. The values of physicochemical parameters obtained by combining methods of IR and Raman spectroscopy with chemometrics [3] can be useful in qualitative analysis of unregulated impurities in fuel.

Article Purpose. Developing an approach to assessment of qualitative and quantitative content of gasoline and diesel fuel in their binary mixture based on the methods of gas chromatography and fractional composition.

Research task is to determine:

- correlation between composition of binary mixtures of gasoline and diesel fuel with fractional composition;
- optimal limit of differentiation of gasoline components from diesel fuel components on the gas chromatogram of their mixture;
- correlation between the ratio of total content of components on the chromatogram and content of the original petroleum products.

Main Content Presentation. *Preparation of model mixtures*. While research model mixtures prepared from gasoline and diesel fuel were used.

The following components and their proportions (ratio, content) were used to prepare model mixtures of oil products: gasoline and diesel fuel. A total of four samples of A-95-Euro5 gasoline (1 sample), A-92-Euro5 (2 samples), stable straight-run gas condensate gasoline (1 sample) and four samples of diesel fuel of ДП-Л- Euro5 brand were investigated.

The research included four mixtures of gasoline with diesel fuel, containing from 5 to 90% (vol.) of diesel fuel, as well as the initial components separately. The mixture was designated as follows: *ver. 1, ver. 2, ver. 3, ver. 4*. Mixture of ver. 4 was prepared using straight-run gas condensate gasoline. Samples of gasoline and diesel fuel for preparation of different series of mixtures were not repeated.

---

[1] Pedroso M. P., de Godoy L. A. F., Ferreira E. C., Poppi R. J., Augusto F. Identification of gasoline adulteration using comprehensive two-dimensional gas chromatography combined to multivariate data processing//*Journal of Chromatography A*. 2008. Vol. 1201. Is. 2. P. 176—182.

[2] Al-Ghouti M. A., Al-Degs Y. S., Amer M. Determination of motor gasoline adulteration using FTIR spectroscopy and multivariate calibration//*Talanta*. 2008. Vol. 76. Is. 5. P. 1105—1112 ; Khanmohammadi M., Garmarudi A. B., de la Guardia M. Characterization of petroleum based products by infrared spectroscopy and chemometrics//*Trends in Analytical Chemistry*. 2012. Vol. 35. P. 135—149 ; De Souza L. M., Mitsutake H., Gontijo L. C., Neto W. B. Quantification of residual automotive lubricant oil as an adulterant in Brazilian S-10 diesel using MIR spectroscopy and PLS//*Fuel*. 2014. Vol. 130. P. 257—262.

[3] Marinović S., Krištović M., Špehara B., Rukavina V., Jukić A. Prediction of diesel fuel properties by vibrational spectroscopy using multivariate analysis//*Journal of Analytical Chemistry*. 2012. Vol. 67. P. 939—949.

Fractional distillation. Researches on gasoline mixtures of and diesel fuel by fractional distillation were carried out at atmospheric pressure with using a device for fractional distillation of petroleum products АРН-ЛАБ-1 with recording of boiling points every 10% by volume.

Gas chromatography. Studies by gas chromatography were performed using a gas chromatograph «Кристалл-2000М» using the *Хроматэк-Аналитик 2.5* software to calculate chromatographic characteristics under the following technical conditions:

- detector type: flame ionization;
- gasoline pump: *Restek*, 50 м×0,25 mm;
- stationary phase: polydimethylsiloxane;
- detector temperature: 240 ° C;
- evaporator temperature: 230 ° C;
- carrier gas consumption: 20 ml/min.

Temperature programming:

- initial column temperature: 50 °C;
- heating rate I: 4°C/ min;
- heating rate I: 8 °C/ min;
- duration of isothermal part: 20 min.;
- heating rate: III: 5 °C/min;
- maximum column temperature: 290 °C;
- duration of analysis: 120 minutes

These chromatography conditions provide analysis of gasoline, diesel fuel, gas condensates, broad distillate fractions of oil.

Practical experience confirms possibility of analyzing petroleum products from gasoline to diesel fuel, gas condensates and broad distillate of oil fractions at the given temperature regime of the evaporator and detector registering the peaks of n-alkanes to $C_{33\ \text{(by number of carbon atoms)}}$.

At the same time, it is necessary to expect extension of service life of knots of the gas chromatograph in comparison with higher temperature modes.

Obtained results. Indicators of fractional composition are shown in Figs. 1—3 (see: pp. 363—364).

Data on mixtures of the ver. series. 3 is not given due to lack of samples for fractional distillation.

Analysis of obtained results allows to state the following:

- addition of diesel fuel to gasoline leads to a sharp increase in the temperature of the boiling end. The rise in boiling point is slow;
- addition of gasoline to diesel fuel leads to a sharp drop in the boiling point.

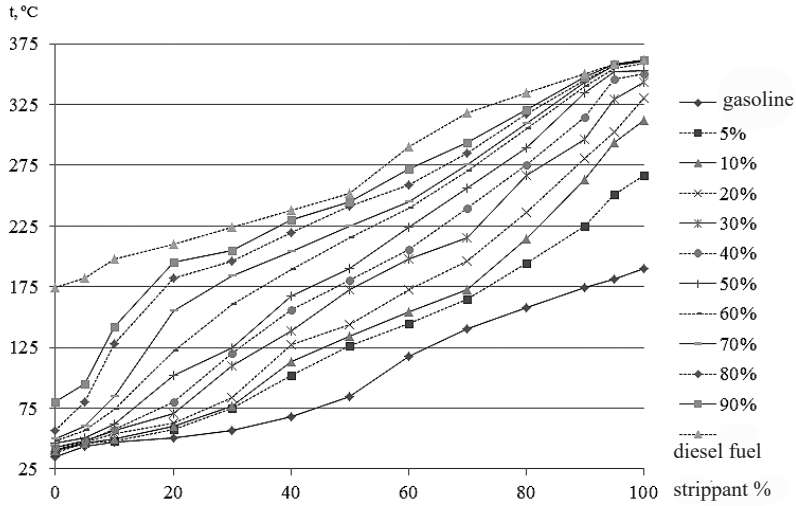


Fig. 1. Curves of fractional distillation of binary mixtures of gasoline and diesel fuel (ver. 1)

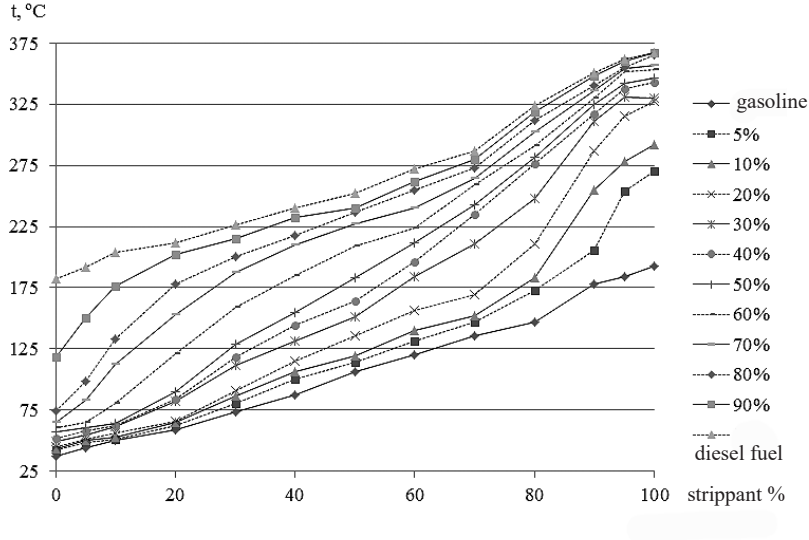


Fig. 2. Curves of fractional distillation of binary mixtures of gasoline and diesel fuel (ver. 2)

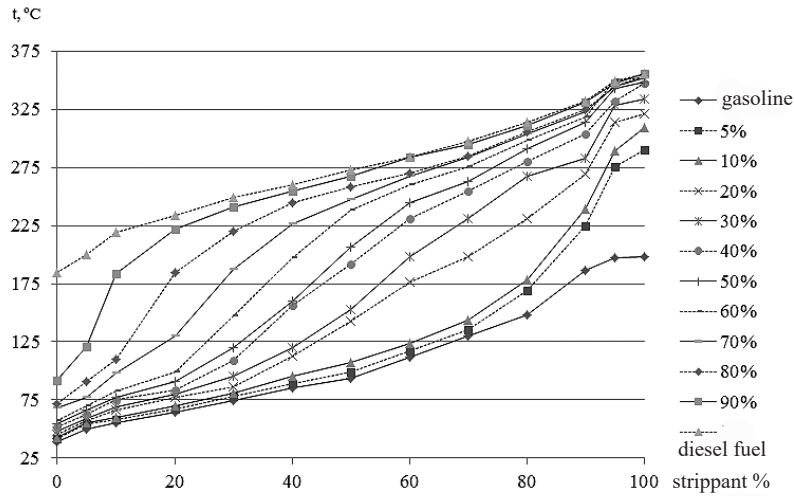


Fig. 3. Curves of fractional distillation of binary mixtures of gasoline and diesel fuel (ver. 4)

Using fractional distribution curves, it is possible to provide a preliminary classification estimate of the test sample for its belonging to a mixture based on gasoline and diesel fuel.

Visualization of the chromatographic composition of initial samples of gasoline and diesel fuel for the identified components is presented in Figs. 4—7. This range of quantitative content of mixtures from C_7 to C_{15} illustrates the redistribution of the component composition that occurs within a narrow range of components (less than the total range of components of gasoline and diesel fuel).

Marks in Figs. 4—7 (See pp. 374—375):

- 0 ... 100%: content of diesel fuel; 0% corresponds to original gasoline;
- content of components given as a percentage of the peak plane;
- integer values on the abscissa correspond to the number of carbon atoms in n-alkanes;
- intermediate values correspond to components eluted between the corresponding n-alkanes.

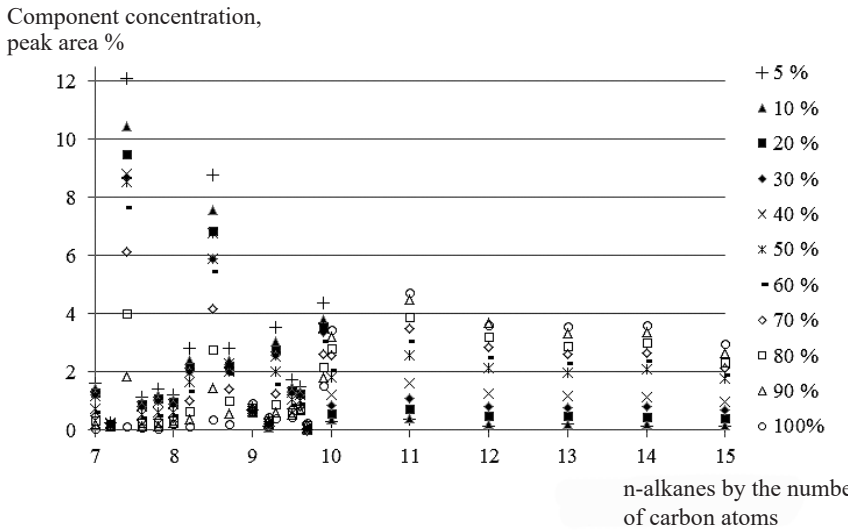


Fig. 4. Visualization of the component composition redistribution while transition from gasoline to diesel fuel in their mixtures (ver. 1)

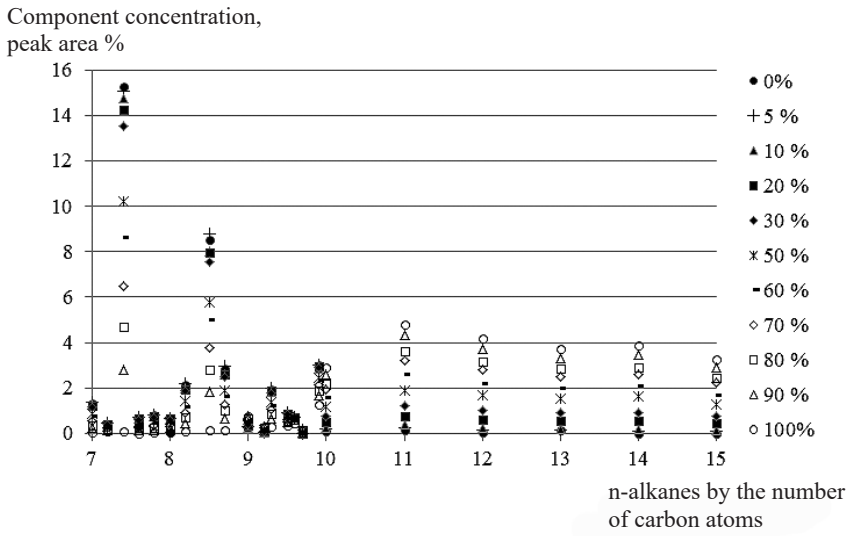


Fig. 5. Visualization of the redistribution of component composition while transition from gasoline to diesel fuel in their mixtures (ver. 2)

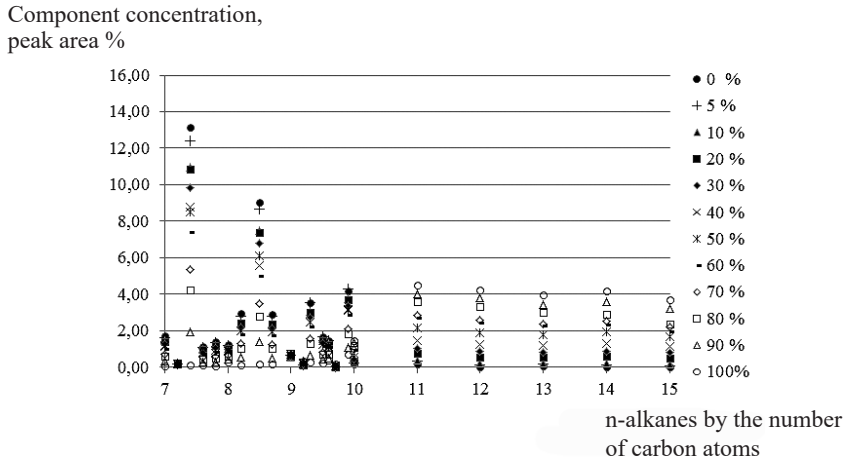


Fig. 6. Visualization of the component composition redistribution while transition from gasoline to diesel fuel in their mixtures (ver. 3)

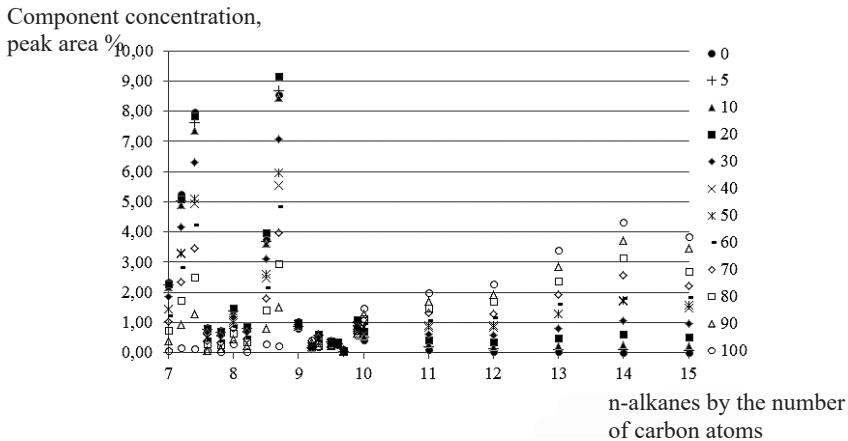


Fig. 7. Visualization of the component composition redistribution while transition from gasoline to diesel fuel in their mixtures (ver. 4)

Analysis Fig. 4–7 makes it possible to note that the content of some components of the predominant gasoline composition prevails over the content of similar components up to н-C_9—н-C_{10}. Starting from these n-alkanes (after н-C_{10}), there is a predominance of diesel fuel components. Therefore, this range can be considered an imaginary boundary between gasoline and diesel fuel on the chromatogram: gasoline contains heavier components and diesel fuel are lighter ones.

Investigating the principle of the known approach to determine the composition of mixtures of gasoline and diesel fuel [1], by analogy determined the

[1] Авакян А. В. Op. cit.

coefficient that would take into account the ratio of components to the specified limit and after. At the same time, the peaks of all components on the chromatogram were taken into account are identified and unidentified. The proposed coefficient (k) was calculated as follows:

$$k = \frac{\Sigma w_i}{\Sigma w_j} \quad (1),$$

where:

Σw_i is quantitative content of components up to н-C_{10} (except н-C_9);

Σw_i is the quantitative content of components from н-C_{10} inclusive and higher (including н-C_9). Quantitative content was calculated by the plane normalization method without correction factors.

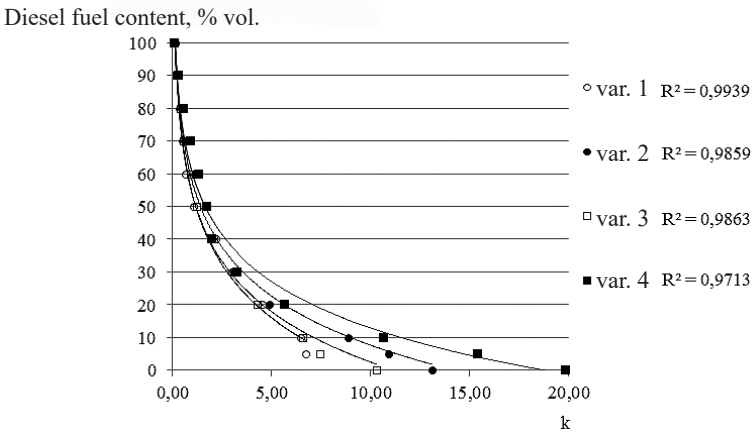


Fig. 8. Dependence of diesel fuel content on k index

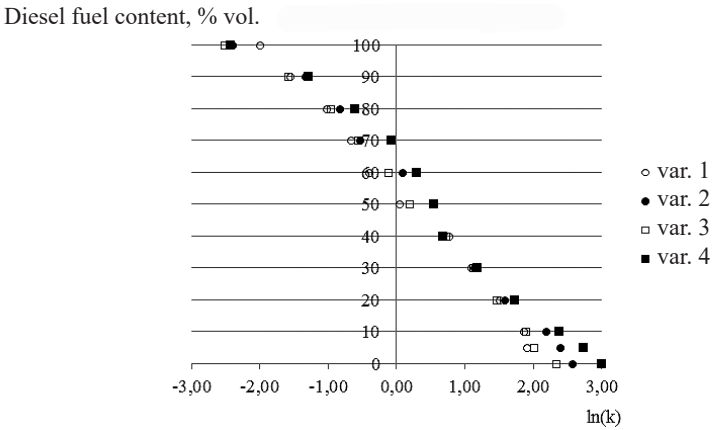


Fig. 9. Dependence of diesel fuel content on values of linear logarithm of k index

While applying this approach, distribution of the k value for different levels of diesel fuel content was obtained (Fig. 8). The dependence of diesel fuel content on the k index is obviously nonlinear. The values of approximation reliability by the logarithmic function (*Microsoft Excel*) are demonstrated in Fig. 8. In order to bring the distribution closer to the linear form, dependence of the diesel fuel content on values of the k linear logarithm was constructed (Fig. 9). The values of correlation coefficient for all series of mixtures were respectively –0.997; –0.993; –0.992; -0.982 indicating a strong negative correlation.

Given the similarity of obtained dependences for mixtures of different samples of gasoline and diesel fuel, they can be used for preliminary assessment while determining the composition of mixtures (gasoline and diesel fuel) provided that concentration limits for calibration. In general, to build a calibration dependence of diesel fuel content in a mixture with gasoline (or vice versa) on valuesof the logarithm of the k index, it is advisable to use narrow concentration ranges (in the range of 20-40% by volume). Metrological characteristics should be calculated according to the research customer requirements.

In Fig. 10 indicates an example of determining content of diesel fuel in a mixture with gasoline. The model mixture (imitation of an unknown sample) contained 35% of diesel fuel. Previously, calibration dependences of diesel fuel content on ln(k) were constructed, dependence equation was determined and the diesel fuel content in the model sample was calculated based on the research results by gas-liquid chromatography. In the equation with Fig. 10: x–ln(k), y is content of diesel fuel, % vol.

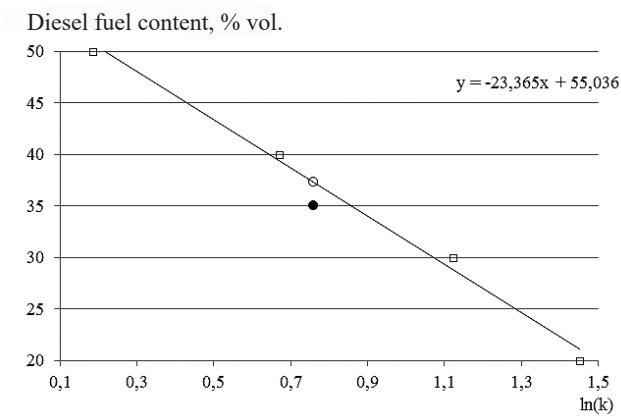


Fig. 10. Determination of diesel fuel content in model mixture

Calculated content of diesel fuel was 37.3%. Correctness of definition as a measure of deviation of obtained value from the real (given) calculated by formula 2, it was 6.5% (relative).

$$A = \frac{|w_x - w_1|}{w_1} \cdot 100\% \quad (2),$$

where:

A is correctness;

w_x is calculated value of diesel fuel content;

w1 is real (specified) content of diesel fuel.

It should be noted that (depending on composition of gasoline and diesel fuel) researcher can use a different range of components to obtain the k index while of calibration dependence construction than recommended (different imaginary limit of gasoline and diesel fuel).

Conclusions. Performed researches have indicated that combination of fractional distillation methods at atmospheric pressure and gas chromatography is effective in analysis of binary mixtures (gasoline and diesel fuel). In particular, the following is defined:

- qualitative signs of gasoline mixture and diesel fuel can be detected using the method of fractional distillation at atmospheric pressure. While adding diesel fuel to gasoline, there is a significant increase in the temperature of the boiling end and while adding gasoline to diesel fuel: temperature decrease in beginning of boiling;
- basis for quantitative assessment of the gasoline content and diesel fuel is the method of gas chromatography. While quantifying the source of petroleum products, it is recommended to apply a relative coefficient that takes into account the content of components characteristic mainly of diesel fuel and gasoline. In order to build a calibration dependence, it is advisable to use logarithmic indicators of the specified coefficient. It is recommended to build the dependence in the range of concentrations limited to 20-40% (vol.) of target component.

The results presented in this article were used in the development of methods for forensic research of binary and complex mixtures of petroleum products (R&D state registration № 0117U004745) that complements the current most common method of research on petroleum products and fuels and lubricants [1].

References

Al-Ghouti, M. A., Al-Degs, Y. S., Amer, M. (2008). Determination of motor gasoline adulteration using FTIR spectroscopy and multivariate calibration. *Talanta.* Vol. 76. Is. 5.

Aliev, R. A., Belousov, V. D., Nemudrov, A. G. (1988). *Truboprovodnyi transport nefti i gaza.* 2-e izd., pererab. i dop. Moscow [in Russian].

Avakian, A. V. (1987). Metodika gazokhromatograficheskogo issledovaniia benzinov v tceliakh ustanovleniia marki i fakta smeshcheniia s drugimi toplivami. *Ekspertnaia praktika i novye metody issledovaniia: Ekspress-informatciia.* Vyp. 5 [in Russian].

[1] Золотаревская И. А., Шевырева Е. В., Карабач М. Л. и др. Криминалистическое исследование нефтепродуктов и горюче-смазочных материалов: метод. пособ. для экспертов, следоват. и судей. Москва, 1987. Вып. 1, 2. 197 p.

Balakrishnan, J., Balasubramanian, V. (2011). Analytical technique for detection of motor gasoline adulteration using gas chromatography-detailed hydrocarbon analysis (DHA). *Journal of Applied Chemical Research.* Vol. 19. Is. 4.

De Souza, L. M., Mitsutake, H., Gontijo, L.C., Neto, W. B. (2014). Quantification of residual automotive lubricant oil as an adulterant in Brazilian S-10 diesel using MIR spectroscopy and PLS. *Fuel.* Vol. 130.

DSTU 7687:2015. *Benzyny avtomobilni YeVRO. Tekhnichni umovy.* (2015). Chynnyi vid 01.01.2016 r. Vyd. ofits. Kyiv [in Ukrainian].

DSTU 7688:2015. *Palyvo dyzelne YeVRO. Tekhnichni umovy.* (2015). Chynnyi vid 01.01.2016 r. Vyd. ofits. Kyiv [in Ukrainian].

Khanmohammadi, M., Garmarudi, A. B., de la Guardia, M. (2012). Characterization of petroleum based products by infrared spectroscopy and chemometrics. *Trends in Analytical Chemistry.* Vol. 35.

Marinović, S., Krištović, M., Špehara, B., Rukavina, V., Jukić, A. (2012). Prediction of diesel fuel properties by vibrational spectroscopy using multivariate analysis. *Journal of Analytical Chemistry.* Vol. 67.

More, B. P, Malve, M. K., Toche, R. B., Shinde, D. B. (2012). Analysis of adulterant kerosene in diesel by kinematic viscosity measurement. *International Journal of Pharmacy and Biological Sciences.* No. 2. Is. 4.

Pedroso, M. P., de Godoy, L. A. F., Ferreira, E. C., Poppi, R. J., Augusto, F. (2008). Identification of gasoline adulteration using comprehensive two-dimensional gas chromatography combined to multivariate data processing. J*ournal of Chromatography A.* Vol. 1201, Is. 2.

Pro zatverdzhennia Tekhnichnoho rehlamentu shchodo vymoh do avtomobilnykh benzyniv, dyzelnoho, sudnovykh ta kotelnykh palyv: Postanova KMU vid 01.08.2013 r. № 927 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/927-2013-p (data zvernennia: 23.05.2020) [in Ukrainian].

Reiestr metodyk provedennia sudovykh ekspertyz. Ofitsiinyi sait Ministerstva yustytsii Ukrainy. URL: https://rmpse.minjust.gov.ua (data zvernennia: 23.05.2020) [in Ukrainian].

Rudnev, V. A., Boichenko, A. P., Karnozhytskiy, P. V. (2011). Classification of gasoline by octane number and light gas condensate fractions by origin with using dielectric or gas-chromatographic data and chemometrics tools. *Talanta.* Vol. 84. Is. 3.

Tharby, R., Akbar, S., Kojima, M. (2002). Catching Gasoline and Diesel Adulteration. *South Asia Urban Air Quality Management Briefing Note.* No. 7. Washington DC.

Zolotarevskaia, I. A., Shevyreva, E. V., Karabach, M. L. i dr. (1987). *Kriminalisticheskoe issledovanie nefteproduktov i goriuche-smazochnykh materialov:* metod. posob. dlia ekspertov, sledovat. i sudei. Moscow. Vyp. 1, 2 [in Russian].

В. А. Руднєв, А. Ф. Клімчук, О. Д. Буй, Л. В. Нардід, В. В. Коваль

ВИЗНАЧЕННЯ КІЛЬКІСНОГО ВМІСТУ ВИХІДНИХ НАФТОПРОДУКТІВ У БІНАРНІЙ СУМІШІ БЕНЗИНУ Й ДИЗЕЛЬНОГО ПАЛИВА

Викладено підхід до кількісної оцінки складу суміші бензину й дизельного палива із застосуванням методу газорідинної хроматографії з полум'яно-іонізаційним детектуванням. Основою підходу є виокремлення на хроматограмі суміші діапазонів часу утримання компонентів, що більшою

мірою характерно окремо для бензинів і дизельного палива, визначення їх сумарних кількісних хроматографічних характеристик та обчислення коефіцієнта, який характеризує співвідношення вмісту бензину й дизельного палива. Визначено нелінійну залежність такого коефіцієнта від вмісту вихідних нафтопродуктів. Отримане значення правильності визначення за запропонованим підходом склало 6,5 % щодо заданого вмісту дизельного палива у суміші з бензином. Як допоміжний метод під час якісного визначення бензину або дизельного палива використано метод фракційної перегонки (дистиляції) за атмосферного тиску.

Ключові слова: суміші нафтопродуктів, бензин, дизельне паливо, газорідинна хроматографія, судова експертиза нафтопродуктів.

В. А. Руднев, А. Ф. Климчук, О. Д. Буй, Л. В. Нардид, В. В. Коваль

ОПРЕДЕЛЕНИЕ КОЛИЧЕСТВЕННОГО СОДЕРЖАНИЯ ИСХОДНЫХ НЕФТЕПРОДУКТОВ В БИНАРНОЙ СМЕСИ БЕНЗИНА И ДИЗЕЛЬНОГО ТОПЛИВА

Изложен подход к установлению количественных показателей состава смесей бензина и дизельного топлива с определением содержания первичных нефтепродуктов. Показатель правильности метода, как мера отклонения от истинного значения, при исследовании модельного образца составил 6,5 % по объёму. В качестве вспомогательного метода при качественном установлении бензина или дизельного топлива использован метод фракционной перегонки (дистилляции) при атмосферном давлении.

Фракционный состав смесей определяли при обычных условиях для исходных нефтепродуктов, а также их смесей с интервалом концентраций преимущественно 10 % по объёму. Исследования показали существенное увеличение температуры конца кипения при наличии даже небольшого количества дизельного топлива в бензине, а также уменьшение температуры начала кипения при добавлении бензина к дизельному топливу.

Исследование методом газожидкостной хроматографии позволило установить ориентировочную границу перераспределения компонентов смесей бензина и дизельного топлива при изменении их пропорций. Отмечено, что основное перераспределение компонентов происходит до и после н-нонана, содержание которого в бензинах и дизельных топливах относительно невелико. Использование отношения суммы площадей всех пиков, элюирующихся до н-декана (без н-нонана) и после н-декана (включая н-нонан), в том числе неидентифицированных, в качестве коэффициента распределения исходных компонентов k позволило устанавливать пропорции исходных компонентов.

Зависимость коэффициента k от содержания дизельного топлива — нелинейная. Переход к линейной зависимости в координатах линейного логарифма коэффициента k и содержания дизельного топлива показал наличие сильной отрицательной корреляции со значениями коэффициента

достоверности аппроксимации от –0,982 до –0,997 для модельных смесей. Применение на практике коэффициента k для определения содержания бензина и дизельного топлива может быть рекомендовано при построении узких градуировочных зависимостей в диапазоне 20—40 % (об.) целевого компонента.

Ключевые слова: смеси нефтепродуктов, бензин, дизельное топливо, газожидкостная хроматография, судебная экспертиза нефтепродуктов.

Received by Editorial Board: 28.05.2020

Rudniev V. A., Klimchuk A. F., Bui O. D., Nardid L. V., Koval V. V. Determination of quantitative content of charge stocks in gasoline and diesel fuel binary mixture// *Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 358—372. DOI: https://doi.org/10.32353/khrife.2.2020.29.

DOI: https://doi.org/10.32353/khrife.2.2020.30
UDC 004:343.575

M. S. Zelena,
Principal Forensic Expert of the Laboratory of Forensic Information Technology (FIT) at Kyiv Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine,
e-mail: khareta2010@gmail.com

Research on computer equipment and software products in investigation of crimes related to illegal trafficking of drugs, psychotropic substances or their analogues

This article outlines current issues of research on computer traces in the investigation of crimes at the stage of pre-trial investigation related to illegal trafficking of narcotic drugs, psychotropic substances or their analogues. The main ways of conducting drug trafficking in Ukraine using modern information technologies, that is, using computer technology (mostly mobile devices, personal portable computers) and software products (programs for communicating by means of calls and messages through the Internet, Web browsers, etc.) on the World Wide Web are analyzed. Based on the analysis of research and publications of scientists as well as on the basis of empirical research during computer forensic investigations connected with investigation of illegal distribution of narcotic drugs, methods of illicit goods distribution on the Internet along with methods for investigating computer technologies, which directly relate to drug trafficking using modern information technologies, has been considered. Types of data that can be extracted using specialized software in laboratories of computer research during computer forensic investigation, and which, in turn, can function as factual data and is the evidence of commission of crimes related to drug trafficking, psychotropic substances or their analogues are considered, namely, we are talking about such data as: information from messenger programs, web browsers, text messages, as well as from user files (including graphic, audio and video files); In addition, guiding questions that can be addressed to a forensic expert while computer forensic investigation in criminal investigations related to illegal production, manufacture, purchase, storage, transportation, transfer, sale of narcotic drugs, psychotropic substances or their analogues are suggested.

Keywords: computer forensic investigation, information technologies, narcotic drugs, psychotropic substances, drug trafficking, illicit trafficking, controlled substances.

Formulation of Research Problem. Today, humanity uses the latest information technology in a variety of areas of its activities including illegal that do not benefit society but only harm: for example, in the field of drug trafficking

© M. S. Zelena, 2020

that is carried out on Internet. The latter is used as a platform for distribution of narcotic drugs, psychotropic substances or their analogues. The sale of controlled substances via Internet involves use of the latest technologies that are constantly evolving and changing. Therefore, there is a need for specific expertise and appointment of computer forensic analyses for effective investigation of crimes related to the illicit trafficking of narcotic drugs, psychotropic substances or their analogues.

Analysis of Essential Researches and Publications. Issues of investigation of crimes related to the circulation of narcotic drugs, psychotropic substances or their analogues with the help of the latest information technologies were studied by: S. Lapta, O. Yukhno, V. Malyarova, S. Lozova, T. Matyushkova, V. Guseva, I. Krepakov, V. Kikinchuk, S. Moklyak, S. Albul, D. Avramyshyna, O. Makhnytskyi[1] and others. However, the issue of forensic science possibilities regarding computer hardware and software products that contribute to investigation of these crimes is extremely poorly covered.

This **Article Purpose** is to determine the features of research on computer technology while forensic computer analysis in investigation of crimes related to drug trafficking on the Internet, as well as coverage of modern slang names (terms) of drugs and psychotropic substances used in illicit trafficking.

Main Content Presentation. Under influence of the latest information technologies, illicit trafficking of controlled substances is changing and its development is gaining momentum. Internet has become widely used for their distribution. With the help of the latter, illicit sale of drugs has been carried out for

[1] E.g., Лапта С. П. Використання Інтернету як інструмента незаконного продажу наркотичних засобів та сильнодіючих речовин//*Сучасні тенденції розвитку криміналістики та кримінального процесу:* тези доп. Міжнар. наук.-практ. конф. до 100-річ. від дня народж. проф. М. В. Салтевського (Харків, 08.11.2017). Харків, 2017. P. 114—116 ; Юхно О. О., Матюшкова Т. П., Коршенко В. А. та ін. Особливості розслідування злочинів, пов'язаних із незаконним обігом наркотичних засобів чи психотропних речовин із використанням сучасних телекомунікаційних та інших технологій: метод. рек./за заг. ред. О. О. Юхна. Харків, 2019. 56 p. ; Малярова В. О., Лапта С. П., Лозова С. М. та ін. Особливості розслідування незаконного виробництва, виготовлення, придбання, зберігання, перевезення, пересилання чи збуту наркотичних засобів, психотропних речовин або їх аналогів: метод. рекоменд. для практ. підрозд. Нацполіції України/за заг. ред. В. В. Кікінчука. Харків, 2017. 76 p. ; Мокляк С. В. Особливості збуту наркотичних засобів, психотропних речовин або їх аналогів, що вчиняється організованими групами//*Науковий вісник Херсонського державного університету.* Серія: Юридичні науки. 2018. Вип. 1. Т. 2. P. 77—80 ; Албул С. В., Поляков Є. В., Щурат Т. Г. Протидія безконтактному способу розповсюдження наркотичних засобів, психотропних речовин, їх аналогів і прекурсорів за допомогою мережі Інтернет: метод. рекоменд. Одеса, 2018. 21 p. ; Аврамишина Д. О. Незаконний обіг наркотичних речовин в мережі Internet: реалії сьогодення//*IT Право: проблеми і перспективи розвитку в Україні* (третя Міжнар. щоріч. конф.). (Львів, 07.12.2018). URL: http://aphd.ua/publication-565 (date accessed: 20.06.2020) ; etc.

many years but previously mostly used the so-called *Dark net:* a hidden segment of the network that cannot be connected through a regular browser (provides an anonymous platform for trafficking in illegal goods and services [1]). However, after law enforcement began to actively close the most popular darknet sites for drug trafficking, the drug business introduced new ways to sell illicit substances through programs (applications) for exchanging messages and calls: such as *Telegram, Instagram, Viber*, *WhatsApp* and more. Compared to the darknet, many more users have access to such messengers, so this method can become widespread in distribution of drugs.

Popularity of this method for the illicit distribution of drugs is obvious, because it has certain advantages over traditional sales: attracting minimal financial resources; expanded range of simultaneous communication of drug traffickers with future buyers; reducing the risk of exposing the seller and as a consequence, reducing likelihood of his prosecution [2].

This way of doing business starts with creating anonymous accounts in messengers, web addresses, chatbots, etc., through which they communicate with customers. The names of such accounts are popularized in places of large crowds, most often on the walls of buildings, fences, public transport stops (in particular, near schools) and so on. Orders and photocopies of payment receipts are sent to the so-called addresses indicated by drug traffickers. After receiving the funds in the bank account, the seller informs the place where you can find the order. Such a message is preferably a geolocation and a photograph of the exact location. In Ukraine, this method is now called "laying"[3] (hiding in various, hidden from human attention, places where prohibited substances are masked or packaged so as not to attract attention, in order to avoid their removal by outsiders) [4].

Therefore, direct contact with the client traders of banned substances nullify. Increased relevance in the fight against such a scheme of illegal trade is due to the sale of drugs to minors.

Sale or purchase of narcotic drugs, psychotropic substances or their analogues, according to Art. 307 of the Criminal code of Ukraine [5] is punished by imprisonment for a period from 4 to 8 years and if the buyer or seller is minor, the term of punishment increases, namely: from 6 up to 10 years.

Activists from time to time personally try to fight such a scheme of trade, destroying the advertising of criminals, thus reducing the promotion (for example, chatbots). However, there is no guarantee that advertising will not

[1] Drugs and the darknet: a growing threat to health and security//*European Monitoring Centre for Drugs and Drug Addiction*. Lisbon, 2017. 85 p.

[2] Лапта С. П. Op. cit.

[3] Аврамишина Д. О. Op. cit.

[4] Мокляк С. В. Op. cit.

[5] Кримінальний кодекс України: Закон України від 05.04.2001 р. № 2341-III// *Відомості Верховної Ради України (ВВР).* 2001. № 25—26. Ст. 131.

reappear here [1]. Law enforcement officials are actively working to identify places of sale of illicit substances, detention of persons suspected of drug distribution [2], periodically report on the detention of a graffiti dealer. However, given the number of links (particularly at public transport stops), the problem of such a struggle remains open and relevant.

The role of forensic examination of narcotic drugs, psychotropic substances, their analogues and precursors is leading in the fight against illicit trafficking in controlled substances (in particular, in their sale). However, forensic computer forensics is no less important, as while detention of suspects, law enforcement officers often seize, in addition to drugs, mobile phones, laptops and other gadgets that could be used in illegal activities [3] (searches in criminal proceedings for the fact of sale of narcotic drugs, psychotropic substances, their analogues and precursors via Internet should be aimed at identifying items that indicate the use of computer equipment and means of communication for illegal purposes) [4].

Research on open Internet sources, generalizations of graffiti jargon (street names of controlled substances) on the walls of buildings, fences, etc. found that various groups of drugs criminals call human Russian-speaking names, such as: “Uncle Fyodor”, “Marivanna”, “Kolya” and etc. And some names of controlled substances are usually coded by common household terms, in particular: “buckwheat”, “plasticine”, “green”, “powder”, etc., or “road”, “heel”, “check” that mean doses of drugs [5].

In messengers, drug traffickers leave traces of illicit trafficking, using encrypted (slang) names (usually Russian words) of drugs. Today it is mainly as follows: “ice”, “ampha”, “hair dryer”, “speeds”, “spidulin”, “white”, “bash”, “rubbish”, “plan”, “heel”, “ganja”, “ganjubas”,“kel”,“spice”,“mulka”,“ dur ”,“eshka”,“wheels ”,“coconut”,“chalk”,“crystal ,“met ,“straw ,“candy , “board”, “brand”, “square”, “pin”, “cone”, “cone”, etc. [6].

---

[1] Антинаркотична мобілізація: у Вінниці збираються на рейд проти реклами наркотиків/Інформаційний портал Vежа. URL: https://vezha.ua/antynarkotychna-mobilizatsiya-u-vinnytsi-zbyrayutsya-na-rejd-proty-reklamy-narkotykiv (date accessed: 20.06.2020).

[2] Оголошення про збут наркотиків через популярний месенджер виявилися пасткою шахраїв/Офіційний сайт поліції Донеччини. URL: http://police.dn.ua/news/view/ogoloshennya-pro-zbut-narkotikiv-cherez-populyarnij-mesendzher-viyavilisya-pastkoyu-shahraiv (date accessed: 24.06.2020).

[3] Овчинникова О. В. Особенности расследования сбыта наркотических средств, совершенных с использованием сети Интернет//*Правопорядок: история, теория, практика.* 2018. Т. № 1 (16). P. 94—98.

[4] Малярова В. О., Лапта С. П., Лозова С. М. та ін. Op. cit.

[5] Дядя Фёдор, Єшка та заїхати за порохом: навіщо у Нацполіції склали словник наркосленгу. Інфографіка//*Українська правда. Життя.* URL: https://life.pravda.com.ua/society/2019/07/1/237392 (date accessed: 24.06.2020).

[6] Терминология и жаргон наркоманов/Официальный сайт LifeClinic. URL: http://oknb.com.ua/article21.html (date accessed: 24.06.2020).

Author gives examples of evidence that can be extracted from computer technology based on the results of forensic computing:

1) information from messenger programs for communication on the Internet. Possible offers for the purchase of narcotic substances (in the form of messages, graphics), data on availability of certain types of controlled substances that in the future can be sale subject etc.; left to the buyer; proposals can specify methods of supply of substances and the payment system [1] and information about the said proposals can be placed both in open and encrypted form (using slang) that is more common; there can be direct advertising of the purchase of drugs (textual, graphic or any other information describing certain types of illicit substances, offering to purchase them in any form and in any way) [2]; In addition, correspondence can contain information about the Internet resource addresses or e-mail, codes, conditional terms which helps to contact the drug dealer.

   The reports also agree on the type, volume, price, payment, methods and time of drug transfer. Such communication is mutual for the participants in drug trafficking, short-term or long-term, provided that certain persons are in constant contact with the purpose of systematic sale of substances [3]. Evidential information can take the form of text messages, photographs depicting the location of the agreed place, where the seller or his accomplice has previously made a so-called laying;
2) information from web browsers, in particular data from the history of web browsing. It makes it possible to find out the fact of visiting special Internet resources for drug trafficking, searching for a person wishing to purchase drugs, information about their sale on various websites, fact of determining a special Internet browser: *Tor Browser* [4], on the computer provided for examination allows to access hidden Internet sites selling drugs;
3) information from text messages (SMS-messages from mobile devices). With this method of communication, the seller often informs about bank details to pay for illegal goods;
4) information from user files. It is possible to have graphic images, namely the so-called "laying" with the specified coordinates of their exact location.

In view of the above, in order to appoint a forensic examination, initiator should determine the specific subjects, types of forensic examination and a list of issues that need to be clarified, that in forensic computer examination directly depend on information nature that can be seized.

---

[1] Албул С. В., Поляков Є. В., Щурат Т. Г. Op. cit.

[2] Глушков Е. Л. Сбыт наркотических средств бесконтактным способом посредством сети Интернет: пути выявления и раскрытия//*Теоретические и прикладные аспекты противодействия преступности органами внутренних дел.* 2018. № 2. P. 45—53.

[3] Юхно О. О., Матюшкова Т. П., Коршенко В. А. та ін. Op. cit.

[4] Tor/Вікіпедія. URL: https://uk.wikipedia.org/wiki/Tor (date accessed: 22.06.2020).

Thus, in order to appoint forensic computing examination while investigating crimes related to drug trafficking on Internet, it is important that correctness of the questions asked by the initiator in the resolution are important. Here are some tentative questions.

For mobile devices: "Does the mobile phone memory contain text messages, web history, Internet messages, e-mails, and user files (audio, video, and graphics) among the available and deleted information?"

For PC system units, laptops: "Does the drive of the object submitted for examination contain Internet messages and web history among the available and restored information?"

For both options, you can also formulate a target question: "Does the drive of object provided for examination contain information on the following keywords and phrases. ... (indicate necessary keywords, which may include, in particular, slang names of drugs, psychotropic substances or their analogues mentioned above)?"

Conclusions. Illegal activities related to drug trafficking leave behind certain types of computer "traces" on Internet, that can be factual data in the investigation of crimes related to illegal production, manufacture, acquisition, storage, transportation , shipment or sale of narcotic drugs, psychotropic substances or their analogues. In this regard, computer forensics is relevant.

The most commonly used slang names of drugs covered in the article today will help the initiator of the examination to formulate targeted questions that will increase the relevance and effectiveness of such research in the investigation of crimes related to illicit trafficking in controlled substances on Internet.

There is a list of data that can be extracted from hardware based on the results of forensic computing and indicative questions but this is not exhaustive, as in the process of investigation and research, new circumstances arise. Therefore, the list of issues in this area should be agreed with the expert units that will be involved in forensic computing.

References

Albul, S. V., Poliakov, Ye. V., Shchurat, T. H. (2018). *Protydiia bezkontaktnomu sposobu rozpovsiudzhennia narkotychnykh zasobiv, psykhotropnykh rechovyn, yikh analohiv i prekursoriv za dopomohoiu merezhi Internet:* metod. rek. Odesa [in Ukrainian].

Antynarkotychna mobilizatsiia: u Vinnytsi zbyraiutsia na reid proty reklamy narkotykiv. *Informatsiinyi portal Vezha.* URL: https://vezha.ua/antynarkotychna-mobilizatsiya-u-vinnytsi-zbyrayutsya-na-rejd-proty-reklamy-narkotykiv (data zvernennia: 20.06.2020) [in Ukrainian].

Avramyshyna, D. O. (2018). Nezakonnyi obih narkotychnykh rechovyn v merezhi Internet: realii sohodennia. *IT Pravo: problemy i perspektyvy rozvytku v Ukraini* (tretia Mizhnar. shchorich. konf.). Lviv. URL: http://aphd.ua/publication-565 (data zvernennia: 20.06.2020) [in Ukrainian].

Diadia Fedor, Yeshka ta zaikhaty za porokhom: navishcho u Natspolitsii sklaly slovnyk narkoslenhu. Infohrafika. *Ukrainska pravda. Zhyttia.* URL: https://life.pravda.com.ua/society/2019/07/1/237392 (data zvernennia: 24.06.2020) [in Ukrainian].

Drugs and the darknet: a growing threat to health and security. (2017). European Monitoring Centre for Drugs and Drug Addiction. Lisbon.

Glushkov, E. L. (2018). Sbyt narkoticheskikh sredstv beskontaktnym sposobom posredstvom seti Internet: puti vyiavleniia i raskrytiia. *Teoreticheskie i prikladnye aspekty protivodeistviia prestupnosti organami vnutrennikh del.* № 2 [in Russian].

Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 r. № 2341-III (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* 2001. № 25—26. St. 131 [in Ukrainian].

Lapta, S. P. (2017). Vykorystannia Internetu yak instrumenta nezakonnoho prodazhu narkotychnykh zasobiv ta sylnodiiuchykh rechovyn. *Suchasni tendentsii rozvytku kryminalistyky ta kryminalnoho protsesu:* tezy dop. Mizhnar. nauk.-prakt. konf. do 100-richchia vid dnia narodzh. prof. M. V. Saltevskoho (Kharkiv, 08.11.2017). Kharkiv [in Ukrainian].

Maliarova, V. O., Lapta, S. P., Lozova, S. M. ta in. (2017). *Osoblyvosti rozsliduvannia nezakonnoho vyrobnytstva, vyhotovlennia, prydbannia, zberihannia, perevezennia, peresylannia chy zbutu narkotychnykh zasobiv, psykhotropnykh rechovyn abo yikh analohiv*: metod. rek. dlia prakt. pidroz. Natspolitsii Ukrainy. V. V. Kikinchuk (ed.). Kharkiv [in Ukrainian].

Mokliak, S. V. (2018). Osoblyvosti zbutu narkotychnykh zasobiv, psykhotropnykh rechovyn abo yikh analohiv, shcho vchyniaietsia orhanizovanymy hrupamy. *Naukovyi visnyk Khersonskoho derzhavnoho universytetu.* Seriia: Yurydychni nauky. Vyp. 1. T. 2 [in Ukrainian].

Oholoshennia pro zbut narkotykiv cherez populiarnyi mesendzher vyiavylysia pastkoiu shakhraiv. Ofitsiinyi sait politsii Donechchyny. URL: http://police.dn.ua/news/view/ogoloshennya-pro-zbut-narkotikiv-cherez-populyarnij-mesendzher-viyavilisya-pastkoyu-shahraiv (data zvernennia: 24.06.2020) [in Ukrainian].

Ovchinnikova, O. V. (2018). Osobennosti rassledovaniia sbyta narkoticheskikh sredstv, sovershennykh s ispolzovaniem seti Internet. *Pravoporiadok: istoriia, teoriia, praktika.* T. № 1 (16) [in Russian].

Terminologiia i zhargon narkomanov. Ofitcialnyi sait LifeClinic. URL: http://oknb.com.ua/article21.html (data zvernennia: 24.06.2020) [in Russian].

Tor. Vikipediia. URL: https://uk.wikipedia.org/wiki/Tor (data zvernennia: 22.06.2020) [in Ukrainian].

Yukhno, O. O., Matiushkova, T. P., Korshenko, V. A. ta in. (2019). *Osoblyvosti rozsliduvannia zlochyniv, poviazanykh iz nezakonnym obihom narkotychnykh zasobiv chy psykhotropnykh rechovyn iz vykorystanniam suchasnykh telekomunikatsiinykh ta inshykh tekhnolohii:* metod. rek. O. O. Yukhno (ed.). Kharkiv [in Ukrainian].

М. С. Зелена

ДОСЛІДЖЕННЯ КОМП'ЮТЕРНОЇ ТЕХНІКИ ТА ПРОГРАМНИХ ПРОДУКТІВ У РОЗСЛІДУВАННІ ЗЛОЧИНІВ, ПОВ'ЯЗАНИХ З НЕЗАКОННИМ ОБІГОМ НАРКОТИЧНИХ ЗАСОБІВ, ПСИХОТРОПНИХ РЕЧОВИН АБО ЇХ АНАЛОГІВ

Розглянуто актуальні питання дослідження комп'ютерно-технічних слідів під час розслідування злочинів на стадії досудового розслідування, пов'язаних із незаконним обігом наркотичних засобів, психотропних

речовин або їх аналогів. Проаналізовано основні способи розповсюдження підконтрольних речовин в Україні за допомогою сучасних інформаційних технологій, тобто із використанням комп'ютерної техніки й програмних продуктів в інтернеті. Окреслено види доказових даних, вилучених за допомогою спеціалізованого програмного забезпечення під час проведення судової комп'ютерно-технічної експертизи, які можуть виступати фактичними даними, що свідчать про вчинення злочинів у сфері обігу наркотичних засобів, психотропних речовин або їх аналогів.

Ключові слова: комп'ютерно-технічна експертиза, інформаційні технології, наркотичні засоби, психотропні речовини, наркобізнес, незаконний обіг, підконтрольні речовини.

М. С. Зелёная

ИССЛЕДОВАНИЕ КОМПЬЮТЕРНОЙ ТЕХНИКИ И ПРОГРАММНЫХ ПРОДУКТОВ В РАССЛЕДОВАНИИ ПРЕСТУПЛЕНИЙ, СВЯЗАННЫХ С НЕЗАКОННЫМ ОБОРОТОМ НАРКОТИЧЕСКИХ СРЕДСТВ, ПСИХОТРОПНЫХ ВЕЩЕСТВ ИЛИ ИХ АНАЛОГОВ

Рассмотрены актуальные вопросы исследования компьютерно-технических следов при расследовании преступлений на стадии досудебного расследования, связанных с незаконным оборотом наркотических средств, психотропных веществ или их аналогов. Проанализированы основные способы ведения наркобизнеса в Украине с помощью современных информационных технологий, то есть с использованием компьютерной техники (в большей степени речь идёт о мобильных устройствах, портативных персональных компьютерах) и программных продуктов (программ для общения посредством звонков и сообщений с использованием интернета, веб-браузеров и пр.). На основе анализа исследований и научных публикаций, а также практических исследований во время проведения судебных компьютерно-технических экспертиз, связанных с расследованием незаконного распространения наркотических средств, изучены способы распространения запрещённого товара в интернете, а также методы исследования компьютерной техники, имеющей непосредственное отношение к незаконному обороту наркотиков с помощью современных информационных технологий. Определены виды данных, которые можно изъять с помощью специализированного программного обеспечения лабораторий компьютерно-технических исследований при проведении судебных компьютерно-технических экспертиз, которые (в свою очередь) могут выступать фактическими данными, свидетельствующими о совершении преступлений, связанных с незаконным оборотом наркотических средств, психотропных веществ или их аналогов, а именно: информация из программ-мессенджеров, веб-браузеров, текстовых сообщений, а также из файлов пользователей (в том числе

графических, аудио- и видеофайлов). Кроме того, предложены ориентировочные вопросы, которые могут быть поставлены судебному эксперту компьютерно-технических исследований при расследовании уголовных производств, касающихся незаконного производства, изготовления, приобретения, хранения, перевозки, пересылки, сбыта наркотических средств, психотропных веществ или их аналогов.

Ключевые слова: компьютерно-техническая экспертиза, информационные технологии, наркотические средства, психотропные вещества, наркобизнес, незаконный оборот, подконтрольные вещества.

Received by Editorial Board: 25.06.2020

Zelena M. S. Research on computer equipment and software products in investigation of crimes related to illegal trafficking of drugs, psychotropic substances or their analogues//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 373—381. DOI: https://doi.org/10.32353/khrife.2.2020.30.

DOI: https://doi.org/10.32353/khrife.2.2020.31
UDC 343.98

V. I. Fedorchenko,
Researcher of the Laboratory of Road Accident Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-3990-0703,
e-mail: fedorchenko94@ukr.net

E. V. Kalashnikov,
Researcher of the Laboratory of Road Accident Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-8136-548X,
e-mail: kalashnikov0911@gmail.com

Forensic examination of the establishment of causes of faults in the "Active Curve System" stabilization system of Mercedes-Benz GLS500 4Matic

Establishing of causes and circumstances that could affect failure of both parts individually and mechanisms generally of the "Active curve system" active stabilization system in Mercedes-benz GLS500 4MATIC cars is considered. The relevance of this scientific paper is due to novelty of installing an active stabilizer on vehicles which ensures minimal car body roll. Design, a principle of work and forensic expert research while inspection and study of the "Active curve system" active stabilization system of Mercedes-benz GLS500 4MATIC using modern equipment and research methods are presented. Measures to prevent failure of structural parts and systems are considered, which will ensure reliable and safe work of the "Active curve system" active stabilization system in the process of operation.

The system allows you to keep a car within the path set by a driver in various driving modes (acceleration, braking, moving along a straight line, while road curves and free rolling). Determination of occurrence of a traffic collision is carried out by comparing actions of a driver and parameters of a car. In case when a driver's actions (desired driving parameters) differ from the actual vehicle motion parameters, the "Active curve system" active stabilization system recognizes the situation as uncontrolled and starts working. In case of understeer, the "Active curve system" active stabilization system prevents a car from slipping out of turning trajectory by slowing down a rear inner wheel and changing an engine torque. In case of oversteer, skidding of a car during turns is prevented by slowing down a front outer wheel and changing an engine torque. Operation in this case is of a cyclical nature: pressure increase, pressure containment and pressure relief in the "Active curve system" active stabilization system. The

© V. I. Fedorchenko,
E. V. Kalashnikov, 2020

system that combines the system of electronic stability control, steering and car suspension is called vehicle dynamics management integrated system.

Keywords: active curve system, stabilization, traffic collision, stability, maneuverability, dynamics, stabilizer, valve body, road accident analysis, car body rolls, active safety.

Formulation of Research Problem. Modern car is a complex of innovative technologies and introduction of new systems of level increase of car safety, namely: anti-blocking system of brakes *ABS (Anti-block braking system)*, electronic system of distribution of brake efforts *EBD (Electronic brake force distribution)*, antiskid system *ASR (Automatic slip regulation)*, system stability stabilization *ESP (Electronic stability program)*, as well as one of the most popular systems used in the *Mercedes-Benz GLS500 4Matic* car (hereinafter referred to as *Mercedes-Benz*), active stabilization system *Active curve system*. This technology prevents body roll in real time thanks to active anti-roll bars with front and rear hydraulic locks.

For all its advantages, anti-roll bar limits properties of the independent suspension. Wheel stabilization reduces suspension travel of each wheel and also transmits shocks from one wheel to another. This is especially true when driving on rough roads. While driving off-road, the stabilizer can cause the wheel to hang and lose contact with the road.

In addition, due to fixed rigidity of the stabilizer bar use provides a certain compromise between dynamics, handling and comfort. The adaptive suspension makes it possible to completely abandon the anti-roll bar. In addition, active anti-roll bars are widely used that change stiffness depending on driving conditions.

Since these systems directly affect the safety of cars, research to determine the causes of failure of the active stabilization system *Active curve system* of *Mercedes-Benz* car is essential to address the issues of clarifying the relationship between the technical condition of the car and traffic collision cause.

Analysis of Essential Researches and Publications. Since the *Active curve system* of Mercedes-Benz car is the latest development installed only on the latest cars and such research on this topic has not been performed, researches on determining the causes of active stabilization system *Mercedes-Benz Active curve system* failure.

This **Article Purpose** is to conduct an element-by-element research on *Active curve system* of Mercedes-Benz car. The sequence of researches of the *Mercedes-Benz Active curve system* on the example of forensic expert practice is considered.

Main Content Presentation. According to the technical characteristics, *Mercedes-Benz* cars are equipped with the *Active curve system* (see Fig. 1), namely: active anti-roll bars that change stiffness depending on driving conditions.

While turning the car, active stabilizer realizes maximum rigidity and thus provides a minimum body roll. In the case of driving on dirt roads, stiffness of

the stabilizer is reduced that allows independent suspension to fully smooth out roadway unevenness. While driving off-road to increase cross-country, anti-roll bar is completely switched off (see Fig. 2).

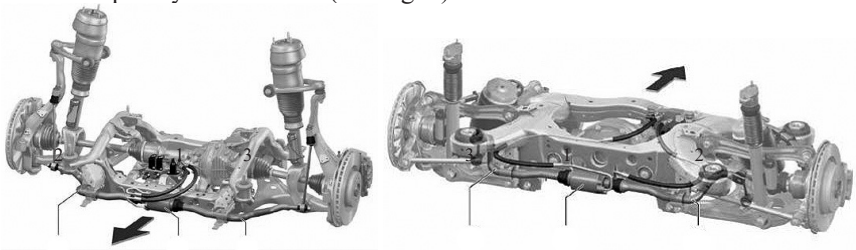


Fig. 1. *Active curve system* of front and rear suspension: 1 – hydraulic rotary selector; 2 – right bar stabilizer ; 3 – left bar stabilizer

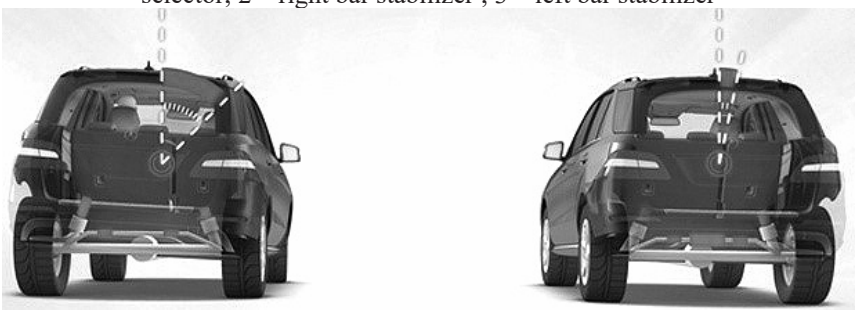


Fig. 2. Operation principle of *Active curve system* front and rear suspension of *Mercedes-Benz* car

Dynamic curve stabilization system *Active curve system* used on *Mercedes-Benz* cars performs the following functions:

- reduces longitudinal oscillations of the car body on the road;
- increases comfort for passengers while turns;
- increases stability while driving at medium speeds on suburban highways;
- increases traffic stability and improves traffic in a straight line at high speeds on highways.

While operating in off-road conditions, considerable articulation of a suspension bracket provides higher traction force [1].

Active curve system uses a hydraulic motor as a drive. Inside the drive: six chambers filled with working fluid. Three chambers provide rotation in one direction during filling, other chambers — in three other directions. The working fluid pressure creates torque that counteracts body roll.

[1] Новая система подавления кренов — с адаптацией под любую ситуацию/ Официальный сайт СП ООО «Автомобильный Дом Украина-Мерседес Бенц». URL: http://www.mercedes-benz.kiev.ua/carsd/about_company/news/new-anti-roll-system-adaptation-to-any-situation.html (date accessed: 20.03.2019).

Active curve system of *Mercedes-Benz* car has such design and operation concept. Hydraulic system includes a working fluid tank, hydraulic pump, valve block, hydraulic stabilizer actuators and connecting lines. Hydraulic pump is driven by the engine crankshaft. Intensity of the fluid flow varies depending on the engine speed. The valve block regulates pressure of the fluid supplied to stabilizer actuators. The valve block includes a solenoid pressure regulator, pressure reducer, two solenoid valves (according to the number of active stabilizers) solenoid safety valve, pressure sensors.

Pressure regulator maintains the set pressure in the system. The pressure reducing valve transfers excess liquid to the tank. Hydraulic distributors direct fluid flows depending on the mode of operation of the stabilizer. The safety valve shuts off the system and rigidly locks the stabilizer. Pressure sensors monitor the pressure in the system and individual lines of hydraulic drives. The electronic control system combines input sensors, control unit and actuators.

Input sensors include pressure sensors in the valve block steering angle sensor, acceleration sensor (two acceleration sensors: in the *Dynamic Response* system). Signals from the sensors are sent to electronic control unit. In addition, the unit uses data on speed (from the *ABS* control unit), crankshaft speed (from the engine control unit). On the basis of signals the control unit forms directing influences on executive devices: pressure regulator, hydraulic distributors, safety valve.

While turning car, the steering wheel angle sensor registers the turn, acceleration sensor detects the lateral reaction of the wheels. Based on the signals received from the sensors, the control unit supplies current to pressure regulator (to create the required operating pressure in the system) and hydraulic distributors (to create a force on the stabilizers).

Working fluid enters to hydraulic stabilizer actuators. While the lateral reaction of wheels disappears, control unit reduces pressure in the system and switches the valves to neutral position.

By creating different pressures on front and rear drives of stabilizers, the system can change control balance of the car (to compensate for insufficient or excessive control). At low speeds, maneuverability of the car increases, at high speeds, it increases the sensitivity of the steering.

Let us consider an example of research on active stabilization system *Active curve system* of a *Mercedes-Benz* car on the example of expert practice. National Scientific Center “Hon. Prof. M. S. Bokarius Forensic Science Institute” received a letter from a legal entity for conducting a forensic examination of a *Mercedes-Benz* car to address issues related to technical condition of its active stabilization system *Active curve system* and the reasons for determining its failure. Forensic examination was appointed according to a civil case of legal entity; the owner of a *Mercedes-Benz* car to official representative in the country for sale of *Mercedes-Benz* cars.

Here is a summary of circumstances and original data.

On the basis of the supply contract, the legal entity purchased a *Mercedes-Benz GLS500 4Matic* car from the official representative in Ukraine for sale of *Mercedes-Benz* cars. The car is equipped with the latest system of dynamic stabilization of suspension called *Active curve system* that (according to the official website of Mercedes-Benz) provides safe operation by counteracting rolls on corners. However, after driving 8,000 km, the *Active curve system* stopped working that turned out to be a fire of the corresponding "check" on the car panel and car on the left side. At the time of expert inspection, the car engine was in an abandoned state and was idling 600 RPM. On the instrument panel information board forensic experts observed the inscription *"Active curve system:* Fault" (see Fig. 3). To carry out diagnosis, the *Mercedes-Benz* car was moved to the service station. There, forensic experts connected the *XENTRY Connect* diagnostic tool to *Mercedes-Benz* diagnostic connector (see: Figure 4 on page 396) [1].

Fig. 3. *Mercedes-Benz* dashboard

Fig. 4. *XENTRY Connect* diagnostic device

[1] User Guide XENTRY Kit, XENTRY Kit MT, XENTRY Connect. URL: http://www.eobdtool.co.uk/upload/pro/xentry-connect-c5-installation-manual-english.pdf (date accessed: 20.03.2019).

While scanning control unit of *Mercedes-Benz* car system, it was found that in the section "*N51/6* – Transverse oscillation control system (WR)" an error « P1C9564 » was recorded: « The directional valve of the stabilizer » " Front axle " has a functional violation. There is an unreliable signal. » At the time of diagnosing system control unit, the car engine was not turned off, after it was stopped. According to the protocol of entrance short test, error in the system of dynamic stabilization of the car's suspension occurred at a mileage of 30,496 km, and the total mileage of the *Mercedes-Benz* at the time of expert inspection was 30,644 km (see Fig. 5).

XENTRY Mercedes-Benz

N51/6 - Система регулирования поперечных колебаний (WR) -F-

№ MB HW	166 901 05 00	№ MB SW	166 902 98 06
Код диагностики	004005	Версия HW	10/16 00
Версия SW	14/29 00	Версия Boot-SW	09/44 00
Поставщик аппаратного обеспечения	Temic	Поставщик программного обеспечения	Temic
Вариант БУ	Serie_ARS_004005		

Ошибка	Текст	Состояние
P1C9564	Клапан направления вращения стабилизатора 'Передний мост' имеет функциональное нарушение. Имеется недостоверный сигнал.	A+S

Имя	Первое возникновение	Последнее возникновение
Общий пробег	30496.00km	30496.00km
Счётчик эксплуатационных циклов	---	0.00
Счётчик частоты	---	1.00

A+S=АКТУАЛЬНЫЙ и СОХРАНЕННЫЙ

Fig. 5. *Mercedes-Benz* short entrance test report

In addition, materials were provided for the research on the technical condition of the Active curve system of the Mercedes-Benz car, namely: *Work Done Certificate* and *Purchase Order* carried out at different stages of the run of this car (8107, 8426 and 15 272 km) , m), while the *Mercedes-Benz* car was diagnosed and rectified in accordance with the regulations that is confirmed by the *Purchase Order* of the authorized service station of the dealer network of the distributor, a branch of *Mercedes Motor Show* to detect faults in the *Active curve system* [1].

Thus, the results of computer diagnostics of the *Mercedes-Benz* car indicate the systematic occurrence in the studied car of a malfunction of the dynamic suspension stabilization system Active curve system which availability is confirmed by the results of systematic diagnostic tests, etc. repeated repair of this unit by an authorized service station of the distributor's dealer network — a branch of *Mercedes Motor Show*. The error of the *Active curve system* during the examination of the Mercedes-Benz car at the authorized service station of the dealer network of distributor: *Mercedes Motor Show* and while expert inspection at the *Mercedes-Benz* authorized service station of private company

[1] Біліченко В. В., Крещенецький В. Л., Кукурудзяк Ю. Ю., Цимбал С. В. Основи технічної діагностики колісних транспортних засобів: навч. посіб. Вінниця, 2012. 118 р.

was qualified as a malfunction. If there is a fault in the dynamic suspension system of the *Mercedes-Benz* car on the information panel of the dashboard there is an inscription *"Active curve system*: Fault" disappearing from the information board when engine is turned off, however, remains in the memory of the car control unit. The systematic occurrence of malfunctions of the dynamic stabilization system of the *Active curve system* indicates that it is impossible to eliminate them, because after eliminating these faults, they reappear and attempts to eliminate them are associated with additional time.

In accordance with section 13 p. 1 of the Procedure for warranty repair (maintenance) or warranty replacement of road vehicles [1] (hereinafter referred to as the Procedure for warranty repair) the ***defect*** term used for road vehicles (hereinafter referred to as vehicle) has the following definition: requirements of regulatory documents, terms of contracts or requirements for it, as well as information about the vehicle provided by Manufacturer (*Contractor, Seller)*.

The revealed shortcomings of the *Mercedes-Benz* car testify that *Active curve system* is equipped does not carry out functions of dynamic stabilization of a suspension bracket provided and declared by the manufacturer when the car moves on rounding of the road. From a technical point of view, the shortcomings of the *Active curve system* under certain operating conditions (especially while passing cars on the roundabout) can affect the stability of the car, that can be life-threatening.

In accordance with paragraph 56 of clause 1.10 of Traffic codes, the term: ***Danger for traffic*** has the following definition: "*Danger for traffic is a change in the road conditions (including appearance of a moving object approaching or crossing the lane of the vehicle) or the technical condition of the vehicle, which threatens road safety and forces the driver to immediately reduce speed or stop. A special case of danger to traffic is the movement within the lane of another vehicle towards the general flow*" [2].

In accordance with paragraph 14 of clause 1 of the Warranty Repair Procedure, the "***Significant defect*** term is applied to the vehicle with the following definition: *such a defect that makes it impossible or inadmissible to use the accident in accordance with its purpose, or that may pose a threat to*

[1] Порядок гарантійного ремонту (обслуговування) або гарантійної заміни дорожніх транспортних засобів: затв. наказом Мінпромполітики України від 29.12.2004 р. № 721 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0072-05 (date accessed: 12.08.2020).

[2] Правила дорожнього руху: затв. Постановою КМУ від 10.10.2001 р. № 1306 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/1306-2001-п (date accessed: 25.03.2019).

the life of the Consumer or other people, or such that eliminates the high cost of labor and time and which manifests itself repeatedly after elimination" [1].

In Part 2 of Art. 678 of the Civil Code of Ukraine states [2]:

"***Article 678***. Legal consequences of the transfer of goods of improper quality

<...>

2. In case of significant violation of the requirements for product quality (detection of defects that cannot be eliminated, defects, the elimination of which is associated with disproportionate costs or time, defects that have appeared repeatedly or reappeared after their elimination) the buyer has the right of your choice:

1) *withdraw from the contract and demand a refund of the amount paid for the goods;*

2) *demand replacement of the goods".*

Given paragraph. 13 and 14 clause 1 of the Order of warranty repair and h. 2 Art. 678 of the Civil Code of Ukraine and based on the research conducted by forensic experts mentioned above, the court may make the following decision in the case: malfunctions of the dynamic stabilization system of the suspension *Active curve system* of *Mercedes-Benz* car are significant.

Therefore, since the shortcomings in the dynamic stabilization system of the *Active curve system* after repair work is not eliminated and they are identified repeatedly (even systematically, as evidenced by the protocols of incoming short tests and Work Done Certificates) and can create traffic hazards, these shortcomings (according to the Procedure) should be considered significant.

Therefore, according to Part 2 of Art. 678 of the Civil Code of Ukraine and paragraph 13 and 14 clause1 of the Order of warranty repair, malfunctions of system of dynamic stabilization of a suspension bracket *Active curve system* of *Mercedes-Benz* car are essential defects.

Conclusions. Therefore, example of research on *Active curve system* given in this article is relevant for forensic institutions and can be used by forensic experts (specialists) with sufficient technical support to conduct road accident analyses (forensic researches) to study technical condition and determine the causes of failure in operation of specified system of dynamic stabilization of suspension bracket.

---

[1] Порядок гарантійного ремонту … . URL: https://zakon.rada.gov.ua/laws/show/z0072-05 (date accessed: 12.08.2020).

[2] Цивільний кодекс України: Закон України від 16.01.2003 р. № 435-IV (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/435-15 (date accessed: 25.03.2019).

References

Bilichenko, V. V., Kreshchenetskyi, V. L., Kukurudziak, Yu. Yu., Tsymbal, S. V. (2018) *Osnovy tekhnichnoi diahnostyky kolisnykh transportnykh zasobiv:* navch. posib. Vinnytsia [in Ukrainian].

Novaia sistema podavleniia krenov — s adaptatciei pod liubuiu situatciiu. Ofitcialnyi sait SP OOO «Avtomobilnyi Dom Ukraina-Mersedes Bentc». URL: http://www.mercedes-benz.kiev.ua/carsd/about_company/news/new-anti-roll-system-adaptation-to-any-situation.html (data zvernennia: 20.03.2019) [in Russian].

Poriadok harantiinoho remontu (obsluhovuvannia) abo harantiinoi zaminy dorozhnikh transportnykh zasobiv: zatv. nakazom Minprompolityky Ukrainy vid 29.12.2004 r. № 721 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0072-05 (data zvernennia: 12.08.2020) [in Ukrainian].

Pravyla dorozhnoho rukhu: zatv. Postanovoiu KMU vid 10.10.2001 r. № 1306 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1306-2001-p (data zvernennia: 25.03.2019) [in Ukrainian].

Tsyvilnyi kodeks Ukrainy: Zakon Ukrainy vid 16.01.2003 r. № 435-IV (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/435-15 (data zvernennia: 25.03.2019) [in Ukrainian].

User Guide XENTRY Kit, XENTRY Kit MT, XENTRY Connect. URL: http://www.eobdtool.co.uk/upload/pro/xentry-connect-c5-installation-manual-english.pdf (data zvernennia: 20.03.2019).

В. І. Федорченко, Є. В. Калашніков

ЕКСПЕРТНЕ ДОСЛІДЖЕННЯ З ВИЗНАЧЕННЯ ПРИЧИН НЕСПРАВНОСТІ СИСТЕМИ АКТИВНОЇ СТАБІЛІЗАЦІЇ ACTIVE CURVE SYSTEM АВТОМОБІЛЯ MERCEDES-BENZ GLS500 4MATIC

Розглянуто причини і обставини, які могли вплинути на вихід із ладу як деталей, так і механізмів загалом системи активної стабілізації Active curve system автомобіля Mercedes-Benz GLS500 4Matic. Актуальність цієї роботи зумовлена новизною встановлення на транспортні засоби активного стабілізатору, що забезпечує мінімальний крен кузова. Наведено конструкцію, принцип роботи й дослідження судового експерта під час огляду й обстеження системи активної стабілізації Active curve system автомобіля Mercedes-Benz GLS500 4Matic із використанням сучасних приладів і прийомів дослідження. Розглянуто заходи запобігання виходу з ладу конструктивних елементів та систем, що дасть змогу забезпечити надійну й безпечну роботу системи активної стабілізації Active curve system у процесі експлуатації.

Ключові слова: Active curve system, стабілізація, дорожньо-транспортна пригода, стійкість, маневреність, динаміка, стабілізатор, блок клапанів, судова автотехнічна експертиза, крен кузова, активна безпека.

В. И. Федорченко, Е. В. Калашников

ЭКСПЕРТНОЕ ИССЛЕДОВАНИЕ ПО УСТАНОВЛЕНИЮ ПРИЧИН НЕИСПРАВНОСТИ СИСТЕМЫ АКТИВНОЙ СТАБИЛИЗАЦИИ ACTIVE CURVE SYSTEM АВТОМОБИЛЯ MERCEDES-BENZ GLS500 4MATIC

Рассмотрено установление причин и обстоятельств, которые могли повлиять на выход из строя как деталей, так и механизмов в целом системы активной стабилизации Active curve system автомобиля Mercedes-Benz GLS500 4Matic. Актуальность указанной работы обусловлена новизной установки на транспортные средства активного стабилизатора, обеспечивающего минимальный крен кузова. Приведены конструкция, принцип работы и исследования судебного эксперта при осмотре и изучении системы активной стабилизации Active curve system автомобиля Mercedes-Benz GLS500 4Matic с использованием современных приборов и приёмов исследования. Рассмотрены меры для предупреждения выхода из строя конструктивных элементов и систем, что позволит обеспечить надёжную и безопасную работу системы активной стабилизации Active curve system в процессе эксплуатации.

Система позволяет удерживать автомобиль в пределах заданной водителем траектории при различных режимах движения (разгоне, торможении, движении по прямой, в поворотах и при свободном качении). Определение наступления аварийной ситуации осуществляется путём сравнения действий водителя и параметров движения автомобиля. В случае когда действия водителя (желаемые параметры движения) отличаются от фактических параметров движения автомобиля, система активной стабилизации Active curve system распознаёт ситуацию как неконтролируемую и включается в работу. Приведённый пример исследования системы активной стабилизации Active curve system актуален для судебных экспертных учреждений и может быть использован экспертами (специалистами) с достаточным техническим обеспечением для проведения судебных автотехнических экспертиз (экспертных исследований) по определению технического состояния и причин неисправностей в работе системы динамической стабилизации подвески Active curve system.

Ключевые слова: Active curve system, стабилизация, дорожно-транспортное происшествие, устойчивость, манёвренность, динамика, стабилизатор, блок клапанов, судебная автотехническая экспертиза, крен кузова, активная безопасность.

Received by Editorial Board: 28.05.2020

Fedorchenko V. I., Kalashnikov E. V. Forensic examination of the establishment of causes of faults in the "Active Curve System" stabilization system of Mercedes-Benz GLS500 4Matic//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 382—392. DOI: https://doi.org/10.32353/khrife.2.2020.31.

DOI: https://doi.org/10.32353/khrife.2.2020.32
UDC 343.98

R. V. Rudzevych,
Forensic Expert of Sumy Scientific Research Forensic Center the Ministry of Internal Affairs of Ukraine (Sumy SRFC of the MIA of Ukraine),
Sumy, Ukraine,
e-mail: rudzev.romik@gmail.com

Peculiarities of multidisciplinary forensic structural engineering and economic examinations appointment

A growing number of crimes in the field of construction necessitates the development of a certain course of actions aimed to ensure their speedy disclosure.

Forensic expert practice shows that the most common violation while conducting construction work involving budget funds is overvaluation of cost of carried out construction work.

Investigation of complex mechanisms of committing crimes in the construction field is impossible without the use of special construction and technical knowledge, and illegal transfer of budget funds cannot be established without special economic knowledge.

Attention should be drawn to multidisciplinary forensic structural engineering and economic examination, as an effective procedural instrument for seeking truth while investigating economic crimes in this area.

The article considers peculiarities of forensic economic examination appointment during investigation of crimes in the construction field. The existing problems and shortcomings that arise in practice when assigning multidisciplinary forensic structural engineering and economic examination are outlined. An example of the most common task that arises while investigation of economic crimes in the field of construction and progress of its implementation are provided.

Keywords: multidisciplinary examination, forensic structural engineering, economic examination, special knowledge, objects of research, questions addressed to forensic expert.

Formulation of Research Problem. Growing number of crimes requires development of regulations designed to ensure the earliest possible detection of such crimes in the field of construction. However, given extremely wide range of methods of realization of criminal intentions while building repair services, there is no universal uniform sequence of actions during their investigation. We consider it appropriate to pay attention to a multidisciplinary forensic science, forensic structural engineering and forensic economics as an effective procedural tool for clarifying the truth while investigation of economic crimes in the field of construction.

© R. V. Rudzevych, 2020

Analysis of Essential Researches and Publications. A. Zapototskyi [1] and A. Lysenko [2] highlighted the important role and features forensic examination assignment of forensic economic analysis while crime investigation in the field of building repair services.

Methodological principles and main aspects of assignment of forensic multidisciplinary examinations were studied by such scientists as G. Bashkirov [3], M. Zholobetska, V. Koloniuk[4], E. Simakova-Yefremian [5] and others.

However, taking into account the existing forensic expert practice and the problems arising while assignment and conducting multidisciplinary forensic structural inspections and forensic economic analyses, we believe that up to date not all issues in this area have been considered in detail.

Article Purpose. Highlighting most common issues arising while crime investigation in the field of construction and their research by appointing a forensic structural inspection and forensic economic analysis.

Main Content Presentation. Construction industry has always been and remains one of the most priority and in demand. Constant rapid development of construction technologies, growth in the range and quality characteristics of building materials used make this industry very dynamic.

Construction, renovation and repairs of various facilities at the expense of budgets of various levels have always attracted increased interest from various construction companies of all forms of ownership and individual entrepreneurs. An important task of the state is efficient use of available financial resources ensuring targeted spending on all public needs and preventing the waste of budget funds (in particular, while building repair services).

[1] Запотоцький А. Особливості призначення судових експертиз під час установлення обставин, які мають значення в п //роцесі розслідування злочинів у сфері будівництва//*Підприємництво, господарство і право.* 2017. Вип. 6. P. 173—177. URL: http://pgp-journal.kiev.ua/archive/2017/6/40.pdf (date accessed: 25.06.2020).

[2] Лисенко А. М. Економічні дослідження операцій, пов'язаних з виконанням будівельних робіт із залученням бюджетних коштів//*Теорія та практика судової експертизи і криміналістики*: зб. наук. пр. Харків, 2008. Вип. 8. P. 515—519. URL: http://www.hniise.gov.ua/user_files/File/files/2008.pdf (date accessed: 25.06.2020).

[3] Башкиров Г. Б., Завдовьева И. Г., Баранов П. Ю. Особенности назначения и проведения судебных комплексних строительно-экономических экспертиз по определению стоимости строительно-монтажных работ//*Теорія та практика судової експертизи і криміналістики*: зб. наук. пр. Харків, 2014. Вип. 14. P. 401—410. URL: https://www.hniise.gov.ua/user_files/File/sbornik/2014/PDF/59.pdf (date accessed: 25.06.2020).

[4] Жолобецька М. Б., Колонюк В. П. Комплексна судова будівельно-технічна та економічна експертиза//*Криміналістика і судова експертиза.* 2019. Вип. 64. P. 639—655. DOI: https://doi.org/10.33994/kndise.2019.64.61 (date accessed: 25.06.2020).

[5] Сімакова-Єфремян Е. Б. Теоретико-правові та методологічні засади комплексних судово-експертних досліджень: дис. … д-ра юрид. наук. Харків, 2017. 516 p. URL: http://nauka.nlu.edu.ua/download/diss/Simakova/d_Simakova.pdf (date accessed: 25.06.2020).

However, construction industry specifics, despite availability and constant improvement of laws and regulations on its regulation and control still leaves a wide field for illegal activities of unclean contractors. More and more unscrupulous contractors, concluding works contracts with budget organizations, aim not only to obtain the profit provided by the design and estimate documentation for the contract but to implement additional enrichment schemes. The most common of them: the use of building materials of lower quality (respectively prices) than indicated in design estimate; artificial overestimation in design estimate of services to be performed causes an increase in the cost of material and labor resources; or in general non-fulfillment of a part of the services provided in the design estimate. All of the above are part of a single general violation: overstatement of the service construction cost. Sometimes such actions of the contractor are accompanied by an agreement with customer officials.

Thus, investigation of complex mechanisms of committing crimes in the field of construction is impossible without the use of specific construction and technical knowledge. Since the ultimate contractor goal is often the misappropriation of budget funds, then there is no way to do without specific economic knowledge.

The main procedural form of application of specific expertise while investigation of criminal offenses is forensic examination. Expert's conclusion, in accordance with Part 2 of Art. 84 of the Criminal Procedural Code of Ukraine of Ukraine [1] is one of the procedural sources of evidence determining availability or lack of facts and circumstances relevant to criminal proceedings.

The procedure for appointing examinations in criminal cases is regulated by Art. 242-244 of the Criminal Procedural Code of Ukraine which certain norms have changed significantly several times over the last 3 years.

As of today, according to Part 1 of Art. 242 of the Criminal Procedural Code of Ukraine, forensic examination is conducted by a forensic science institution, forensic expert or experts involved by the parties to criminal proceedings or investigating judge at the request of the defense in the cases and in the manner prescribed by Art. 244 of Criminal Procedural Code of Ukraine, if specific expertise is required to clarify the circumstances relevant to criminal proceedings. Forensic examination is not allowed to clarify legal issues [2].

In accordance with the provisions of paragraph 6 of Part 2 of Art. 242 of Criminal Procedural Code of Ukraine, investigator or prosecutor is obliged to ensure conducting forensic examination to determine the amount of material damage, if victim cannot determine them and did not provide a document

[1] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 2013. № 9—10, 11—12, 13. Ст. 88. URL: https://zakon.rada.gov.ua/laws/show/4651-17 (date accessed: 25.06.2020).

[2] Ibid.

confirming amount of such damage, non-pecuniary damage, environmental damage caused by a criminal offense [1].

In Art. 243 of the Criminal Procedural Code of Ukraine provides for the involvement of an expert on behalf of a party to criminal proceedings in the case of grounds for examination. Forensic expert can be involved by investigating judge at the request of defense team in the cases and in the manner prescribed by Art. 244 of this Code. The defense team has the right to engage experts on a contractual basis to conduct an examination, including mandatory one [2].

The petition should indicate: a summary of the criminal offense circumstances in connection which the petition was filed; legal qualification of a criminal offense with indication of an article (part of an article) of the Law of Ukraine on Criminal Liability; statement of circumstances on which petition arguments are substantiated; forensic expert to be involved or forensic science institution to be commissioned to conduct forensic examination; species of forensic research that needs to be conducted and the list of questions that need to be asked to forensic expert. Petition shall also be accompanied by: copies of the materials substantiating petition arguments and copies of documents confirming impossibility of independent involvement of forensic expert by the defense team [3].

In other words, procedural norms for determining the factual circumstances that are relevant to the criminal proceedings and subject to proof, provide for equal rights to forensic expert involvement for both the prosecution and defense parties . As a result, two conclusions made by different forensic experts on behalf of the prosecution and the defense on the same or different issues may be presented to the court as evidence during the trial. This ensures the adversarial nature of the parties, freedom in their submission to the court of their evidence and proving before the court their persuasiveness regulated by Art. 22 of the Criminal Procedural Code of Ukraine.

Notwithstanding the above, forensic examination on behalf of defense is quite infrequent but investigators, as they fulfill their responsibilities for the pre-trial investigation of criminal offenses, should understand important role of forensic expert conclusion in the detection of crimes in construction industry.

Forensic examination quality depends on the investigator. First of all, investigator, guided by specific materials of proceedings, should determine forensic examination species that need to be conducted and the order of their conduct. It is logical that in the end, investigators seek to obtain forensic expert answer on violation existence, expressed in monetary terms. Information on cost side of any business transactions is contained in accounting documents, that is a mandatory species of accounting for enterprises and that are based on financial,

[1] Ibid.

[2] Кримінальний процесуальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/4651-17 (date accessed: 25.06.2020).

[3] Ibid.

tax, statistical and other types of reporting that use a monetary measure [1]. For their part, accounting, tax and reporting documents are the object of forensic economic analysis.

At the same time, in practice, conducting forensic economic analysis alone cannot be sufficient to prove the existence of violations in view of the following. Carrying out audit actions (determination by forensic economists of any economic indicators without preliminary carrying out of documentary checks of financial and economic activity by the subject of control) does not belong to tasks of forensic economic analysis [2]. In particular, this is due to the fact that forensic expert is prohibited from independently collecting materials to be studied [3]. In other words, if the primary and consolidated documents or accounting registers contain information about the facts of the crime, conclusions must be made in advance by the relevant subject of control by conducting a documentary check.

If conclusions about law violations are made on the basis of information other than those contained in research objects of forensic economist, then specific expertise from other fields should be applied.

In case of investigation of legislation violations while building repair services (except for economic) authorized persons may appoint the following forensic examinations:

- forensic handwriting analysis: identification of forgery of signatures in contracts (appendices to), in acts of performed services and other documents that are made while work performance, in payment orders and documents for payment, etc.;
- questioned document and printing form examination: identification of facts and methods of making changes to contracts (appendices to) and primary documents, as well as identification of seals, stamps made on;
- forensic structural inspection: determination of construction quality conformity and building repair services to construction norms, concluded contracts and work done certificates, quantity and quality of used construction materials and also definition of volumes of overestimation of performed works.

[1] Про бухгалтерський облік та фінансову звітність в Україні: Закон України від 16.07.1999 р. № 996-XIV (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 1999. № 40. Ст. 365. URL: https://zakon.rada.gov.ua/laws/show/996-14/ed20200402 (date accessed: 25.06.2020).

[2] 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 Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 25.06.2020).

[3] Ibid.

The solution of the tasks set towards forensic economist is sometimes possible as a result of several consecutive examinations, however, as the analysis of expert practice demonstrates that crime investigation in the field of construction is increasingly accompanied by the assignment of forensic multidisciplinary structural inspection and forensic economic analysis.

Multidisciplinary forensic examination is forensic examination carried out using specific expertise in different fields of science, technology or other specific expertise (different areas within one field of knowledge) to solve one common (integrated) task (issue). Such experts, if necessary, involve both experts of forensic science institutions and professionals of institutions and services (subdivisions) of other central executive bodies or other specialists who do not work in state specialized forensic science institutions [1].

The document regarding multidisciplinary forensic examination assignment (forensic expert involvement) shall indicate its name and forensic science institution (s), forensic experts entrusted with its conducting and in case of participation in a person who does not work at forensic science institution, their last name, first name and patronymic, education, specialization, institutional affiliation, domicile, other data. If multidisciplinary forensic examination is entrusted to forensic experts from several forensic science institutions, document on forensic examination assignment (forensic expert involvement) indicates which forensic science institution is leading, i.e. which of them organizes forensic examination, in particular coordinates forensic expert work and connection with the body (person) appointed forensic examination (involved forensic expert).

If a multidisciplinary forensic examination is entrusted to staff of forensic science institution and a person who is not an employee of such institution, forensic science institution shall be appointed as leading forensic science institution.

The document on forensic examination assignment (expert involvement) for a multidisciplinary forensic examination is sent to each of forensic science institutions co-executors, as well as to a person who is not an employee of forensic science institution. Research objects and case files are sent to leading forensic science institution.

As rightly noted in research papers by M. Zholobetskaya and V. Koloniuk [2], as well as G. Bashkirov [3], multidisciplinary forensic examination should be appointed when it is impossible to solve issues as a result of several consecutive forensic examinations that do not depend on each other. Multidisciplinary forensic examination is forensic examination when it is impossible to solve

[1] Про затвердження Інструкції про призначення та проведення судових експертиз … та Науково-методичних рекомендацій з питань підготовки та призначення судових експертиз … . URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 25.06.2020).

[2] Жолобецька М. Б., Колонюк В. П. Op. cit.

[3] Башкиров Г. Б., Завдовьева И. Г., Баранов П. Ю. Op. cit.

the issue without the simultaneous participation of forensic experts in different fields of knowledge and the joint conclusion formulation. Multidisciplinary forensic examination is conducted by at least two experts from different fields of knowledge or different areas within one field of knowledge. In conclusion, these experts indicate what research and to what extent each expert conducted, what facts he identified and what conclusions he reached. Each expert signs the conclusion part containing a description of his research and is responsible for. While appointing multidisciplinary forensic structural inspection and forensic economic analysis according to the authors, the question should be formulated separately for each specialist in order to personify their conclusions, and when this is not possible to combine as accurately as possible the issue (s) of special tasks by applying various specific expertise of experts through the question (s). Conclusions on common issues are signed by all experts participated in research.

Two factors are decisive for conducting a qualitative, complete and objective research which will result in forensic expert conclusion (for both primary and multidisciplinary forensic examination):

- correctly and competently posed expert issues that most fully and accurately reflect his tasks and do not cause ambiguous interpretations;
- completeness and quality of research objects necessary for forensic examination taking into account asked questions.

The questions that investigator asks forensic expert to solve should derive from tasks. The main tasks of forensic structural inspection and forensic economic analysis are provided in the Research guidelines concerning preparation and assignment of forensic examinations and researches [1].

In forensic expert practice, the most common tasks of forensic structural inspection set before forensic experts, are:

- compliance determination of performed construction works and constructed real estate objects (buildings, structures, etc.) with design and technical documentation and requirements of legal regulations in the field of construction;
- compliance determination of performed construction works, separate elements of real estate objects, constructions, products and materials with design and technical documentation and requirements of legal regulations in the field of construction;
- determination, verification of the volume and cost of construction work performed and the primary reporting documentation on construction and their compliance with design estimate, requirements of legal regulations in the field of construction.

[1] Про затвердження Інструкції про призначення та проведення судових експертиз … та Науково-методичних рекомендацій з питань підготовки та призначення судових експертиз … . URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 25.06.2020).

Tasks set before forensic economists should be a logical continuation of the construction and technical part of the forensic structural inspection and complement it.

For example, if forensic structural inspection was asked to determine conformity of the performed construction works to the design estimate but the question was not asked about conformity of volumes of actually performed works to volumes and terms specified in Work Done Certificates, forensic economist will not be able to determine the amount of unreasonably transferred funds due to overstatement of performed work amount.

The range of issues that can be solved by forensic multidisciplinary structural engineering and forensic economic analysis depends on specific situation and is quite wide, as well as research objects necessary for their solving. Therefore, before forensic examination assignment, it is advisable to consult forensic expert to ensure research performing without making a request and as a result, to quickly obtain forensic expert conclusion.

In order to determine the amount that is unreasonably (excessively) transferred to contractor in connection with the overstatement of construction work scope it is necessary to appoint a multidisciplinary forensic structural inspection and forensic economic analysis, to ask forensic expert the following questions:

- in construction part: "Do the actual volumes of work performed by the contractor (*contractor name*) under the contract (№, date) for the object (*object name, address*) correspond to the volumes of works specified in the acts of acceptance of performed construction works № КБ-2в. If they do not answer, what is the amount of overstatement? ";
- in economic part: "Is the documented unjustified transfer by the customer (enterprise, customer name) to the contractor (*name of contracting organization*) of funds under the contract (№, date) for the object (object name, address) due to overstatement of work. If so, for what amount?"

As part of a multidisciplinary examination, the answer to this question should be provided by forensic economist taking into account the answer provided by the construction expert in terms of overstatement of the cost of performed work.

The research object of forensic constructor, in addition to contractual, construction and design estimate will also be the construction object (reconstruction, repair) for which a visual and instrumental inspection is carried out with drawing up an inspection report.

As mentioned above, research objects of forensic economic analysis are the documents of accounting and reporting in terms of business transactions reflected in.

According to the Law of Ukraine: *On Accounting and Financial Reporting in Ukraine*, the basis for accounting of business transactions are primary documents containing information about business transactions. Primary documents can be drawn up in paper or electronic form and should have the following mandatory

details: the document (form) name; date of compilation; enterprise name on whose behalf the document is drawn up; content and scope of the business transaction, unit of measurement of the business transaction; positions of persons responsible for the business transaction implementation o and its design correctness; personal signature or other data that allows to identify the person participated in [1].

According to clause 2.7 of the Provision on documentary support of records in accounting, primary documents should be made on forms of the standard and specialized forms approved by corresponding government body. Documentation of business transactions can be carried out using self-made forms that should contain mandatory details or details of standard or specialized forms [2].

In accordance with paragraph 6.4.2 ДСТУ Б Д.1.1-1:2013 of the National Standard of Ukraine: *Rules for determining the cost of construction* approved by the order № 293 of the Ministry of Regional Construction and Housing of Ukraine dated on 05.07.2013 while determination of cost performed work scope and mutual settlements for performed works on construction objects, which construction is carried out at the expense of state funds, apply approximate forms of primary accounting documents: *Work Done Certificate* (approximate form № КБ-2в) and *Certificate of cost construction works and costs* (approximate form: № КБ-3) provided in Annexes "Т" and "У" respectively [3].

Thus, the act of acceptance of construction work performed form № КБ-2в is the primary accounting document in construction, which summarizes the costs incurred in the process of work determines the total cost of construction work performed and is the basis for reflection in the relevant accounting registers of business transactions.

In accordance with the rules of ch. 10 of the Order of treasury service of local budgets, bodies of the State treasury service of Ukraine make payments on the basis of payment orders of managers of budgetary funds and recipients of budgetary funds in case of availability in the account of the corresponding budgetary obligation and budgetary financial obligation within balances of budgetary funds on accounts of managers budget funds and recipients of budget funds according to relevant codes of economic classification of expenditures and classification of crediting [4].

---

[1] Про бухгалтерський облік та фінансову звітність в Україні: … . URL: https://zakon.rada.gov.ua/laws/show/996-14/ed20200402 (date accessed: 25.06.2020).

[2] Положення про документальне забезпечення записів у бухгалтерському обліку: затв. наказом Мінфіну України від 24.05.1995 р. № 88 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0168-95 (date accessed: 25.06.2020).

[3] ДСТУ Б Д.1.1-1:2013. Правила визначення вартості будівництва. In force since 01.01.2014 р. URL: https://www.minregion.gov.ua/wp-content/uploads/2015/12/DSTU1.1-1_z_-Zm_noyu-1.pdf (date accessed: 25.06.2020).

[4] Порядок казначейського обслуговування місцевих бюджетів: затв. наказом Мінфіну України від 23.08.2012 р. № 938 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z1569-12 (date accessed: 25.06.2020).

The above mentioned Procedure also provides for provision of budget funds to the administrator (recipient) while implementation of expenditures by making payments from his account statements from the transaction on the results of previous transaction day with a mark in the form of a stamp and treasurer signature.

Appropriately executed payment orders and account statements are proof of payment of funds by state funded by customer of construction works.

Receipt of funds by the contractor can be determined by current account statement of the contractor [1] which funds are transferred under the contract.

If the amount of funds transferred for construction (repair) work on a particular object determined according to primary documents, will correspond to the total amount according to the Work Done Certificate form № КБ-2в for this object and the expert builder will determine overestimation of the actual work performed by the contractor, it can be concluded that unjustified transfer of funds in an amount equal to the cost of work overstatement.

Conclusions. Assignment of multidisciplinary forensic structural inspection and forensic economic analysis is one of the most reliable and expeditious means of clarifying the truth while investigation of economic crimes in the field of construction.

However, this is possible only if the investigator's systematic approach to the process of formulating questions that are asked to resolve by forensic experts in both areas and the availability of all necessary for forensic examination of research objects.

References

Bashkirov, G. B., Zavdoveva, I. G., Baranov, P. Iu. (2014). Osobennosti naznacheniia i provedeniia sudebnykh kompleksnikh stroitelno-ekonomicheskikh ekspertiz po opredeleniiu stoimosti stroitelno-montazhnykh rabot. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky.* Vyp. 14. URL: https://www.hniise.gov.ua/user_files/File/sbornik/2014/PDF/59.pdf (data zvernennia: 25.06.2020) [in Russian].

DSTU B D.1.1-1:2013. *Pravyla vyznachennia vartosti budivnytstva.* Chynnyi vid 01.01.2014 r. URL: https://www.minregion.gov.ua/wp-content/uploads/2015/12/DSTU1.1-1_z_-Zm_noyu-1.pdf (data zvernennia: 25.06.2020) [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* 2013. № 9—10, 11—12, 13. St. 88. URL: https://zakon.rada.gov.ua/laws/show/4651-17 (data zvernennia: 25.06.2020) [in Ukrainian].

[1] Положення про організацію бухгалтерського обліку, бухгалтерського контролю під час здійснення операційної діяльності в банках України: затв. постановою Правління НБУ від 04.07.2018 р. № 75. URL: https://zakon.rada.gov.ua/laws/show/v0075500-18#n12 (date accessed: 25.06.2020).

Lysenko, A. M. (2008). Ekonomichni doslidzhennia operatsii, poviazanykh z vykonanniam budivelnykh robit iz zaluchenniam biudzhetnykh koshtiv. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky.* Vyp. 8. URL: http://www.hniise.gov.ua/user_files/File/files/2008.pdf (data zvernennia: 25.06.2020) [in Ukrainian].

Polozhennia pro dokumentalne zabezpechennia zapysiv u bukhhalterskomu obliku: zatv. nakazom Minfinu Ukrainy vid 24.05.1995 r. № 88 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0168-95 (data zvernennia: 25.06.2020) [in Ukrainian].

Polozhennia pro orhanizatsiiu bukhhalterskoho obliku, bukhhalterskoho kontroliu pid chas zdiisnennia operatsiinoi diialnosti v bankakh Ukrainy: zatv. postanovoiu Pravlinnia NBU vid 04.07.2018 r. № 75. URL: https://zakon.rada.gov.ua/laws/show/v0075500-18#n12 (data zvernennia: 25.06.2020) [in Ukrainian].

Poriadok kaznacheiskoho obsluhovuvannia mistsevykh biudzhetiv: zatv. nakazom Minfinu Ukrainy vid 23.08.2012 r. № 938 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z1569-12 (data zvernennia: 25.06.2020) [in Ukrainian].

Pro bukhhalterskyi oblik ta finansovu zvitnist v Ukraini: Zakon Ukrainy vid 16.07.1999 r. № 996-XIV (zi zmin. ta dopov.). *Vidomosti Verkhovnoi Rady Ukrainy (VVR).* 1999. № 40. St. 365. URL: https://zakon.rada.gov.ua/laws/show/996-14/ed20200402 (data zvernennia: 25.06.2020) [in Ukrainian].

Pro zatverdzhennia Instruktsii pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen ta Naukovo-metodychnykh rekomendatsii z pytan pidhotovky ta pryznachennia sudovykh ekspertyz ta ekspertnykh doslidzhen: nakaz Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 25.06.2020) [in Ukrainian].

Simakova-Yefremian, E. B. (2017). *Teoretyko-pravovi ta metodolohichni zasady kompleksnykh sudovo-ekspertnykh doslidzhen:* dys. d-ra yuryd. nauk. Kharkiv. URL: http://nauka.nlu.edu.ua/download/diss/Simakova/d_Simakova.pdf (data zvernennia: 25.06.2020) [in Ukrainian].

Zapototskyi, A. (2017). Osoblyvosti pryznachennia sudovykh ekspertyz pid chas ustanovlennia obstavyn, yaki maiut znachennia v protsesi rozsliduvannia zlochyniv u sferi budivnytstva. *Pidpryiemnytstvo, hospodarstvo i pravo.* Vyp. 6. URL: http://pgp-journal.kiev.ua/archive/2017/6/40.pdf (data zvernennia: 25.06.2020) [in Ukrainian].

Zholobetska, M. B., Koloniuk, V. P. (2019). Kompleksna sudova budivelno-tekhnichna ta ekonomichna ekspertyza. *Kryminalistyka i sudova ekspertyza*. Vyp. 64. DOI: https://doi.org/10.33994/kndise.2019.64.61 (data zvernennia: 25.06.2020) [in Ukrainian].

Р. В. Рудзевич,

ОСОБЛИВОСТІ ПРИЗНАЧЕННЯ КОМПЛЕКСНИХ БУДІВЕЛЬНО-ТЕХНІЧНИХ ТА ЕКОНОМІЧНИХ ЕКСПЕРТИЗ

Розглянуто особливості призначення та проведення судової економічної експертизи під час розслідування економічних злочинів у галузі будівництва. Окреслено наявні проблеми й недоліки, що виникають на практиці під час призначення комплексних будівельно-технічних та економічних експертиз. Наведено приклад найпоширеніших завдань, які необхідно розв'язати під час розслідування економічних злочинів, пов'язаних із будівництвом, реконструкцією та ремонтом різноманітних об'єктів за рахунок бюджетних коштів, і розглянуто перебіг їх виконання.

Ключові слова: комплексна експертиза, будівельно-технічна експертиза, економічна експертиза, спеціальні знання, об'єкти дослідження, запитання на вирішення експертові.

Р. В. Рудзевич

ОСОБЕННОСТИ НАЗНАЧЕНИЯ КОМПЛЕКСНЫХ СТРОИТЕЛЬНО-ТЕХНИЧЕСКИХ И ЭКОНОМИЧЕСКИХ ЭКСПЕРТИЗ

Растущее число преступлений в сфере строительства нуждается в разработке регламента действий, призванного обеспечить скорейшее их раскрытие.

Экспертная практика свидетельствует, что наиболее распространённым нарушением при осуществлении строительно-ремонтных работ с привлечением бюджетных средств является завышение стоимости выполненных строительных работ.

Расследование сложных механизмов совершения преступлений в сфере строительства невозможно без применения специальных строительно-технических знаний, а незаконное перечисление бюджетных средств нельзя установить без специальных экономических знаний.

Следует обратить внимание на комплексную судебную строительно-техническую и экономическую экспертизы как действенный процессуальный инструмент установления истины при расследовании экономических преступлений в этой сфере.

В статье рассмотрены особенности назначения судебной экономической экспертизы при расследовании преступлений в сфере строительства. Очерчены существующие проблемы и недостатки, возникающие на практике при назначении комплексных строительно-технических и экономических экспертиз. Приведён пример наиболее распространённой задачи, возникающей при расследовании экономических преступлений в сфере строительства, и ход её решения.

Ключевые слова: комплексная экспертиза, строительно-техническая экспертиза, экономическая экспертиза, специальные знания, объекты исследования, вопросы для решения экспертом.

Received by Editorial Board: 13.08.2020

Rudzevych R. V. Peculiarities of multidisciplinary forensic structural engineering and economic examinations appointment//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 393—405. DOI: https://doi.org/10.32353/khrife.2.2020.32.

DOI: https://doi.org/10.32353/khrife.2.2020.33
UDC 343.98

U. U. Petryshyna,
Researcher of the Laboratory of Forensic Construction Engineering at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-9808-1870,
e-mail: lyna.z858585@gmail.com
S. V. Radchenko,
Senior Researcher of the Laboratory of Forensic Construction Engineering at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-1889-9061,
e-mail: svet.radchenko@ukr.net
N. V. Syla,
Senior Researcher of the Laboratory of Forensic Construction Engineering at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-3085-3082, e-mail: nata.syla@ukr.net

Complex issues arising while conducting research on wheelchair ramps for access to buildings by persons with reduced mobility and determination of wheelchair ramps' compliance with building standards and regulations

The article outlines issues which arise when conducting research on wheelchair (reconstructed) ramps of existing buildings, technical re-equipment of building porches and buildings or their construction projects for compliance with building standards and regulations. As a method of research we have chosen visual inspection of construction and planning solutions, namely measuring of geometric parameters of over 30 ramps in different districts in the city of Kharkiv has been conducted.

Requirements of current building regulations are analyzed, their applicability to public and residential buildings for access by persons with reduced mobility is established. Main types of violations of building standards and regulations while construction of ramps, which create significant obstacles for people with limited mobility to access residential and public buildings, have been identified and systematized. Recommendations are provided regarding the possibility of making necessary changes in the design of ramps and adapted porches of residential and public buildings in order to prevent injury to persons with reduced mobility.

Keywords: adaptation, overall dimensions, accessibility of buildings and facilities for people with reduced ability, public buildings, accessibility

© U. U. Petryshyna, S. V. Radchenko, N. V. Syla, 2020

for persons with disability, element, residential buildings, zone, inclusion of buildings and facilities, persons with reduced mobility, person with disability, wheelchair ramp, a ramp slope, reasonable accommodation, surface coating, trajectory of movement.

Formulation of Research Problem. Building code (hereinafter referred to as ДБН) of Ukraine stipulate that all residential and public buildings, structures should be designed and erected taking into account the needs of low mobility groups, providing them with accessibility, convenience, information and safety.

However, up to date, a significant social problem is relevant that is limited access of low mobility groups (hereinafter referred to as LMG) to most of existing residential and public buildings, structures. Vast majority of old buildings are not equipped with appropriate architectural and construction elements that would allow safe and convenient movement of a residential or public building, as well as unimpeded entry and exit.

Technical re-equipment of existing porches of residential and public buildings, arrangement of ramps, vestibules, entrances that would provide physical possibility and convenience for getting to the object and moving it or receiving services, often does not meet requirements of ДБН В.2.2-40:2018: *Inclusive buildings and structures. Substantive provisions* [1].

Thus, lack or construction of building structures and elements in violation of the requirements of Building code often makes impossible to move people with disabilities (especially those in wheelchairs) interfere with a full life and independent movement, as well as endanger the health of this population categories.

While preliminary research on this issue it was found there are no researches on technical condition of architectural and building elements of buildings for LMG, their spatial planning and design solutions including ramps and congresses, as well as lack of sources of information with typology and systematization the most common regulatory inconsistencies whole construction of such structures. This research was conducted by visual inspection of ramps and adapted porches of buildings in Kharkiv, their structural elements, spatial planning decisions and comparison of the results with the requirements of regulations. The most common discrepancies and deviations from the existing Building code are systematized.

Such research aims to systematize information on technical condition of existing wheelchair ramps, adapted porches in Kharkiv and Kharkiv region, to eliminate certain shortcomings in the further planning of technical re-equipment and improvement of residential and public buildings for unimpeded movement of people with disabilities.

Analysis of Essential Researches and Publications. Only recently in Ukraine began to massively equip entrances to residential and public buildings

[1] ДБН В.2.2-40:2018. Інклюзивність будівель та споруд. Основні положення. In force since 01.04.2019 р. URL: http://www.minregion.gov.ua/wp-content/uploads/2019/01/V2240-2018.pdf (date accessed: 03.06.2020).

with ramps and adapted porches. Therefore, conformity of constructed (reconstructed) ramps to existing buildings for access to LMG has not been previously studied, except for the definition of regulatory requirements in ДБН В.2.2-40:2018 [1] and ДБН В.2.2-9:2018 [2].

Article Purpose is to investigate the analysis method of spatial planning and design solutions of existing ramps and adapted porches of residential buildings in Kharkov, to determine their technical condition, compliance with building codes, as well as to systematize the main inconsistencies with Building code while construction (reconstruction) of ramps or technical re-equipment of porches for access of LMG to premises of inhabited and public buildings. Consider the main issues that arise during research to determine the compliance of constructed (reconstructed) ramps or technical re-equipment of porches of buildings and structures for the possibility of access to LMG requirements of state building codes and regulations.

Substantiate recommendations for necessary changes in the design of existing ramps and adapted porches of residential and public buildings for LMG in order to prevent injuries, create opportunities for independent access to buildings and overall improvement of living conditions of people with disabilities.

Main Content Presentation. Research on architectural and construction solutions of existing ramps and adapted porches was conducted through visual inspection of objects in different areas of Kharkiv. Non-compliance with Building code identified while object inspection is considered in detail and illustrated with photographs.

Figs. 1—8 illustrate typical examples of the arrangement of ramps for access to LMG by carrying out technical re-equipment of existing porches.

Fig. 1

Fig. 2

[1] ДБН В.2.2-40:2018.

[2] ДБН В.2.2-9:2018. Будинки і споруди. Громадські будинки та споруди. Основні положення. In force since 01.06.2019 р. URL: https://dreamdim.ua/wp-content/uploads/2019/03/DBN_V-2-2-9-2018-Gromadski-budynky.pdf (date accessed:: 03.06.2020).

Fig. 1: wheelchair ramp is arranged along the facade of public building made of welded metal structures, the surface of the ramp is filled with embossed metal sheet, on both sides of the ramp there is a prefabricated stainless steel handrail. Metal structures are painted. The height of the ramp is 1.0 m. Fig. 2: — wheelchair ramp is arranged above the existing stairs of the public building made of welded metal structures, wheelchair ramp surface is filled with an average exhaust grid, stainless steel handrails are installed on both sides (side fastenings). Metal structures are painted, rust is observed along the entire plane of the metal structures of the ramp base. The lifting height of the ramp is 0.9 m. During the construction of the ramps illustrated in photos 1 and 2, the following requirements of ДБН В.2.2-40:2018 [1] were not met.

"*5.3.1 The slope of external ramps on roads and at the entrance to the building should be no more than 8% (1:12), at short intervals with a difference in surface height on roads up to 0.2 m and at the exit from the sidewalk on the carriageway slope is taken 10% (1:10) (Figure 5). Wheelchair ramp width of the should be 1.2 m in the lumen in one-way traffic, 1.8 m in the two-way one. Maximum height of one wheelchair ramp lift should not exceed 0.8 m. After each lift, horizontal platforms at least 1.5 m deep should be installed. In exceptional cases, it is allowed to provide screw ramps*".

At the height of the wheelchair ramps of 0.9 m and 1.0 m erected in one span, the value of the normative slope and therefore the length of the ramps was not observed. Ratio of the overall wheelchair ramp dimensions (height and length to ensure the normative slope) is illustrated in Fig. 3 [2].

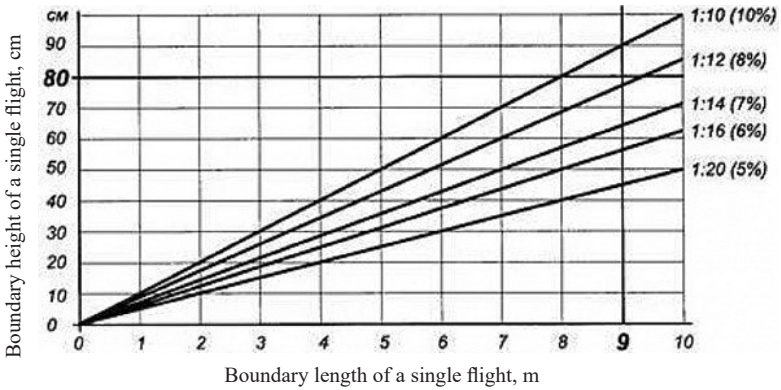


Fig. 3

[1] ДБН В.2.2-40:2018.

[2] Уклон пандуса для инвалидов/*Bouw.ru*. URL: http://bouw.ru/article/uklon-pandusa-dlya-invalidov (date accessed: 03.06.2020).

In addition, the railing handrails (Fig. 2) have side mounts that do not meet the requirements of paragraph 5.2.3 of ДБН В.2.2-40:2018 [1]:

"Stairs and ramps must have handrails on both sides at a height of 0.7 m and 0.9 m, and in preschools, parks, playgrounds, additional height of 0.5 m.

The handrail should be attached to the support from below (side mounting is not allowed). The distance from the side wall is 0.045 m, the diameter of the handrail pipe is 0.035-0.045 m. The end parts of the handrail at both the top and bottom should be 0.3 m longer than the march or the sloping part of the ramp and rounded.

For stair widths of 2.5 m and more, additional handrails should be provided".

Fig. 4

Fig. 5

Fig. 4: wheelchair ramp is arranged along the facade of the public building, concrete, lined with porcelain tiles, the surface of the ramp is filled with concrete tiles, on both sides of the ramp is a prefabricated stainless steel handrail. The width of the ramp is 1.2. , 3,. 5.3.1 counting the handrails is 1.2 m. While wheelchair ramp construction illustrated in photo 3, the following requirements of paragraph 5.3.1 of 5.3.1 ДБН В.2.2-40:2018 [2] "*Width of the ramp should be 1.2 m in the lumen in one-way traffic, 1.8 m in two-way traffic."*

Fig. 5: wheelchair ramp is arranged along the facade of the public building, concrete, lined with marble, the surface of wheelchair ramp concrete screed. A welded metal railing painted with oil paint is installed on the outside of the ramp. The depth of the horizontal ramp platform is 0.7 m. The height of the entrance door threshold is 0.12 m. While wheelchair ramp construction illustrated in photo 4, the following requirements of ДБН В.2.2-40:2018 [3] were not met:

"5.3.1 <…> After each ascent, horizontal platforms with a depth of at least 1.5 m should be installed. <<>

<…>

[1] ДБН В.2.2-40:2018.

[2] Ibid.

[3] Ibid.

6.1.4 Entrance doors should be designed without thresholds. If necessary, the height of each threshold element shall not exceed 0.02 m. <…>".

Fig. 6

Fig. 7

Fig. 6: wheelchair ramp is arranged perpendicular to the facade of the public building, it opens to the parking lot, concrete, plastered, the surface of the ramp is filled with concrete tiles, on one side of the ramp is a welded metal rail of rectangular cross section, painted with oil paint. The exit to the parking lot at the curb is not completed, access to the ramp is limited. During the construction of the ramp illustrated in photo 5, the following requirements of ДБН В.2.2-40:2018 [1] were not met:

"5.1.6 If it is impossible to organize over ground pedestrian crossings <…> it is necessary to design underground and over ground crossings, which should be equipped with ramps with a gentle descent or lifting devices (elevator, lift).

<…>

5.3.2 External ramps shall have a double-sided fence with handrails <…>".

Fig. 7: wheelchair ramp is arranged along the facade of a public building made of welded metal structures, the surface of the ramp is filled with embossed metal sheet, on both sides of the ramp there is a welded metal handrail of rectangular cross section (side mounting) painted with oil paint. There is rust damage over the entire plane of the ramp filling surface. There is no exit to the parking lot at the location of the curbstone, access to the ramp is limited. During the construction of the ramp illustrated in photo 6, the following requirements of ДБН В.2.2-40:2018[2] were not met:

"5.1.6 If it is impossible to organize over ground pedestrian crossings <…> it is necessary to design underground and over ground crossings that should be equipped with ramps with a gentle descent or lifting devices (elevator, lift).

<…>

5. 2. 3 and ramps must have handrails on both sides at a height of 0.7 m and 0.9 m, and in preschools, parks, playgrounds, additional height of 0.5 m.

[1] ДБН В.2.2-40:2018.

[2] Ibid.

The handrail should be attached to the support from below (side mounting is not allowed). Distance from the side wall is 0.045 m diameter of the handrail pipe is 0.035-0.045 m. The end parts of the handrail at both the top and bottom should be 0.3 m longer than the march or the sloping part of the ramp and rounded.

For stair widths of 2.5 m and more, additional handrails should be provided".

Fig. 8

Fig. 9

Fig. 8 and 9: wheelchair ramp is arranged along the facade of a multistory residential building made of welded metal structures, surface of the ramp is filled with mesh, on both sides of the ramp is a welded metal rail of rectangular cross section. Metal structures are painted. The depth of the horizontal platform of the ramp is 1.4 m. The width of the ramp with the handrail is 1.0 m. While construction of the ramp illustrated in photos 7 and 8, the following requirements specified in paragraph 5.3.1 of 5.3.1 ДБН В.2.2-40:2018 [1]:

"Wheelchair ramp width of the ramp should be in the lumen on a one-way movement of 1.2 m, on a two-way :1.8 m. The maximum height of one lift of the ramp should not exceed 0.8 m. After each lift, horizontal platforms with a depth of at least 1.5 m".

In addition, in all the above examples of arrangement of ramps there is a significant non-compliance with regulatory requirements, which is that there are no canopies over the platforms and ramps provided by ДБН В.2.2-40:2018 [2]:

"5.1.11 Entrance area of the building must have: a canopy, drainage both from the surface of the site and from the roof of the canopy. Depending on the local climatic conditions, the site heating should be installed according to the design assignment.

<…>

5.3.3 The need to heat wheelchair ramp surface, as well as arrangement of the canopy or shelter is determined by design task.

[1] ДБН В.2.2-40:2018.

[2] Ibid.

In addition, ДБН В.2.2-9:2018 [1] stipulates that design solutions, devices and activities should be convenient for all user groups (in particular, LMG) without additional adaptations and adaptations. In case of impossibility to make universal decisions, it is necessary to use reasonable devices for LMG according to ДБН В.2.2-40 [2]. It is necessary to provide unimpeded and convenient movement of persons with disabilities and other LMG in public buildings, institutions, establishments or enterprises.

It should be noted that during technical re-equipment (reconstruction) of existing porches for the needs of LMG owners or tenants of public buildings should obtain permission to allocate land for construction, terms of reference for design, develop design documentation and obtain permits and approval documents in local governments. These measures require a significant amount of time.

While research (in the scope of given examples) it was found that certain discrepancies can be combined into two groups: the first is discrepancies that can be eliminated by re-equipment and bringing ramps to the requirements of Building code (ramps shown in figs. 5 and 6); namely: arrangement of exits on the sidewalk, proper placement and replacement of handrails); the second is inconsistencies that cannot be eliminated, because in this case we will have to change the design and spatial planning solutions (ramps shown in figs. 1—4, 7 and 8; where discrepancies in the width and height of wheelchair ramps, depth of horizontal platforms, failure to regulatory bias and other shortcomings that can be eliminated only by complete replacement).

Conclusions. The most common inconsistencies with the requirements of Building code that occur while construction (reconstruction) of ramps or technical re-equipment of porches for LMG access to the premises of residential and public buildings are considered and systematized. In addition, recommendations are provided to eliminate identified discrepancies depending on their nature. So, after analyzing the content presented in this article, as well as the level of development of social city infrastructure, we came to the conclusion that most residential and public buildings do not meet the needs of LMG and need improvement. The research topic is relevant, fully reveals the issues to be solved and can be useful while forensic structural inspections and forensic researches as an informative source.

References

DBN V.2.2-40:2018. *Inkliuzyvnist budivel ta sporud. Osnovni polozhennia.* Chynnyi vid 01.04.2019 r. URL: http://www.minregion.gov.ua/wp-content/uploads/2019/01/V2240-2018.pdf (data zvernennia: 03.06.2020) [in Ukrainian].

DBN V.2.2-9:2018. *Budynky i sporudy. Hromadski budynky ta sporudy. Osnovni polozhennia.* Chynnyi vid 01.06.2019 r. URL: https://dreamdim.ua/wp-content/

[1] ДБН В.2.2-9:2018.

[2] ДБН В.2.2-40:2018.

uploads/2019/03/DBN_V-2-2-9-2018-Gromadski-budynky.pdf (data zvernennia: 03.06.2020) [in Ukrainian].

Uklon pandusa dlia ynvalydov. Bouw.ru. URL: http://bouw.ru/article/uklon-pandusa-dlya-invalidov (data zvernennia: 03.06.2020) [in Ukrainian].

Ю. Ю. Петришина, С. В. Радченко, Н. В. Сила

ПРОБЛЕМНІ ПИТАННЯ ДОСЛІДЖЕННЯ ПАНДУСІВ, ПРИЗНАЧЕНИХ ДЛЯ ДОСТУПУ МАЛОМОБІЛЬНИХ ГРУП НАСЕЛЕННЯ ДО БУДІВЕЛЬ, ТА ВИЗНАЧЕННЯ ЇХ ВІДПОВІДНОСТІ БУДІВЕЛЬНИМ НОРМАМ І ПРАВИЛАМ

Визначено проблематику питань, що виникають під час проведення досліджень збудованих (реконструйованих) пандусів до наявних будівель, технічного переоснащення ґанків будівель та споруд або проєктів їх зведення щодо відповідності будівельним нормам і правилам. Проведено візуальні обстеження та вимірювання геометричних параметрів понад 30 пандусів у різних районах міста Харкова.

Проаналізовано вимоги чинних будівельних норм, з'ясовано ступінь їх застосування до наявних споруд для доступу маломобільних груп населення до житлових і громадських будівель. Визначено й систематизовано основні види порушень будівельних норм та правил під час будівництва пандусів, що створюють значні перешкоди для доступу маломобільних груп населення до житлових і громадських будівель.

Ключові слова: адаптація, габаритні розміри, будівлі, споруди, громадські будівлі, елемент, житлові будинки, зона, маломобільні групи населення, особа з інвалідністю, доступність для маломобільних груп населення, доступність для осіб з інвалідністю, інклюзивність будівель і споруд, місця обслуговування, пандус, підйом, розумне пристосування, фактура, шлях руху.

Ю. Ю. Петришина, С. В. Радченко, Н. В. Сила

ПРОБЛЕМНЫЕ ВОПРОСЫ ИССЛЕДОВАНИЯ ПАНДУСОВ, ПРЕДНАЗНАЧЕННЫХ ДЛЯ ДОСТУПА МАЛОМОБИЛЬНЫХ ГРУПП НАСЕЛЕНИЯ В ЗДАНИЯ, И ОПРЕДЕЛЕНИЯ ИХ СООТВЕТСТВИЯ СТРОИТЕЛЬНЫМ НОРМАМ И ПРАВИЛАМ

Определена проблематика вопросов, возникающих при исследовании возведённых (реконструированных) пандусов к существующим зданиям, технического переоснащения крылец зданий и сооружений или проектов их строительства на предмет соответствия строительным нормам и правилам. Проведено визуальное обследование планировочных и конструктивных решений, выполнены замеры геометрических параметров более 30 пандусов в разных районах города Харькова.

Проанализованы требования действующих строительных норм, установлена степень их применения к существующим сооружениям для

доступа маломобильных групп населения в жилые и общественные здания. Установлены и систематизированы основные виды нарушений строительных норм и правил при строительстве пандусов, создающих значительные препятствия для доступа маломобильных групп населения в жилые и общественнные здания. Даны рекомендации относительно необходимых изменений в конструкции пандусов и адаптированных крылец жилых и общественных зданий с целью предотвращения травмирования МГН.

Ключевые слова: адаптация, габаритные размеры, здания, сооружения, общественные здания, элемент, жилые здания, зона, маломобильные группы населения, особа с инвалидностью, доступность для маломобильных групп населения, доступность для лиц с инвалидностью, инклюзивность зданий и сооружений, места обслуживания, пандус, подъём, разумное приспособление, фактура, путь движения.

Received by Editorial Board: 17.06.2020

Petryshyna U. U., Radchenko S. V., Syla N. V. Complex issues arising while conducting research on wheelchair ramps for access to buildings by persons with reduced mobility and determination of wheelchair ramps' compliance with building standards and regulations//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 406—415. DOI: https://doi.org/10.32353/khrife.2.2020.33.

DOI: https://doi.org/10.32353/khrife.2.2020.34
UDC 343.98:614.84

I. L. Shebalkov,
Senior Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-3021-3472,
e-mail: shebalkov@ukr.net
Yu. V. Panchuk,
Researcher of Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-86056029, e-mail: expert.ryndina31071988@gmail.com
R. N. Huseinov,
Forensic Expert of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Forensic Expert "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-3021-3472, e-mail: huseinov_ruslan@ukr.net
V. S. Suprun,
Researcher of Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute",
Kharkiv, Ukraine,
ORCID: 0000-0001-8830-0267, e-mail: valeriy.suprun@hniise.gov.ua

Current problems of multidisciplinary forensic examinations while determination of the course of action of fire departments of the state emergency service of Ukraine

The research on the problem was carried out when solving the issues of multidisciplinary fire investigation and research on occupational and health safety, when establishing conformity of actions of authorities personnel and fire-fighting units during fire-rescue operations with the basic requirements of regulatory documents on labor protection and fire tactical methods of hostilities, use of special equipment, fire engines and fire extinguishing means.

The main areas and defining characteristics of a multidisciplinary forensic fire investigation and research on occupational and health safety were identified, which include: investigation of circumstances of occurrence and dynamics of the development of fire (analysis of the cause of fire), the principles of organization

© I. L. Shebalkov, Yu. V. Panchuk,
R. N. Huseinov, V. S. Suprun, 2020

and conduct of hostilities at specific sites in specific conditions, skillful and competent use of special equipment techniques and fire extinguishing agents (investigation of actions tactics of fire departments and the equipment used by them), compliance with the requirements of the Safety Rules when carrying out fire fighting, both by citizens and employees of fire-rescue units. The meaning of the concepts: "fire dynamics", "fire extinguishing", "prompt actions of the State Emergency Service Units", is disclosed.

A sufficient and necessary minimum of input information was determined to solve an investigator's tasks which in the future will contribute to improving the quality and comprehensiveness of forensic examination, regardless of the object under study.

The analysis of information provided by the investigator, including at the request of a forensic expert in this category of cases, which will further contribute to a full and high-quality forensic examination regardless of fire occurrence locations, has been carried out.

Keywords: multidisciplinary forensic fire investigation and research on occupational and health safety, entities of forensic examination, accident, fire-tactical methods while hostilities, fire tactics, fire-rescue operations, special fire fighting equipment and extinguishing agents.

Formulation of Research Problem. Analysis of fire and technical examinations and research performed by professionals of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" for the previous year indicates that almost a quarter of materials submitted for research contain questions about the compliance of actions of fire brigade personnel with regulations, as well as the question of what actions (or inaction) of State Emergency Service officials, from technical point of view are in causal connection *"with the occurrence of dangerous events (injuries or accidents)"* that are the research subject for forensic expert on labor protection and life safety. Since the work related to elimination of fires and emergencies in which emergency rescue units of the State Emergency Service of Ukraine are involved are high-risk works and are characterized by the risk of injury, accidents and death of both personnel and population, forensic examinations appointed for investigation of such events should be addressed as a multidisciplinary fire and engineering and technical research in the field of labor protection and life safety.

Usually, law enforcement officers do not take into account the research complexity while collecting and preparing materials for forensic examination and reflection of all circumstances of the investigated event and provided materials are uninformative.

However, with proper preparation of submitted materials, determination of all circumstances of the investigated event, provision of appropriate layouts of personnel and special equipment of State Emergency Service units, tasks of multidisciplinary fire and engineering research on labor protection and life safety can be solved successfully.

Analysis of Essential Researches and Publications. The causes of fire associated with violations of fire safety rules, organization of firefighting and fire tactics at facilities of various forms of ownership and purpose were studied by the following scientists: B. V. Megorskyi [1], A. M. Baratov [2], O. I. Fedotov, O. P. Livchikov, L. M. Ulyanov [3], S. G. Stepanenko [4], O. S. Anisimov [5], V. I. Svyatenkyi, V. S. Ogorodnik, G. G. Panasyuk [6], I. F. Kimstach [7], M. L. Tsymbal [8] and others.

This **Article Purpose** is to determine characteristics of a multidisciplinary fire research on labor protection and life safety for an objective and comprehensive research on actions of fire departments of the State Emergency Service of Ukraine while fires and their consequences that threaten life and health and cause significant material damage, as well as to determine necessary actions of the pre-trial investigation bodies that contribute to improving forensic expert research quality.

Main Content Presentation. It is known that fires all over the world cause significant material damage and in most cases cause human casualties, both among ordinary citizens and among the personnel of fire departments.

Rapid development of science and technology, chemical and gas industries, that technological procedures require a significant amount of flammable and explosive substances, production and construction using new synthetic materials, trend of spreading floors and areas of public and residential buildings; all this complicate fire and rescue units.

According to official information of the communication center of State Emergency Service, almost 15,000 fires have been registered in Ukraine since the beginning of 2020 which is 25% more than last year and in 99% of cases these fires are caused by human factors destroy traces of a more serious crime or disregard for fire safety rules).

---

[1] Мегорский Б. В. Методика установления причин пожаров. Москва, 1966.

[2] Баратов А. Н., Иванов Е. Н., Корольченко А. Я. Пожарная безопасность. Взрывобезопасность: справочник. Москва, 1987.

[3] Федотов А. И., Ливчиков А. П., Ульянов Л. Н. Пожарно-техническая экспертиза. Москва,1986.

[4] Степаненко С. Г., Білкун Д. Г., Яник Я. М., Тимощук Ю. Т. Дослідження пожеж: довідк.-метод. посіб. Київ, 1999.

[5] Анисимов А. С. Рекомендации по выявлению причин пожаров. Киев, 1979.

[6] Святенький В. И., Огородник В. С., Панасюк Г. Г. Выявление и устранение причин пожаров: некоторые методические рекомендации для следователей и работников Госпожнадзора. Киев, 1997.

[7] Кимстач И. Ф., Девлишев П. П., Евтюшкин Н. М. Пожарная тактика: учеб. пособ. Москва, 1984.

[8] Цимбал М. Л. Розслідування пожеж (огляд місця події та проблеми застосування спеціальних знань): монографія/за ред. д-ра юрид. наук, проф. В. Ю. Шепітька. Харків, 2004.

Crimes related to fire investigation belong to the most complex category, due to phenomenon nature of fire (non-obvious in most cases, conditions and circumstances of occurrence and spread in time and space, destruction of probable traces) and specifics of this event investigation and circumstances subjective and objective nature.

Thus, in the *Guidelines for determining the causes of fires and preparation of materials for fire technical examinations* it is noted that fire is uncontrolled burning outside a special cell that causes material damage. The main signs of a fire include: disorganization of combustion process; combustion process in a place not intended for this purpose; infliction of losses due to destruction and damage to property; existence of victims or injured. Usually a fire is accompanied by various chemical and physical phenomena: chemical reactions, release of heat and combustion products in the combustion zone, heat transfer, formation of gas exchange. Phenomena that accompany a fire can in some cases cause deformation and destruction of building structures, pipelines with gases or liquids, equipment, explosives, mixtures of fuel gases with air, boiling and release of hot liquids from tanks, etc.[1]

Research paper: *Identifying and eliminating the causes of fires: some guidelines for investigators and employees of the State Fire Service* states that the cause of the fire is the result of certain interrelated links: action (inaction) of people → conditions (when the fire becomes possible or necessary for occurrence of fire) → direct cause of fire → fact of fire. The authors of this book have identified two main groups of causes of fire: general and direct (technical). According to scientists, common causes of fires include: careless handling of fire and other ignition sources; natural phenomenon; set on fire. Among technical causes of fire, authors of the guidelines called: violation of fire safety rules while operating electrical equipment, electric heaters; stove heating malfunctions, careless handling of fire during smoking; sparks; self-ignition of materials; pranks of children with fire; lightning; arsons [2].

It should also be noted that Criminal Code of Ukraine contains a significant list of crimes and sanctions provided for where a fire can be an element of the objective side of the crime: *Deliberate destruction or damage to property* (Article 194 of the Criminal Code) , *Threat of destruction of property* (Article 195 of the Criminal Code), *Intentional destruction or damage of territories under state protection and objects of nature reserve fund* (Article 252), *Known false information about the threat to public safety, destruction or damage to property* (Article 259), *Violation of statutory fire safety requirements* (Article 270 of the Criminal Code) and others.

---

[1] Коротких Н. И., Мартынюк В. И. Методическое пособие по вопросам установления причин возникновения пожаров и подготовке материалов для проведения пожарно-технических экспертиз. Черновцы, 1982.

[2] Святенький В. И., Огородник В. С., Панасюк Г. Г. Op. cit.

A long list of norms of the Criminal Code of Ukraine concerning such a socially dangerous phenomenon as fire, significant material damage that a fire can cause and possible serious consequences (in the form of death or injury) require the investigator to investigate crimes of this category fully and comprehensively. However, investigator is not a professional in this field and does not have specific expertise that he can apply in determining nature of such a phenomenon as fire and its causes.

Use of specific expertise while conducting a forensic examination and researches allows the investigator to fully conduct a pre-trial investigation and determine the cause of the event under investigation and the range of persons involved. Determining the fire because that forensic expert carries out within the framework of fire technical research is a complex dynamic procedure including a complete analysis and synthesis of the investigated event, situation that occurred before the fire, during the fire and after its elimination taking into account a set of conditions and processes at all stages of occurrence, development, spread and extinguishing of fire. The circle of persons whose actions caused the fire or an official, as a result of whose actions or inaction conditions have arisen and severe consequences have occurred is determined by forensic expert on labor protection and life safety. Therefore, most of fire technical investigations assigned to investigator have a complex basis and can be solved only in the case of a multidisciplinary forensic fire and engineering examination in the field of labor protection and life safety.

Most often, as evidenced by the expert practice of professionals of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" in this category of investigations, investigators (in addition to the standard questions to determine the coordinates of the focal area and the cause of the fire make the following questions: "*Which officials have a causal link with negative consequences? Was firefighting equipment used properly during firefighting? Did the actions of the employees of the State Emergency Service during the firefighting comply with the current regulations on fire safety and labor protection?*" etc.

Preparing answers to the investigator questions, forensic experts multidisciplinary researches in the following main areas.

1. Regarding the fire itself:
   - investigation of fire circumstances (determination of the cell or focal zone and conditions that caused the fire);
   - research on fire development process (dynamics), in particular its three main characteristic phases (spread of combustion when the flame covers almost 80% of combustible material; after reaching the maximum rate of combustion of materials when the fire is accompanied by active flame combustion).
   - stable rate of weight loss and when there is a sharp decrease in the rate of burnout and combustion of burning materials and structures.

2. Tactics of fire department action and equipment used, fire extinguishing means and fire extinguishing substances:
   - management and conducting principles of combat operations by a fire brigade at specific facilities in specific conditions;
   - skillful and competent use of all technical capabilities of fire and rescue (tank trucks) and special vehicles (pump-hose, air-foam extinguishing and fire ladders, etc.) and fire extinguishers.
3. Compliance with the requirements of the Rules of labor safety by employees of the State Emergency Service of Ukraine aimed at preserving life, health and efficiency during firefighting, emergency response in the field of civil population and territory protection from emergencies of man-made and natural nature, industrial explosives and military purposes, etc. [1]
4. Conditions and procedure for ensuring fire safety at enterprises, institutions and organizations, as well as compliance with the requirements of Fire safety code by authorized officials and citizens.

While solving tasks related to the fire itself, forensic expert often needs the following information:

- testimony of witnesses (possible), circumstances (where and when, in what place or under what circumstances occurred) occurrence and spread of flames at the initial stage (usually the time before the arrival of fire and rescue units), as well as what actions were performed at the initial stage of detection fire (or its signs);
- determination of all (possible) circumstances of fire development (dynamics). Fire dynamics as stated in textbooks on fire tactics means the process of fire development in time and space accompanied by the impact of dangerous fire factors on the environment. Under the dangerous fire factor is understood a factor which impact leads to injury, poisoning or death, as well as material damage [2].

For solving investigator task as for actions of fire departments and their use of equipment and firefighting equipment, forensic expert should analyze and determine the essence and content of the operational actions of a particular fire and rescue unit. As is known from the Statute of actions in emergency situations of management bodies and divisions of Operational rescue service of civil protection during fire extinguishing, operative actions of any division of the State Emergency Service of Ukraine include: gathering of personnel, departure and going to a fire place, fire investigation, rescue of people, operative deployment and fire extinguishing.

---

[1] Правила безпеки праці в органах і підрозділах МНС України: затв. наказом МНС України від 07.05.2007 р. № 312. URL: https://www.dsns.gov.ua/files/2019/2/14/321/PRAVIL_Ohor-Pr_MNS.pdf (date accessed: 06.06.2020).

[2] Клюс П. П., Палюх В. Г., Пустовой А. С., Саєнко О. І., Сенчіхін Ю. М., Сировий В. В. Пожежна тактика: підручник. Харків, 1998.

Quality and effectiveness of the unit operational actions depend on many factors, the main of which are the readiness and ability of the unit to perform the main operational task in any difficult situation within its tactical capabilities [1].

Fire extinguishing is a complex process involving the following types of operational staff actions: supply of fire extinguishers to stop burning and limit the spread of fire, opening and dismantling structures, smoke removal and temperature reduction, protection of structures and equipment from flames, high temperatures and other factors of fire, property evacuation, etc. Some operational actions performed by units of the State Emergency Service of Ukraine are common. They are carried out by each unit during a fire call and performed in the following sequence: collection, direction to the place of call, fire investigation, rapid deployment, cessation of burning and return to the fire and rescue unit. The rest of operational actions (such as rescuing people, opening and dismantling structures, removing smoke, evacuating valuables, etc.) are not performed by units on every fire but only on individual ones.

Therefore, all operational actions can be divided into general and *individual*. General actions are performed in a strict sequence: individual ones in parallel with general ones (such as rapid deployment, fire investigation, cessation of combustion).

According to their purpose, operational actions of units are conventionally divided into preparatory, basic and auxiliary. Preparatory and auxiliary actions are called operational actions that create conditions for implementation of basic actions. The main operational actions are those as a result of which the safety of people and animals is achieved and combustion is stopped, i.e. the main operational task on fire is ensured.

Regarding the solution of issues on compliance with requirements of the Rules of labor safety by each employee of the State Emergency Service of Ukraine in relation to investigated event, forensic experts consider compliance with:

- general requirements for labor protection in accordance with regulations in force on the territory of Ukraine and regulations in force directly in the units of the State Emergency Service of Ukraine (conducting briefings and exercises, etc.);
- safety measures while use of operational vehicles, special equipment and facilities (fire, rescue, individual protection);
- occupational safety requirements while service and firefighting at various facilities (regardless of ownership).

For successful solution of forensic expert tasks, resolving tasks asked by the investigator and the above questions, professionals of the National

[1] Статут дій органів управління та підрозділів Оперативно-рятувальної служби цивільного захисту під час гасіння пожеж: затв. наказом МВС України від 26.04.2018 р. № 340. URL: https://zakon.rada.gov.ua/laws/show/z0802-18#n4 (date accessed: 06.06.2020).

Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" (with the help of specialists Kyiv Scientific Research Institute of Forensic Expertise and Dnipropetrovsk Scientific Research Institute of Forensic Expertise under the guidance of O. M. Kliuiev, Director, Doctor of Law, Honored Lawyer of Ukraine, Professor with personal participation of Yu. M. Senchikhin, PhD in Technology, Professor of the department of fire tactics and emergency rescue works, developed and introduced *Methods of research of actions of personnel of management bodies and fire and rescue divisions during carrying out fire and technical examination* [1]. These methods are the first developed algorithm (based on the analysis of statistical data and generalization of expert practice by modeling methods and techniques of tactical and technical actions of management and fire and rescue units) to solve problems to determine compliance of staff management and fire and rescue units during fire and rescue operations to the requirements of regulatory documents and firefighting tactics of hostilities. Introduction of these methods contributed to a unified approach to forensic fire and technical examinations by expert institutions of Ukraine in this area of forensic researches.

Unfortunately, investigators do not take into account a significant amount of necessary initial information required to conduct a full-fledged investigation and provide substantiated information when appointing a comprehensive forensic research on fire investigation, preparing materials of criminal proceedings and additional materials (according to expert request) and an objective written opinion. Instead, taking into account the requirements of procedural legislation of Ukraine and paragraph 2.3 of the Instructions on the appointment and conduct of forensic examinations and researches, *"the expert is prohibited: <…> independently collect materials to be examined, as well as select source data if they are reflected in the materials provided to him ambiguously"*, forensic experts while forensic multidisciplinary examination, examining things and phenomena related to the fire, in order to determine the data necessary for its investigation can use only material and materialized objects provided to them for research and apply specific expertise [2].

Forensic expert practice demonstrates that quality of results of multidisciplinary forensic research in fire cases is negatively affected by unsatisfactory and sometimes uninformative selection of initial information by investigators, as well as insufficient processing of: expert techniques while scene investigation; methodology rules of situational research on signs of criminal violations of fire safety rules to determine the situation (event) that (as a set of

[1] Методика дослідження дій особового складу органів управління та пожежно-рятувальних підрозділів під час проведення пожежно-технічної експертизи: звіт НДР (заключ.) 10.8.34 від 18.01.2019 р./ХНДІСЕ. Харків, 2017.

[2] Інструкція про призначення та проведення судових експертиз та експертних досліджень: затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 06.06.2020).

interrelated circumstances) can cause a fire; incorrect assessment of cause-effect relation between events and situations related to the actions of fire and rescue units and occurrence of negative consequences.

Conclusions. Currently in Ukraine there is a steady tendency to increase the number of fires that lead to significant material damage and death or injury of people. One of the main reasons for such an unfavorable situation is to reduce the level of fire safety, the other is the result of criminal human actions or actions (inaction) of a responsible official. The problem of determining the fire cause, compliance with the actions of personnel of fire and rescue units and officials of the State Emergency Service of Ukraine (from technical point of view) are causally related to occurrence of dangerous events (injury or accident) is relevant and comprehensive; it is the topic of a multidisciplinary research within the framework of fire research and engineering on labor protection and life safety.

The issues that professionals solve while assignment of multidisciplinary forensic research require the investigator while collection and preparation of materials to more detailed and complete reflection of all event circumstances that will further contribute to a full and high quality forensic examination (regardless fire object).

References

Anisimov, A. S. (1979). *Rekomendatcii po vyiavleniiu prichin pozharov.* Kyiv [in Russian].

Baratov, A. N., Ivanov, E. N., Korolchenko, A. Ia. (1987). *Pozharnaia bezopasnost. Vzryvobezopasnost:* spravochnik. Moscow [in Russian].

Fedotov, A. I., Livchikov, A. P., Ulianov, L. N. (1986). *Pozharno-tekhnicheskaia ekspertiza.* Moscow [in Russian].

Instruktsiia pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen: zatv. nakazom Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 06.06.2020) [in Ukrainian].

Kimstach, I. F., Devlishev, P. P., Evtiushkin, N. M. (1984). *Pozharnaia taktika:* ucheb. posob. Moscow [in Russian].

Klius, P. P., Paliukh, V. H., Pustovoi, A. S., Saienko, O. I., Senchikhin, Yu. M., Syrovyi, V. V. (1998). *Pozhezhna taktyka:* pidruchnyk. Kharkiv [in Ukrainian].

Korotkikh, N. I., Martyniuk, V. I. (1982). *Metodicheskoe posobie po voprosam ustanovleniia prichin vozniknoveniia pozharov i podgotovke materialov dlia provedeniia pozharno-tekhnicheskikh ekspertiz.* Chernovtcy [in Russian].

Megorskii, B. V. (1966). *Metodika ustanovleniia prichin pozharov.* Moscow [in Russian].

Metodyka doslidzhennia dii osobovoho skladu orhaniv upravlinnia ta pozhezhno-riatuvalnykh pidrozdiliv pid chas provedennia pozhezhno-tekhnichnoi ekspertyzy: zvit NDR (zakliuch.) 10.8.34 vid 18.01.2019 r./KhNDISE. Kharkiv, 2019 [in Ukrainian].

Pravyla bezpeky pratsi v orhanakh i pidrozdilakh MNS Ukrainy: zatv. nakazom MNS Ukrainy vid 07.05.2007 r. № 312. URL: https://www.dsns.gov.ua/files/2019/2/14/321/PRAVIL_Ohor-Pr_MNS.pdf (data zvernennia: 06.06.2020) [in Ukrainian].

S*tatut dii orhaniv upravlinnia ta pidrozdiliv Operatyvno-riatuvalnoi sluzhby tsyvilnoho zakhystu pid chas hasinnia pozhezh*: zatv. nakazom MVS Ukrainy vid 26.04.2018 r. № 340. URL: https://zakon.rada.gov.ua/laws/show/z0802-18#n4 (data zvernennia: 06.06.2020) [in Ukrainian].

Stepanenko, S. H., Bilkun, D. H., Yanyk, Ya. M., Tymoshchuk, Yu. T. (1999). *Doslidzhennia pozhezh:* dovidk.-metod. posib. Kyiv [in Ukrainian].

Sviatenkii, V. I., Ogorodnik, V. S., Panasiuk, G. G. (1997). *Vyiavlenie i ustranenie prichin pozharov: nekotorye metodicheskie rekomendatcii dlia sledovatelei i rabotnikov Gospozhnadzora.* Kyiv [in Russian].

Tsymbal, M. L. (2004). *Rozsliduvannia pozhezh (ohliad mistsia podii ta problemy zastosuvannia spetsialnykh znan):* monohrafiia. D-r yuryd. nauk, prof. V. Yu.Shepitko (ed.). Kharkiv [in Ukrainian].

І. Л. Шебалков, Ю. В. Панчук, Р. Н. Гусейнов, В. С. Супрун

АКТУАЛЬНІ ПРОБЛЕМИ КОМПЛЕКСНИХ СУДОВО-ЕКСПЕРТНИХ ДОСЛІДЖЕНЬ ПІД ЧАС ВИЗНАЧЕННЯ ПОРЯДКУ ДІЙ ПОЖЕЖНИХ ПІДРОЗДІЛІВ ДСНС УКРАЇНИ

Зазначена необхідність дослідити проблеми комплексних пожежно-технічних досліджень і досліджень з охорони праці й безпеки життєдіяльності, визначити відповідність дій особового складу органів управління та пожежно-рятувальних підрозділів під час проведення пожежно-рятувальних робіт вимогам нормативних документів з охорони праці й пожежно-тактичним прийомам бойових дій, застосування спеціальної техніки та засобів пожежогасіння. Проаналізовано інформаційні матеріали для дослідження дій пожежних підрозділів ДСНС України на пожежі й визначення причиново-наслідкового зв'язку між досліджуваної подією, негативними наслідками та відповідальною особою у разі виникнення нещасного випадку.

Ключові слова: комплексна судова експертиза, суб'єкти судової експертизи, нещасний випадок, пожежно-тактичні прийоми бойових дій, пожежна тактика, пожежно-рятувальні роботи.

И. Л. Шебалков, Ю. В. Панчук, Р. Н. Гусейнов, В. С. Супрун

АКТУАЛЬНЫЕ ПРОБЛЕМЫ КОМПЛЕКСНЫХ СУДЕБНО-ЭКСПЕРТНЫХ ИССЛЕДОВАНИЙ ПРИ ОПРЕДЕЛЕНИИ ПОРЯДКА ДЕЙСТВИЙ ПОЖАРНЫХ ПОДРАЗДЕЛЕНИЙ ГСЧС УКРАИНЫ

Исследованы проблемы, возникающие при решении вопросов комплексных пожарно-технических исследований и исследований по охране труда и безопасности жизнедеятельности, при установлении соответствия действий личного состава органов управления и пожарно-спасательных подразделений во время проведения пожарно-спасательных работ основным требованиям нормативных документов по охране труда и пожарно-тактическим приёмам боевых действий, применения специальной техники, пожарных автомобилей и средств пожаротушения.

Определены основные направления и характерные особенности комплексного экспертного пожарно-технического исследования и исследования по охране труда и безопасности жизнедеятельности, включающие: исследование обстоятельств возникновения и динамики развития пожара (исследование причины пожара), принципы организации и ведения боевых действий на конкретных объектах в конкретных условиях, умелое и грамотное использование приёмов применения специальной техники и огнетушащих веществ (исследование тактики действий пожарных подразделений и используемой ими техники), выполнение требований Правил безопасности при выполнении работ по тушению пожара как гражданами, так и сотрудниками пожарно-спасательных подразделений. Раскрыт смысл понятий: «динамика пожара», «тушение пожара», «оперативные действия подразделений ГСЧС».

Определён достаточный и необходимый минимум исходной информации для решения заданий следователя, что в дальнейшем будет способствовать повышению качества и полноты проведения экспертных исследований (независимо от объекта исследования).

Ключевые слова: комплексная судебная экспертиза, субъекты судебной экспертизы, несчастный случай, пожарно-тактические приёмы боевых действий, пожарная тактика, пожарно-спасательные работы.

Received by Editorial Board: 18.06.2020

Shebalkov I. L., Panchuk Yu. V., Huseinov R. N., Suprun V. S. Current problems of multidisciplinary forensic examinations while determination of the course of action of fire departments of the state emergency service of Ukraine//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 416—426. DOI: https://doi.org/10.32353/khrife.2.2020.34.

DOI: https://doi.org/10.32353/khrife.2.2020.35
UDC 343.98:504.1

Ya. A. Petrenko,
Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-4444-2209,
e-mail: yana.petrenko.hndise@gmail.com
M. V. Zarchenko,
Forensic Expert of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-3046-6018,
e-mail: Zarchenko_m@ukr.net
I. A. Tararaka,
Forensic Expert of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-3046-6018,
e-mail: malva.km@gmail.com
M. L. Tsymbal,
PhD in Law, Honored Lawyer of Ukraine, Director's Advisor of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine

Environmental engineering analyses on signs of substantial harm to the environment as a result of illegal fishing industry

Peculiarities of forensic examination of substantial harm presuppose taking into consideration a variety of factual circumstances of the occurrence of an event of fishing and substantiation of significant harm signs. Environmental engineering analysis is based on the study of how the event of violation of environmental legislation requirements affected the environment.

Research on significance of environmental damage resulting from illegal fishing in the fishery is assigned when law enforcement agencies investigate violations of environmental legislation in court cases on claims of the State environmental inspectorate of Ukraine, the State Agency of Fisheries of Ukraine, local self-government bodies or other persons for damages caused as a result of unlawful withholding of fish resources from their natural habitat.

© Ya. A. Petrenko, M. V. Zarchenko, I. A. Tararaka, M. L. Tsymbal, 2020

The essence of forensic examination is based on three joint signs that are inherent in the nature of a forensic expert's special knowledge: subject, object and appointment of forensic examination.

The subject of the study on substantial harm resulting from illegal fishing is factual data on circumstances of fishing, the number of fish seized, total weight, size of a fish, species composition with reference to the territory of the water body, time period of fishing, and characteristics of water bodies, fish resources delineation in the corresponding category, in turn, are established on the basis of a forensic expert's special knowledge, by conducting research on facilities provided by the body that appointed forensic examination.

The main objective of research while determining definition for substantial harm as a result of illegal fishing is confirmation of the fact of causing significant harm as a result of withholding fish resources from the natural habitat established by the State environmental inspectorate of Ukraine or the State Agency of Fisheries and recorded in the audit documentation, determining of the extent and characteristics of caused substantial harm by these bodies.

Research object while study on substantial harm resulting from illegal fishing is documentary information in which factual data on a case are recorded.

Keywords: environmental engineering analysis, ecology, research, substantial harm, illegal fishing of aquatic biological resources (fish), water object, damage to environment.

Formulation of Research Problem. Relevance of the topic is that today the concept of materiality of damage is described in detail in the Criminal Code of Ukraine[1] but it is used in many ways and with different content, that requires a better definition in the case of investigation of materiality of the damage while forensic environmental analyses due to illegal fishing.

The number of illegal catches of aquatic bioresources (fish) in different regions of Ukraine is growing significantly that leads to criminal prosecution and assignment of environmental engineering (expert research) to determine the validity of the problem of significant damage. The purpose of forensic examination of significance of the damage is to conduct a full, detailed research and provide a reasoned conclusion.

Consideration of task of materiality of damage in each case depends on the interrelated features: environmental value (e.g., listing of fish in the Red Book of Ukraine), the number of fish caught in excess of allowed, fishing during spawning, damage to the environment due to changes in food chain of certain species of animals, birds, insects, violation of the hydrological regime of water bodies, etc.

[1] Кримінальний кодекс України: Закон України від 05.04.2001 р. № 2341-III (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 03.06.2020).

Analysis of Essential Researches and Publications. Forensic environmental engineering is based on the research on how the event of violation of environmental legislation affected the environment.

According to O. O. Dudorov [1] fishing is an action that consists in the removal of any tools of aquatic living resources from the natural habitat. The *fishing* term is used not to denote a type of crime, but as a characteristic of the objective side of the criminal encroachment on the objects of the aquatic environment that can be both single and multiple. Fishing should also be considered the capture of valuable species of fish in order to harvest caviar.

One of the main criteria for environmental impact is significant damage caused by illegal fishing. Illegal fishing is characterized by determining (confirming) the fact of such fishing without permit using prohibited fishing gear, number of fish removed from the water body, vital indicators of bioresources, total weight, species composition with reference to features the territory of the water body, period of fishing time, classification of water bodies (group, type, species), delimitation of fish resources by relevant categories having practical importance for investigation and detection of crimes against the environment and the state.

The **Article Purpose**. Coverage of results of Forensic environmental analyses on significance of environmental damage due to illegal fishing.

Main Content Presentation. Forensic environmental analysis of significance of environmental damage due to illegal fishing is appointed while investigation by law enforcement agencies of violations of environmental legislation, in lawsuits filed by the State Environmental Inspectorate of Ukraine (hereinafter referred to as State Inspectorate), the State Agency for Fisheries self-government or other persons, as well as compensation for damages caused by the illegal removal of fish resources from natural habitat.

Forensic research is a creative process in which the specialist's ability to determine (on the basis of logical analysis and scientific knowledge in various fields using modern highly effective research methods) causes and conditions that caused negative consequences. Forensic science essence is based on three aggregate features inherent in the nature of the expert's specific expertise: the subject, object and task of expert research.

The subject of forensic environmental analysis while research on materiality of damage due to illegal fishing is the actual data on the circumstances of fishing, the number of fish caught, total weight, fish size, species composition with reference to the territory of the water body, the period of fishing , features of water bodies, delimitation of fish resources into appropriate categories, that

[1] Бойко А. М., Брич Л. П., Дудоров О. О. та ін. Науково-практичний коментар Кримінального кодексу України/за ред. д-ра юрид. наук, проф. М. І. Мельника, д-ра юрид. наук, проф. М. І. Хавронюка. 10-те вид., перероб. та допов. Київ, 2018. 1368 р. URL: http://yurist-online.com/ukr/uslugi/yuristam/kodeks/024 (date accessed: 03.06.2020).

determines the expert (on the basis of specific expertise and by studying objects provided by the body that appointed the examination).

The main task of forensic environmental analysis in determining significance of damage due to illegal fishing is to confirm the fact of causing significant damage as an extraction result of fish resources from the natural habitat, recorded by the State Inspectorate or State Agency for Fisheries of Ukraine and in the documentation of inspections, significant damage. The amount of damages and confirmation of the data determined by the State Inspectorate or State Agency for Fisheries for the amount calculation of damages is arithmetically confirmed within forensic economic analysis.

The object of forensic environmental analysis in investigating materiality of the damage caused by the destruction of the green space is the documentary content where facts of the case are recorded.

Research objects include:

- act of inspection of State Inspectorate on compliance with the requirements of environmental legislation;
- report on administrative offense;
- description of aquatic bioresources and fishing gear (to the report on administrative offense);
- letter from the State Agency for Fisheries or related institutions on significance of the damage caused to aquatic bioresources;
- act of inspection of the offense scene of fish protection legislation;
- calculation of the amount of damage caused to the state as a result of illegal fishing (with annexes);
- inspection protocol of a scene with corresponding photo tables or video;
- permits for special use of aquatic bioresources in water bodies, etc.

According to O. O. Dudorov [1]: *"fishing is an action consisting in removal of any tools of aquatic living resources from natural habitat. The fishing term is used not to denote a type of crime but as a characteristic of the objective side of the criminal encroachment on objects of aquatic environment that can be both single and multiple. Fishing should can be considered as capture of valuable species of fish in order to harvest caviar".*

According to paragraph 12 of the Resolution of the Plenum of the Supreme Court of Ukraine № 17 *On judicial practice in cases of crimes and other offenses against the environment* dated on 10.12.2004 (hereinafter referred to as the *Resolution of the Plenum of Supreme Court of Ukraine*) [2]:

"Illegal fishing, animal or other aquatic extractive industry should be understood as the removal of aquatic living resources from the natural environment carried out in violation of applicable law governing the procedure

[1] Бойко А. М., Брич Л. П., Дудоров О. О. and others. Op. cit.

[2] Про судову практику у справах про злочини та інші правопорушення проти довкілля: Постанова Пленуму ВСУ від 10.12.2004 р. № 17. URL: https://zakon.rada.gov.ua/laws/show/v0017700-04 (date accessed: 03.06.2020).

and conditions of industrial, recreational, sport fishing, other use of aquatic living resources . In particular, fishing that is carried out contrary to the existing rules is illegal: without proper permission, at a prohibited time, in unauthorized places, with the use of prohibited fishing gear, in excess of established limits or catch rates".

Fishing is implementation of both the repeated capture of fish, animals or plants and one act of such actions.

On the territory of Ukraine, it is allowed to carry out industrial, recreational and sport fishing in accordance with the requirements of Art. 25 of the Law of Ukraine: *On Fauna* [1].

In Art. 1 of the Law of Ukraine : *"On Fishery, Industrial Fishing and Protection of Water Bioresources"*[2] *states that industrial fishing (fishing) is a type of special use of aquatic bioresources (extraction, reception, processing, storage, transportation, etc., including fuel, water, containers, food for the operation of fishing fleet vessels and their crews) in fishery water bodies (their parts) including in areas outside the jurisdiction of Ukraine , recreational fishing is free fishing (catch) of aquatic bioresources in the order of general use, in the allowed volumes, for personal needs (without the right of realization) by the catching means established for this purpose by rules of fishing. In other cases, recreational fishing is carried out on the right of special use , sport fishing is a type of recreational fishing, carried out in the general use, with establishment of certain requirements for sporting events or qualification standards*".

Special use of natural resources within the territories and objects of the nature reserve fund is carried out in accordance with Art. 9[1] of the Law of Ukraine: *On Nature Reserve Fund of Ukraine* [3].

business in aquatic extractive industries without an appropriate permit takes place when the infringers catch aquatic bioresources arbitrarily, without the necessary permission of the competent authority. Amateur and sport fishing on public water bodies is carried out free of charge and without the need to obtain special permits. Permits for fishing (on the basis of special use of aquatic living resources) are issued by fish protection authorities in various forms (permits for commercial, recreational and sport fishing, industrial ticket, licenses for amateur and sport fishing of valuable fish species, etc.).

---

[1] Про тваринний світ: Закон України від 13.12.2001 р. № 2894-III (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/2894-14 (date accessed: 03.06.2020);

[2] Про рибне господарство, промислове рибальство та охорону водних біоресурсів: Закон України від 08.07.2011 р. № 3677-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/3677-17 (date accessed: 03.06.2020).

[3] Про природно-заповідний фонд: Закон України від 16.06.1992 № 2456-XII (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/2456-12/ed20200703 (date accessed: 03.06.2020).

Fishing while prohibited period provides that it is carried out when fishing is prohibited:

a) in general (fishing in newly created reservoirs is prohibited by special order, amateur fishing for dolphins, all species of sturgeon and their hybrids, salmon, trout, grayling, all species of crabs, oysters and other species listed in the Red Data Book of Ukraine);
b) for the period which a ban is imposed for on certain types of aquatic bioresources or reservoirs (more specific terms of water extraction are determined by the basin-territorial principle and specified in the rules of commercial, recreational and sport fishing).

Prohibited places should be considered reservoirs or their areas where implementation of water extraction is always prohibited or allowed only for a certain period. For example, it is forbidden to carry out sport and recreational fishing: in inlet and discharge canals of power plants, in branches of reclamation and fishery systems, in sluice canals, near protected bridges, within regime protection zones, at a distance of 500 m around fish farms, on winter farms etc.

Prohibited methods and tools for fishing and other aquatic extractive industries are those that are generally not allowed to be used or that are prohibited to be used for catching certain objects of aquatic fauna. For example, while recreational and sport fishing, it is prohibited to catch aquatic living resources with the use of explosives and poisonous substances, firearms and pneumatic weapons (except for spearguns for spearfishing), barbed fishing gear, electric current, industrial and other fishing gear made of materials all species and names, catching crayfish in the dark with the use of lighting, as well as prohibited commercial fishing by dyeing with rattles and chatter.

Regarding the definition of significant damage

Consequences as a part of the crime provided by Art. 249 of the Criminal code of Ukraine [1] is directly reflected in the form of causing essential damage.

Crime is over from the moment of causing significant damage. Illegal employment in the water mining industry which did not entail these consequences, constitutes an administrative offense (Article 85 of the *Code of Ukraine on Administrative Offenses* [2]).

In the scientific literature and court explanations (for example, in the above-mentioned Resolution of the Plenum of Supreme Court of Ukraine) [3] it is noted that the concept of *significant damage* is evaluative. This means that significance issue of certain damage caused by illegal fishing or other aquatic

[1] Кримінальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 03.06.2020).

[2] Кодекс України про адміністративні правопорушення: Закон України від 07.12.1984 р. № 8073-X (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/80731-10/ed20201121 (date accessed: 03.06.2020).

[3] Про судову практику у справах про злочини … . URL: https://zakon.rada.gov.ua/laws/show/v0017700-04 (date accessed: 03.06.2020).

extractive industry is decided in each case separately taking into account all the circumstances of the case using the following approaches.

Material Approach

Resolution of the Cabinet of Ministers № 1209 "*On approval of fees for calculating the amount of compensation for damage caused by illegal extraction (collection) or destruction of valuable species of aquatic bioresources*[1] dated on 21.11.2011 used as one of the documents in the practical work of fisheries, defines "*fees to calculate the amount of compensation for damage caused as a result of illegal extraction (collection) or destruction by citizens of Ukraine, foreigners and stateless persons:*

- *valuable species of aquatic bioresources in fishery water bodies of Ukraine (Annex 1);*
- *aquatic bioresources, which are the natural wealth of the continental shelf of Ukraine (Annex 2);*
- *aquatic bioresources in the exclusive (marine) economic zone of Ukraine, as well as anadromous species of fish [species of fish that feed in marine waters, and then migrate to freshwater reservoirs for spawning.— emphasis added], which are formed in the rivers of Ukraine outside this zone (Annex 3)".*

Ecological approach

Environmental damage caused can be assessed not only in material and monetary terms, but in from the standpoint of negative impact on the environment. Such an impact cannot have an objective material valuation.

It is well known that damage caused through illegal fishing or other aquatic extractive industries is more dangerous than material, because the latter can always be compensated. Resolution of the Plenum of Supreme Court of Ukraine [2] interprets significant damage as follows:

"*Following data can indicate that damage is significant: destruction of fish spawning grounds; catching fish while spawning period, a few of its species or those in the reproduction of which there are difficulties; catching large quantities of fish, aquatic animals or plants or prohibited fish or animals; etc.*"

It should be noted that forensic ecologist while forensic examination (research) should investigate the impact (or lack thereof) on environment due to the destruction (seizure) of aquatic bioresources while illegal fishing.

While deciding whether the damage caused by illegal fishing is significant, it is necessary to take into account the fact that it is carried out without permits, with prohibited fishing gear, number of fish removed from the water body, vital

[1] Про затвердження такс для обчислення розміру відшкодування шкоди, заподіяної внаслідок незаконного добування (збирання) або знищення цінних видів водних біоресурсів: Постанова КМУ від 21.11.2011 р. № 1209. URL: https://zakon.rada.gov.ua/laws/show/1209-2011-%D0%BF (date accessed: 03.06.2020).

[2] Про судову практику у справах про злочини … . URL: https://zakon.rada.gov.ua/laws/show/v0017700-04 (date accessed: 03.06.2020).

bioresources, total weight, species composition with reference to features of the territory of the water body, period of fishing time, classification of water bodies (group, type, species), delimitation of fish resources by relevant categories.

Based on forensic experience of KhRIFE professionals, we offer the following algorithm for conducting forensic engineering and environmental examinations to study significance of environmental damage due to illegal fishing.

Research on fishing without fishing permits

Procedure for implementation and regulation of industrial fishing that is mandatory for enterprises, institutions, organizations (regardless of ownership), citizens of Ukraine and stateless persons engaged in commercial fishing, as well as for authorized bodies that ensure protection, reproduction and preservation habitat of aquatic living resources in fishery water bodies of Ukraine, regulated by the Rules of industrial fishing in fishery water bodies of Ukraine, approved by the order of the State Committee of Fisheries of Ukraine № 33 [1] dated on 18.03.1999 (hereinafter referred to as the Rules of industrial fishing), amateur and sport fishing in fishery water bodies of public use does not belong to this case.

Fishing for aquatic living resources in the areas of application of the Rules of Industrial Fisheries is carried out by users for a fee within the quotas granted to them in the prescribed manner under permits and coupons of the agreed standard issued to them by state fisheries authorities.

Carrying out fishing without permits is determined by investigative and controlling bodies during the relevant inspections (while fishing and financial and enterprise economic activities, organization or person) as noted in the act, inspection report scene or other document.

The above documents are in the content of criminal proceedings or they are provided according to forensic expert request.

Research on implementation of illegal fishing by means of prohibited fishing gear

Whereby the Procedure for recreational and sport fishing approved by the Resolution of the Cabinet of Ministers of Ukraine № 1126 dated on July 18, 1998 [2]:

"11. While recreational and sport fishing it is prohibited:

<…>

14) catching (extraction) of aquatic living resources:

[1] Правила промислового рибальства в рибогосподарських водних об'єктах України: затв. наказом Держкомрибгоспу України від 18.03.1999 р. № 33 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0326-99 (date accessed: 03.06.2020).

[2] Порядок здійснення любительського і спортивного рибальства: затв. Постановою КМУ від 18.07.1998 р. № 1126 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/1126-98-п (date accessed: 03.06.2020).

with use of explosives and poisonous substances, electric current, barbed fishing gear, firearms and pneumatic weapons (except for harpoon rifles for spearfishing), industrial and other fishing gear (extraction) made of mesh or other materials of all kinds and names, dyeing method, construction of gutters, dams and descent of water from fishery reservoirs".

Species of fishing gear is determined by investigating authorities at the time of the inspection of the place where the fishing activity was carried out or during the inspection of enterprises or organizations engaged in activities related to fishing activity.

Information with a list of fishing gear is provided in the content of criminal proceedings or provided according to forensic expert request.

Research on determining the amount and total weight of bioresources while illegal fishing

The amount of catch of aquatic bioresources while commercial fishing is determined by the user within the amount and weight in a certain order according to the permits and coupons of the agreed sample issued by the state fishery protection authorities.

According to the Resolution of the Plenum of Supreme Court of Ukraine[1] by *catching a large number of fish* forensic experts should understand the amount of fish catching that exceeds the allowed one.

According to the rules of amateur and sport fishing approved by the order of the State Committee for Fisheries of Ukraine № 19 dated on 15.02.1999 (paragraph 4.6) [2], one person is allowed to catch the following species of fish in one day on the reservoir and in the following quantities:

Fishing object	**Public reservoirs**	**Reservoirs assigned to public associations, as well as those where paid fishing is introduced**
Fish (kg)	3	5
Crayfish (pcs.)	30	50
Mytilus (kg)	5	8
Rapana (pcs.)	10	20
Caridea (kg)	1	2

Removal of aquatic bioresources from the reservoir (both fresh and treated, regardless of the length of stay in the reservoir) is allowed in the amount of not more than the daily norm (except when the weight of one fish exceeds a certain daily catch rate).

[1] Про судову практику у справах про злочини … . URL: https://zakon.rada.gov.ua/laws/show/v0017700-04 (date accessed: 03.06.2020).

[2] Правила любительського і спортивного рибальства: затв. наказом Держкомрибгоспу України від 15.02.1999 р. № 19 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0269-99/ed20040713 (date accessed: 03.06.2020).

Whether the permitted daily catch of fish is exceeded by one person, as well as the catch rate in accordance with the permits for fishing is determined by forensic expert at the time of criminal proceedings taking into account the requirements, norms and rules of environmental legislation.

Relevant information is indicated in acts, protocols of inspection of the scene, protocols on administrative offenses, quotas for permits and coupons provided given in the content of criminal proceedings or provided at according to forensic expert request.

Research on determining species composition of fish and spawning period while illegal fishing

Determining the species composition of aquatic bioresources as a result of illegal fishing is the main task during environmental engineering researches. Determining a specific type of aquatic bioresources requires specific expertise application in the field of ichthyology. In nature, fish is important for regulating the number of aquatic invertebrates and itself is food for other fish, some birds and mammals. Thus, fish is an important link in the food chains of living organisms. A significant reduction in the number of fish and the species composition of fish can cause significant negative changes in the status of water body and adjacent areas.

While environmental researches and the preparation of answers to the questions on significance of environmental damage due to illegal fishing it should be taken into account the species composition of fish that were removed from the environment during illegal fishing, as well as their environmental value for a particular reservoir and states.

For example, the certificate of inclusion of common (golden) crucian *Carassius carassius* in the Red Data Book of Ukraine (wildlife) [1] states the following:

"According to the order of the Ministry of Environmental Protection of Ukraine on approval of lists of animal species listed in the Red Data Book of Ukraine (wildlife) and animal species excluded from the Red Data Book of Ukraine (wildlife) dated on 17.06.2009. 313, registered with the Ministry of Justice of Ukraine on 13.07.2009 under № 627/16643, in order to preserve and reproduce rare and endangered, common crucian (golden crucian, golden crucian) Carassius carassius is listed in the Red Data Book of Ukraine (wildlife) as a vulnerable species".

On Internet resource: https://redbook-ua.org/item/carassius-carassius-linnaeus [2] it is noted that the common crucian is listed in the Red Book of Ukraine and given the vulnerable species.

---

[1] Червона книга України (2010—2020). URL: https://redbook-ua.org (date accessed: 03.06.2020).

[2] Карась звичайний, карась золотий Carassius carassius (Linnaeus, 1758) URL: https://redbook-ua.org/item/carassius-carassius-linnaeus (date accessed: 03.06.2020).

The Law of Ukraine: *On the Red Book of Ukraine* [1] states: *"vulnerable are species that in the near future may be classified as endangered, if the factors that adversely affect the state of their populations continue."*

In view of the above, the species composition of fish is determined by investigative bodies, inspectors of fish protection patrols or by involving specialists in the field of ichthyology at the time of the inspection of the scene or in case of removal of water bodies from the environment, if the inspection is carried out.

This information is indicated in acts, protocols of inspection of the scene, protocols on administrative offenses, information on the species composition of water bodies, which are given in the materials of criminal proceedings or provided according to forensic expert request.

Cases of illegal fishing during the spawning season should also be taken into account.

One of web portals [2] states:

"Fish spawning is a special period in the life of aquatic inhabitants. Spawning is due to availability in the reservoir of favorable conditions which this species of fish is adapted to.

Most fish spawning depends on water temperature. Each species of fish has its own, favorable effect on spawning temperature limits. If the water temperature exceeds these limits, fish spawning may be missing or partial. Both the eggs and the young fish that hatch from them are very sensitive to heat and cold. Fish caviar can die from a sharp change in temperature. From this we can conclude that most fish spawn during their spawning season, when the water temperature is most conducive to their reproduction.

In general, spawning of a particular species strongly depends on the geographical location of the reservoir. It is well known that those species that live in the southern regions, begin to reproduce a little earlier than their counterparts from northern regions.

Spawning season is an extremely important time for water to reproduce. This is the most attractive time for poachers, as the fish gather in large formations ("shoals") in the coastal area of water bodies and are extremely vulnerable.

While investigating illegal fishing circumstances, spawning period on the water body should be taken into account taking into account the ban on any activity of catching water bodies, which is defined for each region by the environmental legislation of Ukraine. Relevant information shall be noted in acts, protocols of inspection of the scene, which are given in the materials of criminal proceedings or provided according to forensic expert request.

---

[1] Про Червону книгу України: Закон України від 07.02.2002 р. № 3055-III (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/3055-14 (date accessed: 03.06.2020).

[2] Нерест: поняття, особливості та охорона водних біоресурсів у цей період. URL: https://darg.gov.ua (date accessed: 03.06.2020).

Conclusions. The analysis of signs that can determine significance of environmental damage due to illegal fishing, suggests that forensic ecologist while engineering and environmental examination (research) should investigate information about the peculiarities of catching water bodies, territory, on which was caught, number and total weight of fish, ecological value of these species of fish, fishing gear and permits for catching water bodies (fish) taking into account the requirements, norms and rules of environmental legislation of Ukraine.

Based on the expert experience of KhRIFE professionals, the above algorithm of forensic engineering and environmental examinations while research on environmental impact due to illegal fishing that requires the use of a fairly large list of components to determine the materiality of the damage, that gives grounds to argue conclusion reliability and completeness.

References

Boiko, A. M., Brych, L. P., Dudorov, O. O. ta in. (2018). *Naukovo-praktychnyi komentar Kryminalnoho kodeksu Ukrainy*/za red. d-ra yuryd. nauk, prof. M. I. Melnyka, d-ra yuryd. nauk, prof. M. I. Khavroniuka. 10-te vyd., pererob. ta dopov. Kyiv. URL: http://yurist-online.com/ukr/uslugi/yuristam/kodeks/024 (data zvernennia: 03.06.2020) [in Ukrainian].

Chervona knyha Ukrainy (2010—2020). URL: https://redbook-ua.org (data zvernennia: 03.06.2020) [in Ukrainian].

Karas zvychainyi, karas zolotyi Carassius carassius (Linnaeus, 1758) URL: https://redbook-ua.org/item/carassius-carassius-linnaeus (data zvernennia: 03.06.2020) [in Ukrainian].

Kodeks Ukrainy pro administratyvni pravoporushennia: Zakon Ukrainy vid 07.12.1984 r. № 8073-X (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/80731-10/ed20201121 (data zvernennia: 03.06.2020) [in Ukrainian].

Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 r. № 2341-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2341-14 (data zvernennia: 03.06.2020) [in Ukrainian].

Nerest: poniattia, osoblyvosti ta okhorona vodnykh bioresursiv u tsei period. URL: https://darg.gov.ua (data zvernennia: 03.06.2020) [in Ukrainian].

Poriadok zdiisnennia liubytelskoho i sportyvnoho rybalstva: zatv. Postanovoiu KMU vid 18.07.1998 r. № 1126 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1126-98-p (data zvernennia: 03.06.2020) [in Ukrainian].

Pravyla liubytelskoho i sportyvnoho rybalstva: zatv. nakazom Derzhkomrybhospu Ukrainy vid 15.02.1999 r. № 19 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0269-99/ed20040713 (data zvernennia: 03.06.2020) [in Ukrainian].

Pravyla promyslovoho rybalstva v rybohospodarskykh vodnykh obiektakh Ukrainy: zatv. nakazom Derzhkomrybhospu Ukrainy vid 18.03.1999 r.

№ 33 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0326-99 (data zvernennia: 03.06.2020) [in Ukrainian].

Pro Chervonu knyhu Ukrainy: Zakon Ukrainy vid 07.02.2002 r. № 3055-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/3055-14 (data zvernennia: 03.06.2020) [in Ukrainian].

Pro pryrodno-zapovidnyi fond: Zakon Ukrainy vid 16.06.1992 № 2456-XII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2456-12/ed20200703 (data zvernennia: 03.06.2020) [in Ukrainian].

Pro rybne hospodarstvo, promyslove rybalstvo ta okhoronu vodnykh bioresursiv: Zakon Ukrainy vid 08.07.2011 r. № 3677-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/3677-17 (data zvernennia: 03.06.2020) [in Ukrainian].

Pro sudovu praktyku u spravakh pro zlochyny ta inshi pravoporushennia proty dovkillia: Postanova Plenumu VSU vid 10.12.2004 r. № 17. URL: https://zakon.rada.gov.ua/laws/show/v0017700-04 (data zvernennia: 03.06.2020) [in Ukrainian].

Pro tvarynnyi svit: Zakon Ukrainy vid 13.12.2001 r. № 2894-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2894-14 (data zvernennia: 03.06.2020) [in Ukrainian].

Pro zatverdzhennia taks dlia obchyslennia rozmiru vidshkoduvannia shkody, zapodiianoi vnaslidok nezakonnoho dobuvannia (zbyrannia) abo znyshchennia tsinnykh vydiv vodnykh bioresursiv: Postanova KMU vid 21.11.2011 r. № 1209. URL: https://zakon.rada.gov.ua/laws/show/1209-2011-%D0%BF (data zvernennia: 03.06.2020) [in Ukrainian].

Я. А. Петренко, М. В. Зарченко, І. А. Тарарака, М. Л. Цимбал

ІНЖЕНЕРНО-ЕКОЛОГІЧНІ ЕКСПЕРТНІ ДОСЛІДЖЕННЯ ІСТОТНОСТІ ШКОДИ ДОВКІЛЛЮ ВНАСЛІДОК НЕЗАКОННОГО РИБНОГО ДОБУВНОГО ПРОМИСЛУ

Особливості експертного дослідження істотності шкоди полягає у врахуванні різноманітності фактичних обставин настання події зайняття рибним добувним промислом та обґрунтування ознак істотності шкоди.

Докладний розгляд особливостей істотності шкоди внаслідок незаконного зайняття рибним добувним промислом зумовлює проведення комплексного застосування знань у галузях інженерної екології, іхтіології, гідробіології, іхтіопатології, гідрохімії, гідробіології, гідроекології.

На основі спеціальних знань експертів-екологів ННЦ «ІСЕ ім. Засл. проф. М. С. Бокаріуса» запропоновано алгоритм визначення істотності шкоди внаслідок незаконного рибного добувного промислу під час виконання інженерно-екологічних експертиз з використанням матеріального й екологічного підходів.

Ключові слова: судова інженерно-екологічна експертиза, екологія, дослідження, істотна шкода, незаконний вилов водних біоресурсів (риби), водний об'єкт, шкода довкіллю.

Я. А. Петренко, М. В. Зарченко, И. А. Тарарака, М. Л. Цимбал

ИНЖЕНЕРНО-ЭКОЛОГИЧЕСКИЕ ЭКСПЕРТНЫЕ ИССЛЕДОВАНИЯ СУЩЕСТВЕННОСТИ УЩЕРБА ОКРУЖАЮЩЕЙ СРЕДЕ В РЕЗУЛЬТАТЕ НЕЗАКОННОГО РЫБОДОБЫВАЮЩЕГО ПРОМЫСЛА

Особенности экспертного исследования существенности ущерба заключаются в учёте разнообразия фактических обстоятельств занятия рыбодобывающим промыслом и обоснования признаков существенности такого ущерба. Судебная инженерно-экологическая экспертиза базируется на исследовании, каким образом нарушение требований природоохранного законодательства повлияло на окружающую среду.

Исследование существенности ущерба, нанесённого окружающей среде в результате незаконного рыбодобывающего промысла, назначают при расследовании нарушений требований природоохранного законодательства правоохранительные органы в судебных делах по искам Государственной экологической инспекции Украины, Государственного агентства рыбного хозяйства, а также местные органы самоуправления или другие лица по возмещению убытков, причинённых в результате незаконного изъятия рыбных ресурсов из естественной среды обитания.

Судебная экспертиза базируется на трёх признаках, присущих природе специальных знаний эксперта: предмете, объекте и заданиях экспертного исследования. Предметом при исследовании существенности ущерба, нанесённого в результате незаконного рыбодобывающего промысла, являются фактические данные об обстоятельствах проведения рыбодобывающего промысла, количестве изъятой рыбы, общем весе, размере рыбы, видовом составе с привязкой к территории водного объекта, периоде времени осуществления вылова рыбы, особенностях водных объектов, разграничении рыбных ресурсов на соответствующие категории, которые, в свою очередь, устанавливаются на основании специальных знаний эксперта путём исследования объектов, предоставленных органом, назначившим экспертизу.

Главная задача при определении существенности ущерба, нанесённого в результате незаконного рыбодобывающего промысла, заключается в подтверждении факта нанесения такого ущерба, установленного органами ГЭИ Украины или Госрыбхоза и зафиксированного в документации проверок, определённых этими органами, размеров и характеристик причинённого существенного ущерба.

Объектом при исследовании существенности ущерба, нанесённого в результате незаконного рыбодобывающего промысла, являются документальные материалы, в которых зафиксированы фактические данные дела.

Ключевые слова: судебная инженерно-экологическая экспертиза, экология, исследование, существенный ущерб, незаконная ловля водных биоресурсов (рыбы), водный объект, вред окружающей среде.

Received by Editorial Board: 30.06.2020

Petrenko Ya. A., Zarchenko M. V., Tararaka I. A., Tsymbal M. L. Environmental engineering analyses on signs of substantial harm to the environment as a result of illegal fishing industry//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 427—441. DOI: https://doi.org/10.32353/khrife.2.2020.35.

DOI: https://doi.org/10.32353/khrife.2.2020.36
UDC 621.31:537

I. V. Bohdaniuk,
PhD in Law, Senior Researcher, Head of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-4782-9986,
e-mail: bogdanyuk.hniise@gmail.com

S. V. Rohalin,
Senior Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-1934-8977,
e-mail: rohalin@i.ua

V. S. Suprun,
Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0001-8830-0267,
e-mail: valeriy.suprun@hniise.gov.ua

Research on work of a stepper motor of electricity meters under the influence of an external permanent magnetic field created with the purpose of uncounted consumption of electric energy

Research on facts and circumstances of electrical energy uncounted consumption in the practice of conducting electrical engineering forensic examination is one of the most common. Study of the influence of a permanent magnetic field on operation of the electromechanical electricity meters is one of the areas of electrical engineering research, where scientific and practical analysis is absent in electrical engineering forensic examination. The tasks solved by electrical engineering forensic examination of electricity meters subjected to interference in their work due to the influence of an external permanent magnetic field are still being solved indirectly, mainly by examining the state of indicators of the effect of a magnetic field.

The Article purpose is to determine the mechanism of interference in the operation of a stepper motor of electromechanical electricity meters of energy accounting meters under the influence of an external magnetic field artificially developed to disregard the consumption of electric power.

© I. V. Bohdaniuk, S. V. Rohalin, V. S. Suprun, 2020

The article examines the structure of a stepper motor of electronic-mechanical devices metering electric power. A research model of a stepper motor is built. The analysis of distribution of force magnetic lines in the magnetic system and in the magnetic shield of a stepper motor as a result of influence of an external magnetic field artificially created for the purpose of uncounted consumption of electric power in the absence of such an effect on the basis of modeling with the use of software and a mathematical apparatus: the finite element method. The mechanism of interference in the regular operation of a stepper motor of electricity meter is determined when approaching the metering device of an external permanent magnet with a high value of maximum specific energy in order to consume electric power negligently.

Keywords: permanent magnetic field, magnetic field indicator, magnetic field induction, stepper motor, pulse control, magnetic system, magnetic shielding, permanent magnet, distribution of force magnetic lines, limiting value of blocking induction.

Formulation of Research Problem. Research on facts and circumstances of unaccounted electricity consumption in practice of forensic electrical engineering is one of the most common. The analysis of performed forensic examinations in this area indicates that not all cases of corresponding obstruction of the (regular) operation of measuring instrument defined by manufacturer are widely reflected in literature. Research on influence of a constant magnetic field on operation of electromechanical counting mechanisms of electricity meters is one of the areas of electrical research, because the scientific and practical study is missing in forensic electrical engineering. Research practice in this area is based on general theoretical principles. Research on mechanism of interference in functioning stepper motor of electromechanical counting mechanisms of electric energy measuring instruments from action of external magnetic field artificially formed for the purpose of unaccounted consumption of electric energy is relevant.

Analysis of Essential Researches and Publications. The tasks solved by forensic electrical investigation measuring instruments that have interfered with their functioning due to the external constant magnetic field, forensic experts still solve indirectly, mainly by studying the status of magnetic field indicators (hereinafter referred to as *MFI*). In cases where the study of the state of the MFI concluded that it worked, forensic expert determines constant magnetic field availability that gives reason to believe the existence of a constant magnetic field on the electromechanical counting mechanism of measuring instrument. Forensic researches conducted according to this algorithm focuses on research on MFI structure and ability of the magnetic IMP suspension o to change its shape (previous state). There are no professional readings on research on MFIs and their changes. Research on MFI is based on scientific and engineering reference literature on the study or calculation of magnetic fields. General issues in research on magnetic fields have been studied by a wide range of mathematicians and engineers on the basis of the laws of physics and, above all, generalizations made

by James Clerk Maxwell and reduced to a system of equations known as the Maxwell system of equations [1]. Among the authors created mathematical models reproducing the physical processes occurring in magnetic fields, we should mention J. A. Stretton and his *Theory of Electromagnetism* [2], L. D. Landau, E. M. Lifshitz: *The Classical Theory of Fields* [3], L. D. Goldstein and M. V. Zernov: *Electromagnetic fields and waves* [4], Yu. A. Goldfine: *Vector analysis and field theory* [5]. In other words, without of special research on measuring instruments that have been interfered with by external magnetic field, effect of this field on meters is solved as a research on the MFI that relies on organoleptic method and (in the case of general information about magnetic field) indirectly solves the problem of functioning electromechanical counting mechanisms of electric energy meters under influence of magnetic field.

Article Purpose. Research on functioning stepper motor of electromechanical counting mechanisms of electricity measuring instruments on a built research model using software and mathematical apparatus (finite element method) to determine interference mechanism of the stepper motor under influence of external magnetic field for the purpose of unaccounted consumption of electric energy.

Main Content Presentation. ГОСТ 30207-94 [6] provides for the possibility of using electronic (static) watt-hour meters with different structure of the counting mechanism, both electronic and electromechanical. For manufacturers of electronic meters there are certain requirements that must be implemented in specific design to avoid the impact of external factors. Electromagnetic compatibility requirements for meters include no exposure to electromagnetic interference among others and from the magnetic field of direct and alternating current. In particular, the industry standard СОУ-Н МПЕ 40.1.35.110-2005 [7]

---

[1] Максвелл Дж. К. Трактат об электричестве и магнетизме: в 2 т; пер. Б. М. Болотовского, И. Л. Бурштейна, М. А. Миллера, Е. В. Суворова. Москва, 1989. Т. 1. 417 р. Т. 2. 442 р.

[2] Стрэттон Дж. А. Теория электромагнетизма; пер. М. С. Рабинович и В. М. Харитонова; под ред. проф. С. М. Рытова. Москва; Ленинград, 1948. 539 р.

[3] Ландау Л. Д., Лифшиц Е. М. Теоретическая физика. Т. 4: Теория поля. Москва; Ленинград, 1941. 284 р.

[4] Гольдштейн Л. Д., Зернов Н. В. Электромагнитные поля и волны. Изд. 2-е, перераб. и доп. Москва, 1971, 664 р.

[5] Гольдфайн И. А. Векторный анализ и теория поля. Москва, 1968. 128 р.

[6] ГОСТ 30207-94 (МЭК 1036-90). Статические счетчики ватт-часов активной энергии переменного тока (классы точности 1 и 2). In force since 01.07.2001 р. URL: http://online.budstandart.com/ru/catalog/doc-page.html?id_doc=56701 (date accessed: 20.02.2020).

[7] СОУ-Н МПЕ 40.1.35.110-2005. Додаткові вимоги до засобів обліку електроенергії, спрямовані на запобігання несанкціонованому втручанню в їх роботу. In force since 12.09.2005 р. URL: http://online.budstandart.com/ru/catalog/doc-page.html?id_doc=28386 (date accessed:20.02.2020).

defines the following requirements: *"Meters should be resistant to the constant magnetic field generated by a permanent magnet with a cross section of at least 5.0 cm^2 and a magnetic induction of at least 300 mT on its poles"* . Availability of the above regulatory requirements creates certain difficulties that arise during the performance of electrical research to determine the existence of the influence of a constant magnetic field on the studied meters. In the practice of forensic electrical examinations, the determination of the existence of the influence of a constant magnetic field on the studied meters is solved as a study of the operation of the MFI based on the organoleptic method, etc. While application of general information about the magnetic field, it indirectly solves the question of the operation of electromechanical counting mechanisms of electric energy meters under the influence of the magnetic field. However, there are other regulatory requirements for the Retail Electricity Market Rules [1]: "*Indicators must be certified (certified in the case of meters with a built-in indicator) in the prescribed manner and must record the impact on the field meter which power characteristics exceed the following thresholds:*

- *for permanent magnetic fields: 100 mT;*
- *for alternating magnetic fields: 30 mT;*
- *for electric fields: 5 kW".*

In other words, in research (in terms of existence of the influence of a constant magnetic field on the electromechanical counting mechanism of the meter) should not be used the value of the force characteristic of a constant magnetic field of 100 mT, requirements for MFI. Manufacturers of measuring instruments with electromechanical counting mechanisms to avoid the influence of a constant magnetic field with induction on the surface of the housing of these meters within 300 mT from a permanent magnet with a pole area of at least 5 cm^2 apply the principle of magnetic shielding which acts as a protective element. from the ferromagnetic material protecting the stepper motor. In different models of measuring instruments to protect the impact of other sources of magnetic fields, manufacturers resort to various design solutions (in particular, increasing magnetic screen thickness, use of double shielding stepper motor, etc.). The need for magnetic shielding of the stepper motor from the action of an external magnetic field follows from its structure and the principle of functioning as part of measuring instrument.

Research on the stepper motor structure of measuring instrument and its operation is important for further research on mechanism of interference in its functioning from the action of an external magnetic field, artificially formed for the purpose of unaccounted consumption of electricity.

Stepper motors are synchronous micromotors that convert pulsed electrical signals into mechanical motion proportional to the number of pulses (hence the

[1] Правила роздрібного ринку електричної енергії: затв. Постановою НКРЕКП України від 14.03.2018 р. № 312 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/v0312874-18 (date accessed: 20.02.2020).

other name of stepper motors are impulse drives). By design, stepper motors are little different from synchronous motors. In general, any synchronous motor can operate in step mode, but products that are produced as stepper motors are optimized for certain operating conditions and characteristics. M. P. Yermolin notes: "*In practice of stepper motor applying, different types are used: three-and single-stator motors with concentrated and distributed control windings, with a reactive open-pole rotor without an excitation winding and an active rotor with permanent magnets*" [1].

A stepper motor with active rotor excited by permanent magnets has certain advantages because it allows to fix and maintain the motor shaft position in the off state or in a state of temporary lack of impulse signal.

O. A. Usoltsev notes: "*Power supply of stator windings can be either unipolar or bipolar. With unipolar power supply, the voltage on the windings varies from 0 to + U, and with bipolar power supply from -U to + U. The motor can be controlled by short pulses with the power off between movement commands. This control is called impulse control. It requires fixing the position of the rotor in the interval between impulses. Potential control is also possible, when the stator power is stored between the commands and the rotor is in a certain fixed position. A necessary element of a stepper motor is an electronic switch switching the windings according to a certain algorithm. If in any two adjacent intervals between commutations the same number of stator windings is connected to the power supply, then such an algorithm is called symmetric control. Otherwise, the control is called asymmetric*" [2].

From static measuring instrument structure, it is known that measurement of active electrical energy is carried out by analog-to-digital conversion of electrical signals from the primary converters of current and voltage to the input of the built-in analog-to-digital converter (hereinafter referred to as *ADC*) microcontroller converting signals into a sequence of digital impulses.

Supply of these impulses is controlled by a stepper motor resulting in a discrete rotation, i.e. sequential rotor rotation at a certain angle. Depending on the frequency of control impulses, this rotation is recorded by a mechanical adder on the decimal drums of the counting mechanism of measuring instrument.

Electricity measuring instruments use stepper motors that have a simplified design and have only one casing (phase). This requires the use of more complex asymmetric pulse control. The discrete form of the control signal of the stepper motor envelope is shown on the waveform recorded on the photo (See Fig. 1 on p. 447).

According to N. P. Ermolin, maximum electromagnetic moment of discrete rotation or rotation of the rotor of a stepper motor at certain angles depending on the shape and frequency of the signal (impulse) of electric current (as we noted earlier) is a value proportional to the product of current value and the magnetic flux value.

[1] Ермолин Н. П. Электрические машины малой мощности. Москва, 1967. P. 246.

[2] Усольцев А. А. Электрические машины автоматических устройств: учеб. пособ. Санкт-Петербург, 2011. P. 155.

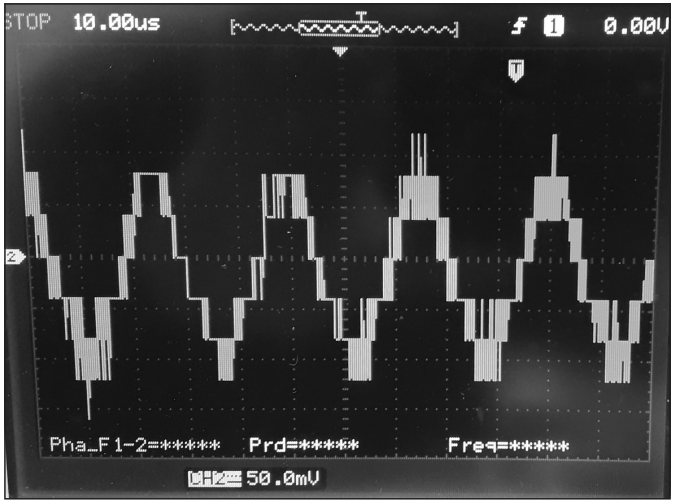


Fig. 1. Control signal waveform of the stepper motor of the metering device type *HIK 2102-0* at a certain level of electricity consumption

It is clear that control signal amplification (magnitude of electric current or magnetic flux) by using a rotor made of a material that has a greater value of residual induction are unacceptable measures, because the value of dynamic torque for the stepper motor should not be significant and almost completely balanced by mechanical torque, resistance in any modes of calculation of consumed electric energy. Ignoring this condition and excessive increase in electromagnetic torque, on the one hand, increases the sensitivity of the meter, on the other hand increases the error of the measuring instrument while calculating the amount of electricity consumed under significant electrical load in the consumer's electrical installation or in transient modes (when changing load power) due to significant influence of the inertia of the electromechanical system of electromechanical counting mechanisms of electricity measuring instruments.

This requires use of another more complex stepper motor control algorithm with use of impulses that create braking torque, as well as increase electricity consumption by the meter for their own needs. In other words, the value of electromagnetic torque of stepper motor should not be excessively large and in some way consistent with the value of mechanical resistance torque. This leaves the only acceptable way to prevent functioning measuring instrument interference with electromechanical counting mechanism from the action of an external constant magnetic field using a magnetic screen. Interference in the operation of the stepper motor of electromechanical counting mechanisms of electricity measuring instruments by artificial formation of an external permanent magnetic field while approaching stepper motor of a permanent magnet with a high value of maximum specific energy is appearance of unilateral magnetic force applied to the rotor pole in the direction of the outer permanent magnet.

It is known that the force of magnetic attraction of a permanent magnet to ferromagnetic materials is proportional to the product of the square of the magnetic induction and the area (cross section) of the pole of the permanent magnet [1]. That is why these parameters are normatively limited by the industry standard СОУ-Н МПЕ 40.1.35.110-2005. The formation result of external permanent magnetic field while approaching a stepper motor of a permanent magnet with a high value of residual induction is emergence of a relatively large value of gravity.

This gravity applied to the stepper motor rotor of measuring instrument is a one-way and additional component of total torque overcoming which is not provided by functioning the stepper motor resulting in inadequate metering of electricity consumption or even inability to perform accounting due to complete blocking (rotation) electromechanical system of electromechanical counting mechanisms of electric energy measuring instruments.

Functioning principle on the structural structure of the stepper motor of electromechanical counting mechanisms of electricity measuring instruments is investigated on the example of the stepper motor of *НІК 2102-02* measuring instrument by *Nik* and the F 68700B measuring instrument by «*Энергомер*».

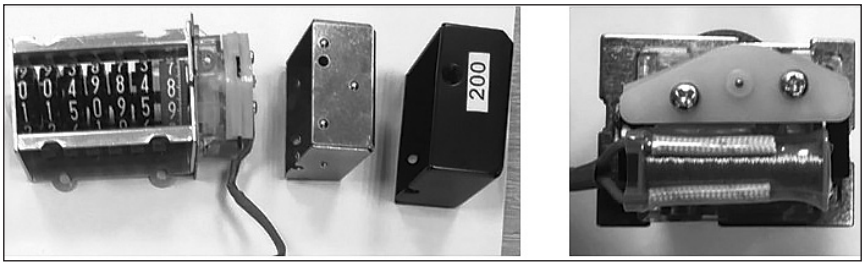


Fig. 2. Electromechanical counting mechanism and the measuring instrument *НІК 2102-02* stepper motor (front and side image of the design)

Fig. 3. Electromechanical counting mechanism and the measuring instrument *Ф 68700В* stepper motor (front and side image of the design)

The general view of electromechanical counting mechanisms and stepper motors of these measuring instrument models is shown in the figures (Figs. 2

[1] Сливинская А. Г. Электромагниты и постоянные магниты. Москва, 1972. P. 152—156.

and 3, respectively). In a further research, the ПО *Ф 68700В* stepper motor was disassembled during laboratory studies. Structural dimensions were measured using measuring instruments with a division price of 0.01 mm.

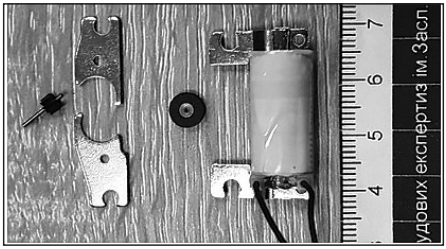


Fig. 4. Details and components of the measuring instrument *Ф 68700В* stepper motor

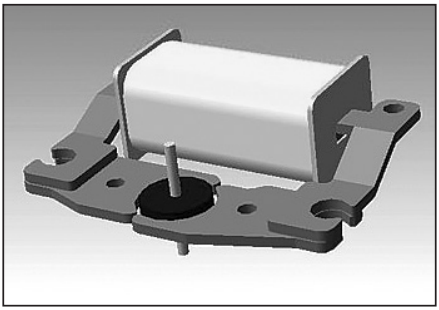


Fig. 5. Computer three-dimensional model of the measuring instrument *Ф 68700В* stepper motor (polymeric details of case elements are not shown)

Using a graphics editor, we made drawings and built a three-dimensional model of a stepper motor in real scale. Appearance of the details of the measuring instrument *Ф 68700В* stepper motor and three-dimensional model is shown in Fig. 4 and 5.

Here is a justification for possibility of solving forensic tasks related to the need to determine the parameters of the electromagnetic field by modeling using the *Finite Element Method Magnetics* software (*FEMM*, magnetic calculations by the finite element method). The *FEMM* software package is an open source finite element analysis package for solving electromagnetic tasks [1]. This software can solve two-dimensional plane and three-dimensional

[1] Рогалін С. В. Математичне моделювання вихрового поля та визначення його характеристик методом кінцевих елементів програмними засобами обчислення у дослідженні індикаторів магнітного поля при вирішенні діагностичних завдань судової експертизи розрахункових приладів обліку, що зазнали втручання від впливу постійного або повільно змінного магнітного поля//*Актуальні питання судової експертизи і криміналістики:* зб. мат-лів Міжнар. наук.-практ. конф., присвяч. 150-річ. з дня народж. Засл. проф. М. С. Бокаріуса (Харків, 18—19.04.2019). Харків, 2019. P. 346—348.

symmetrical along the axis linear and nonlinear harmonic low-frequency magnetic and magnetostatics tasks, linear electrostatic tasks etc. It is a simple, accurate software product distributed free of charge (for example, for educational purposes or for use in non-commercial software packages). *FEMM* has public license (*Aladdin Free Public License)*. This license does not allow distribution fees to be charged and prohibits bundling of programs on its terms with anything that is charged for (download access from the official website: http://www.femm.info/wiki/HomePage) [1].

Essence of finite element method (hereinafter referred to as *FEM*) derive from its name. The region where solution of differential equations is invented is divided into a finite number of subdomains (elements). In each of elements arbitrarily choose the type of approximating function that allows to determine calculation accuracy . Outside its element, approximation function selected for application is equal to zero. The values of the functions at the boundary of the elements and at the nodes formed by these boundaries are the solution for this issue. Coefficients of the approximation functions should be sought, for example, from the condition of equality of the values of adjacent functions at the boundaries between elements or nodes. At the next stage, these coefficients are expressed through the valuesof functions in the nodes of the elements. Make up a system of linear algebraic equations. The number of equations is equal to the number of unknown values in the nodes on which the solution of the system is determined, in direct proportion to the number of elements and limited only by computer capabilities. Since each of the elements is associated with a limited number of neighbors, system of linear algebraic equations is also limited in number, which greatly simplifies the solution because it involves the division into elements. The size of elements determines accuracy of task solving.

The research task of determining interference mechanism in functioning the stepper motor of electromechanical counting mechanisms of electric energy meters by artificial formation of an external constant magnetic field from approaching the permanent magnet software is solved by the finite element method in two-dimensional formulation of the problem based on the reproduced three-dimensional geometric model of the Φ 68700B stepper motor type using the *FEMM* software package. The intervention mechanism is determined by comparing the results of numerical field analysis of the distribution of magnetic lines of the magnetostatics field without external permanent magnetic field, when there is only the working magnetic field of the stepper motor and in conditions where the working magnetic field of the stepper motor field formed by approximation of a permanent magnet with high values of maximum specific energy.

[1] Finite Element Method Magnetics/Website Aladdin Enterprises. URL: http://www.femm.info/wiki/HomePage (date accessed: 29.02.2020).

In the studied model, a permanent magnet made of Neodymium-Iron-Boron alloy of $NdFeB_{40}MGOe$ was chosen as such a permanent magnet that creates an external magnetic field. According to the results of measuring magnetic induction on the surface of stepper motor rotor taken as an analogue in the study, brand of the permanent magnet that creates the working magnetic flux is determined. In the research model, the brand of *Alniko* 6 permanent rotor of the stepper motor rotor was chosen due to the coincidence of the value of magnetic field induction on the surface of the rotor of the stepper motor made of Alniko 6 alloy, determined by calculation in an open circuit (free space) and the value of magnetic field induction on the rotor surface of the ПО Ф 68700В stepper motor obtained by laboratory measurements.

In the studied model, the permanent magnet brand $NdFeB_{40}MGOe$ creating external magnetic field has the following characteristics: magnetic permeability of the permanent magnet along the coordinate axes μ_x = 1,049 H/m, μ_y = 1,049 H/m; coercive force H_C = 979000 A/m; induction of residual magnetization B_R = 1.2 T. Dimensions of the permanent magnet are 30×15 mm. The magnetic axis of permanent magnet has a direction in thickness of the permanent magnet (size 15 mm).

The *Alniko 6* permanent magnet that creates working magnetic flux of the stepper motor has the following characteristics: magnetic permeability of the permanent magnet along the coordinate axes μ_x = 3,3 H/m; coercive force H_C = 59907 A/m; induction of residual magnetization B_R = 0,9 T [1]. Dimensions of the permanent magnet are 6.65 mm in diameter. The rotor of the stepper motor is bipolar. The rotor shaft made of magnetic steel also serves as a yoke which the power magnetic lines of the working magnetic flux are closed through.

Geometric models for numerical-field analysis of the stepper motor measuring instrument by type *Ф 68700В* for two comparative problems in default of external constant magnetic field when there is only the working magnetic field of the stepper motor and in conditions where the working magnetic field of the stepper motor intervenes due to permanent magnetic the field formed by the approximation of the permanent magnetic magnet is shown in Figs. 6 and 7 respectively.

Geometric model Fig. 7 is constructed for the case when the interference with the corresponding operation of stepper motor has the greatest impact on its operation, namely for the case of approach of the external permanent magnet from the stepper motor rotor.

Figs. 6 and 7 mark blocks of these models, namely: air space, magnetic circuit of the stepper motor, permanent magnet of the rotor of the stepper motor, envelope of the stepper motor, magnetic screen and external permanent magnet.

[1] Альтман А. Б., Герберг А. Н., Гладышев П. А. и др. Постоянные магниты: справочник/под ред. Ю. М. Пятина. 2-е изд., перераб. и доп. Москва, 1980. 488 р.

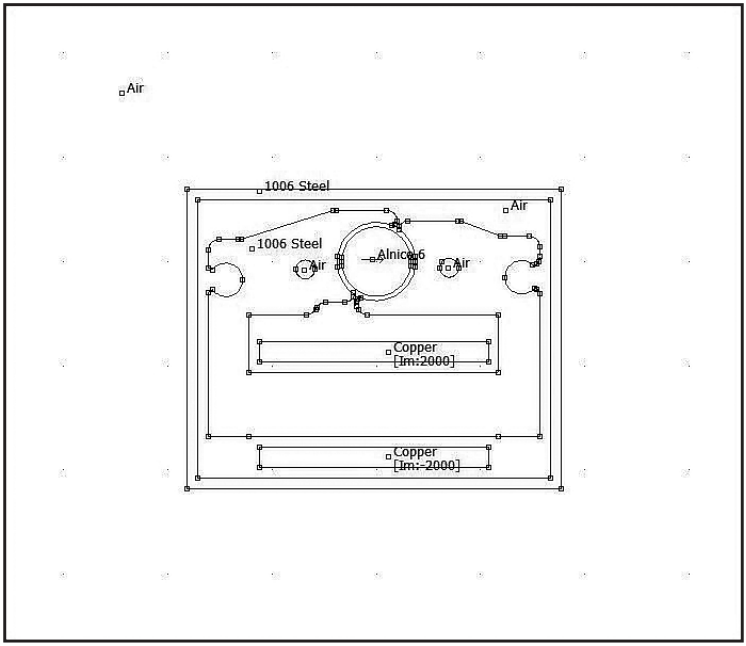


Fig. 6. Stepper motor geometric model for numerical field analysis

The blocks indicated in the figures are provided with certain physical properties by entering parameters of the materials used for calculations (in particular, for air, steel grades of the magnetic circuit of the stepper motor and magnetic shield, grades of the permanent magnet of the stepper motor rotor and external permanent magnet, copper casing of the stepper motor). The instantaneous value and direction of the electric current of the sheath, direction of magnetization for the external permanent magnet and the instantaneous value of rotor magnetization direction of the stepper motor are given.

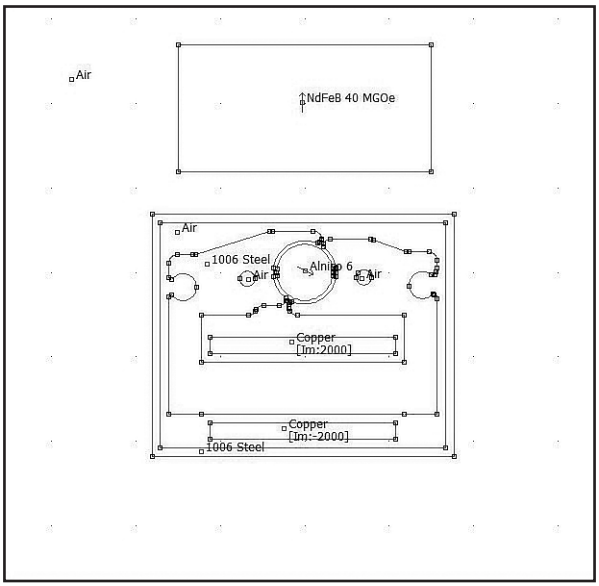


Fig. 7. Stepper motor geometric model for numerical field analysis under the condition of approximation of an external permanent magnet

In these geometric models, the contours of media separation (materials) and bounded boundary conditions for the magnetostatics task are given (Dirichlet boundary conditions are applied). The latter means that for given external limits of the model in the plane of symmetry, provided that the magnetic field lines bypass the obstacle (external limits, which size was determined by the researcher to solve the problem by solving systems of differential equations) in the case of zero Dirichlet boundary condition is $B_n = 0$, i.e. the normal component of induction is zero. In Fig. 7 demonstrates geometric model of a stepper motor for numerical field analysis during the approximation of an external permanent magnet enlarged without external boundaries.

While functioning FEMM solver in automatic mode, the model parameters are calculated and a finite element grid is constructed. For the case of regular stepper motor functioning, a grid of 24,189 elements for 12,244 nodes was built. After the calculations and start-up of the postprocessor, a picture of a stationary magnetic field in the form of power lines of the working magnetic flux of the stepper motor model of the studied software was created. In Fig. 8 indicates picture of distribution of the magnetic field induction of the working magnetic flux during the operation of the stepper motor in normal mode. The picture of the field in the picture is shown in color. The force parameters of the field by color should be quantified on the gradient scale shown in the figure. The colors of the gradient scale are relative and are used only for Fig. 8.

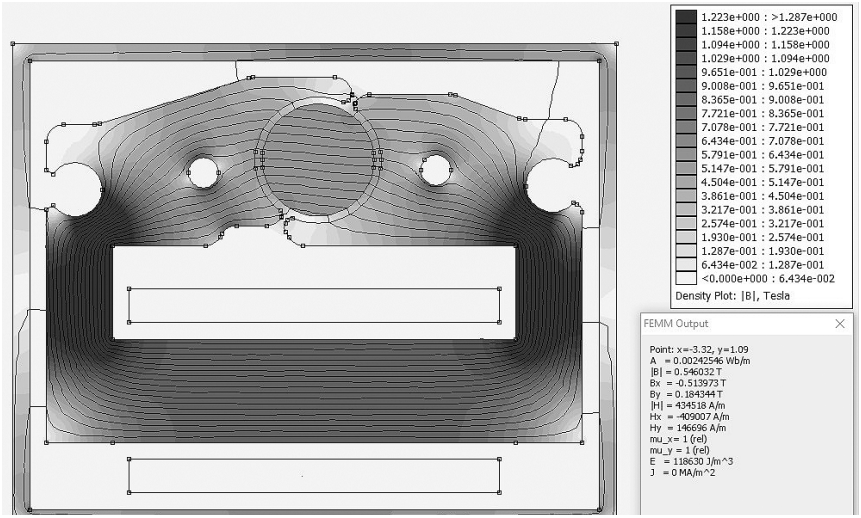


Fig. 8. Distribution picture of magnetic field induction of working magnetic flux while functioning stepper motor in normal mode

Grid of 25,355 elements for 12,836 nodes was constructed for stepper motor functioning while approach to external permanent magnet.

After completing calculations and starting the postprocessor, a picture of a stationary magnetic field in the form of magnetic field lines of the stepper motor model of studied measuring instrument was created interfered with the magnetic field of the permanent magnet during its approach.

Fig. 9 indicates a picture of distribution of the magnetic field induction of the total magnetic flux from the rotor of a stepper motor (working magnetic flux of excitation) and the magnetic flux of an external permanent magnet with a high value of specific energy. The picture of the field in the figure is shown in color.

The strength parameters of the field by color should be quantified on the gradient scale shown in the figure. The colors of the gradient scale are relative and are used only for Fig. 9 (See p. 455).

According to the results of numerical-field analysis of distribution of magnetic lines of the magnetostatics field, comparison of two studied cases in default of an external constant magnetic field when there is only a working magnetic field of a stepper motor and in conditions where the working magnetic field of a stepper motor field formed by approximation of a permanent magnet with high values of maximum specific energy with a pole area of more than 5 cm^2 and a value of magnetic field induction of more than 300 mT on the surface of its pole.

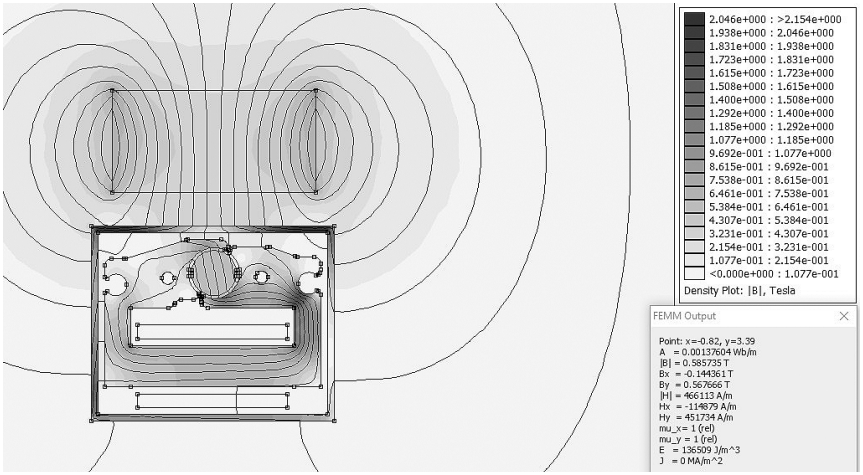


Fig. 9. Picture of distribution of magnetic field induction of total magnetic flux from the working magnetic flux of the excitation of the stepper motor and the magnetic flux of the external permanent magnet with a high value of specific energy

Mechanism of interference while functioning stepper motor, as well as the force characteristics of the magnetic field in the structural elements of the stepper motor measuring instrument for both comparative cases are determined. Research on the intermediate case when the working magnetic field of a stepper motor interferes with the action of a constant magnetic field formed by the approximation of a permanent magnet with a pole area up to 5 cm^2 and a magnetic field induction value up to 300 mT on its pole surface is given only in conclusions.

Conclusions. Summing up, we can draw the following conclusions according to the research.

While standard operating procedure of the stepper motor, power magnetic lines of the working magnetic flux are almost completely closed behind the magnetic circuit of the stepper motor. A certain part of the power magnetic lines of the working magnetic flux of excitation is closed in the stepper motor magnetic screen of measuring instrument. The average value of magnetic field induction in the walls of the screen is approximately 0.45 T, maximum value of induction in the screen does not exceed 0.7 T. In outer space, outside the magnetic stepper motor screen magnetic field can be considered as missing.

Under the action of a constant magnetic field formed by approaching the stepper motor of a permanent magnet meter with a pole area up to 5 cm^2 and a magnetic field induction value of up to 300 mT on the surface of its pole, the magnetic stepper motor screen is divided into two separate ones. The first

working magnetic flux is closed almost unchanged within the magnetic circuit of the stepper motor and partially within the magnetic screen. The second magnetic flux formed by the outer permanent magnet with the specified parameters passes through the magnetic screen body and then closes in the air. A small part of the magnetic power lines passes through the magnetic system of the stepper motor. Operation of the stepper motor is appropriate to the shape and magnitude of the pulse control signal. The error in determining the amount of energy consumed by the software may increase but does not exceed the maximum allowable value. In this case, there may be magnetic saturation of certain parts of the screen side of the stepper motor from the approach of the external permanent magnet to the maximum values of 1.7—1.9 T and mandatory operation of the magnetic field indicator if the magnetic field induction value exceeds 100 mT. The central part of the screen side of the stepper motor from the approaching side of the outer permanent magnet remains unsaturated. Distribution of magnetic field induction under the poles remains symmetrical.

Under the action of a constant magnetic field formed by approaching the stepper motor of a permanent magnet meter with a high maximum specific energy with a pole area of more than 5 cm^2 and a magnetic field induction of more than 300 mT, pattern of magnetic field lines changes on its pole surface.

The stepper motor working magnetic field is distorted. The distribution of magnetic field lines along the sides of the magnetic screen is uneven. The distribution of the magnetic field lines along the pole tips, poles and sides of the yoke of opposite polarity in the magnetic system of a stepper motor loses symmetry. While comparing the values of magnetic field induction in some relevant areas of opposite polarity in the magnetic circuit of the stepper motor, a difference in symmetry from 10 to 200 % is observed. Asymmetry of magnetic field in the magnetic system of a stepper motor reduces the electromagnetic moment value.

Directions of rotor magnetization of the stepper motor and the external permanent magnet with a high value of the maximum specific energy coincide when the approach of the external permanent magnet is normal to the surface of measuring instrument.

While approaching a stepper motor of a permanent magnet with a high value of residual induction, there is a relatively large gravity, which depends on the pole (cross section) of permanent magnet and the square of the magnetic field induction on its surface. This gravity applied to the stepper motor rotor measuring instrument is one-sided and is an additional component of the total torque, overcoming which is not provided by the normal operation of the stepper motor for measuring instrument pole area values over 5 cm^2 and magnetic field induction values over 300 mT on its surface.

Consequence of electromagnetic torque reduction of the stepper motor and emergence of unilateral magnetic gravity is inadequate metering of electricity consumption or even inability to perform metering due to complete blocking

(rotation) of the electromechanical system of electromechanical counting mechanisms. Structurally to overcome the phenomenon of this effect is impossible by increasing the maximum torque of the stepper motor of the meter, but only by magnetic shielding and/or increasing the distance from the measuring instrument case to the stepper motor.

The central part of the side of the stepper motor magnetic screen close to the pole of permanent magnet with a high value of maximum specific energy is unsaturated and creates favorable conditions for the magnetic flux from this permanent magnet to the magnetic circuit (poles) and rotor of the stepper motor. As you move away from the center of this side of the magnetic screen, the screen saturation increases to values that can exceed 2 T. The sides of the magnetic stepper motor screen are saturated unevenly and inversely dependent on saturation of the sides of the stepper motor magnetic system. Increase in the magnetic flux leads to further magnetic saturation of individual parts of the magnetic screen to the phenomenon of displacement of part of the magnetic flux into the air but does not saturate the central part of the magnetic stepper motor screen which is close to the pole of the permanent magnet supporting the conditions of existence of the force of unilateral gravity of the stepper motor rotor and its fixing (sticking).

Fixing the position of the stepper motor rotor (sticking) depends on the orientation in space close to the meter of an external permanent magnet with a pole area greater than 5 cm^2 with a magnetic field induction value greater than 300 mT, and does not depend on the frequency, shape and magnitude of the stepper motor control signal. Changing impulse signal of the stepper motor control depending on the amount of electricity consumption does not lead to angular rotation of the stepper motor shaft, i.e. the operation of the stepper motor of the meter is blocked by a constant magnetic field artificially formed from close to the measuring instrument, an external permanent magnet with a high value of the maximum specific energy for the purpose of unaccounted consumption of electric energy.

References

Altman, A. B., Gerberg, A. N., Gladyshev, P. A. i dr. (1980). *Postoiannye magnity:* spravochnik. Iu. M. Piatin (ed.). 2-e izd., pererab. i dop. Moscow [in Russian].

Ermolin, N. P. (1967). *Elektricheskie mashiny maloi moshchnosti.* Moscow [in Russian].

Finite Element Method Magnetics/Website Aladdin Enterprises. Menlo Park, California, USA. URL: http://www.femm.info/wiki/HomePage (data zvernennia: 29.02.2020).

Goldfain, I. A. (1968). *Vektornyi analiz i teoriia polia.* Moscow [in Russian].

Goldshtein, L. D., Zernov, N. V. (1971). *Elektromagnitnye polia i volny.* Izd. 2-e, pererab. i dop. Moscow [in Russian].

GOST 30207-94 (MEK 1036-90). *Staticheskie schetchiki vatt-chasov aktivnoi energii peremennogo toka (klassy tochnosti 1 i 2).* Chinnii vid 01.07.2001 r. URL: http://online.budstandart.com/ru/catalog/doc-page.html?id_doc=56701 (data zvernennia: 20.02.2020) [in Russian].

Landau, L. D., Lifshitc, E. M. (1941). *Teoreticheskaia fizika.* T. 4: Teoriia polia. Moscow; Leningrad [in Russian].

Maksvell, Dzh. K. (1989). *Traktat ob elektrichestve i magnetizme:* v 2 t; per. B. M. Bolotovskogo, I. L. Burshteina, M. A. Millera, E. V. Suvorova. Moscow. T. 1. T. 2. [in Russian].

Pravyla rozdribnoho rynku elektrychnoi enerhii: zatv. Postanovoiu NKREKP Ukrainy vid 14.03.2018 r. № 312 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/v0312874-18 (data zvernennia: 20.02.2020) [in Ukrainian].

Rohalin, S. V. (2019). Matematychne modeliuvannia vykhrovoho polia ta vyznachennia yoho kharakterystyk metodom kintsevykh elementiv prohramnymy zasobamy obchyslennia u doslidzhenni indykatoriv mahnitnoho polia pry vyrishenni diahnostychnykh zavdan sudovoi ekspertyzy rozrakhunkovykh pryladiv obliku, shcho zaznaly vtruchannia vid vplyvu postiinoho abo povilno zminnoho mahnitnoho polia. *Aktualni pytannia sudovoi ekspertyzy i kryminalistyky*: zb. materialiv Mizhnar. nauk.-prakt. konf., prysviach. 150-richchiu z dnia narodzhennia Zasl. prof. M. S. Bokariusa (Kharkiv, 18—19.04.2019). Kharkiv [in Ukrainian].

Slivinskaia, A. G. (1972). *Elektromagnity i postoiannye magnity.* Moscow [in Russian].

SOU-N MPE 40.1.35.110-2005. *Dodatkovi vymohy do zasobiv obliku elektroenerhii, spriamovani na zapobihannia nesanktsionovanomu vtruchanniu v yikh robotu.* Chynnyi vid 12.09.2005 r. URL: http://online.budstandart.com/ru/catalog/doc-page.html?id_doc=28386 (data zvernennia: 20.02.2020) [in Ukrainian].

Stretton, Dzh. A. (1948). *Teoriia elektromagnetizma*; per. M. S. Rabinovich i V. M. Kharitonova; pod red. prof. S. M. Rytova. Moscow; Leningrad [in Russian].

Usoltcev, A. A. (2011). *Elektricheskie mashiny avtomaticheskikh ustroistv:* ucheb. posob. Sankt-Peterburg [in Russian].

І. В. Богданюк, С. В. Рогалін, В. С. Супрун

ДОСЛІДЖЕННЯ РОБОТИ КРОКОВОГО ДВИГУНА ПРИЛАДІВ ОБЛІКУ ЕЛЕКТРИЧНОЇ ЕНЕРГІЇ ПІД ВПЛИВОМ ДІЇ ЗОВНІШНЬОГО ПОСТІЙНОГО МАГНІТНОГО ПОЛЯ, УТВОРЕНОГО З МЕТОЮ БЕЗОБЛІКОВОГО СПОЖИВАННЯ ЕЛЕКТРИЧНОЇ ЕНЕРГІЇ

За конструктивною будовою крокового двигуна електромеханічних рахункових механізмів приладів обліку електричної енергії побудовано

дослідницьку модель. Механізм втручання в роботу крокового двигуна приладу обліку від дії зовнішнього магнітного поля, штучно утвореного з метою безоблікового споживання електричної енергії, досліджено на моделі порівняння штатного режиму роботи та роботи під дією зовнішнього магнітного поля. Проаналізовано розподілення силових магнітних ліній у магнітопроводі та магнітному екрані крокового двигуна від дії зовнішнього магнітного поля, утвореного від наближення до приладу обліку зовнішнього постійного магніту з високими значенням максимальної питомої енергії. Визначено механізм перешкоджання штатній роботі крокового двигуна рахункового механізму.

Ключові слова: постійне магнітне поле, індикатор магнітного поля, індукція магнітного поля, кроковий двигун, імпульсне керування, магнітна система, магнітне екранування, постійний магніт, розподілення силових магнітних ліній, граничне значення індукції блокування.

И. В. Богданюк, С. В. Рогалин, В. С. Супрун

ИССЛЕДОВАНИЕ РАБОТЫ ШАГОВОГО ДВИГАТЕЛЯ ПРИБОРОВ УЧЁТА ЭЛЕКТРИЧЕСКОЙ ЭНЕРГИИ ПРИ ВОЗДЕЙСТВИИ ВНЕШНЕГО ПОСТОЯННОГО МАГНИТНОГО ПОЛЯ, СОЗДАННОГО С ЦЕЛЬЮ БЕЗУЧЁТНОГО ПОТРЕБЛЕНИЯ ЭЛЕКТРИЧЕСКОЙ ЭНЕРГИИ

Исследование фактов и обстоятельств безучётного потребления электрической энергии в практике проведения электротехнических судебных экспертиз относится к наиболее распространённым. Исследование влияния постоянного магнитного поля на работу электромеханических счётных механизмов приборов учёта электрической энергии является одним из направлений электротехнических исследований, где отсутствует научно-практическая проработка в судебной электротехнической экспертизе. Задачи, которые решает судебная электротехническая экспертиза приборов учёта, подвергшихся вмешательству в их работу из-за влияния внешнего постоянного магнитного поля, до сих пор решается опосредованно, преимущественно путём исследования состояния индикаторов воздействия магнитного поля.

Цель статьи заключается в исследовании механизма вмешательства в работу шагового двигателя электромеханических счётных механизмов приборов учёта электрической энергии при воздействии внешнего магнитного поля, искусственно созданного с целью безучётного потребления электрической энергии.

В статье исследовано строение шагового двигателя электронно-механических приборов учёта электрической энергии. Построена исследовательская модель шагового электродвигателя. Выполнен анализ распределения силовых магнитных линий в магнитной системе и магнитном экране шагового двигателя от действия внешнего магнитного поля,

искусственно созданного с целью безучётного потребления электрической энергии, и в условиях отсутствия такого влияния на основании моделирования с применением программных средств и математического аппарата — метода конечных элементов. Определён механизм вмешательства в штатную работу шагового двигателя счётного механизма при приближении к прибору учёта внешнего постоянного магнита с высоким значением максимальной удельной энергии с целью безучётного потребления электрической энергии.

Ключевые слова: постоянное магнитное поле, индикатор магнитного поля, индукция магнитного поля, шаговый двигатель, импульсное управление, магнитная система, магнитное экранирование, постоянный магнит, распределения силовых магнитных линий, предельное значение индукции блокировки.

Received by Editorial Board: 06.07.2020

Bohdaniuk I. V., Rohalin S. V., Suprun V. S. Research on work of a stepper motor of electricity meters under the influence of an external permanent magnetic field created with the purpose of uncounted consumption of electric energy//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 442—460. DOI: https://doi.org/10.32353/khrife.2.2020.36.

DOI: https://doi.org/10.32353/khrife.2.2020.37
UDC 343.98:33

K. I. Hovorova,
Researcher of the Laboratory of Forensic Economics
at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-0893-8605,
e-mail: kg0667241734@gmail.com

Place of forensic economic examination in combating fraud on the provision of services in banking via the internet

The article determines the place of forensic economic examination while combating fraud on provision of services in banking via the Internet, since lately frauds concerning illegal credit operations have been registered more frequently according to research in the field of financial and credit relations. It is noted that this is one of the most common methods of financial fraud, which is resorted to both by creditors (banks, funds, associations) and by borrowers (business entities, natural persons), and economic damage for these entities and, first of all, for financial and credit institutions, may result in substantial amounts in national or foreign currency. It was emphasized that all numerous illegal financial and credit operations can be divided into several groups, depending on the entity (a borrower or a lender). In order to protect the interests of entities of financial and credit relations and, accordingly, to avoid their economic damage, it is recommended: on the part of a lender (it refers, first of all, to banks) to ensure an appropriate level of financial control which is to properly document credit operations (organization of special office administration by working with documents containing bank secrecy), to ensure reasonableness of granting a loan to a client having him double checked by corresponding bank services, and on the part of clients to constantly improve financial literacy with regard to the above relations.

It has been established that high-tech crimes with the use of the latest technology and software warrant special attention, therefore further research needs to be aimed at acquiring the right to prevent cybercrime in banking. The issues of conducting forensic economic research on the provision of services in banking via the Internet are considered. Based on the analysis of the consequences of cyber fraud that occur while the use of bank funds by customers of banks, it has been revealed that the client himself is the most vulnerable point and he becomes subject to fraud under the influence of various social engineering methods. To combat this method of fraud, Ukrainian banks do not have sufficiently effective tools. The constantly growing number of forensic examinations related to the study of documents of financial and credit operations and expansion of the subject

© K. I. Hovorova, 2020

of study of the specified segment of forensic examination requires amending legislation in order to better meet the needs of investigative and judicial practice.

Keywords: Internet banking, financial and credit operations, financial fraud, online service, crimes in banking, banking services, credit operations, computer technologies in the field of payments, payments via the Internet.

Formulation of Research Problem. With rapid development of market economy, the field of banking services is gaining momentum. The banking system is one of the main parts of country financial and credit system. It is often one of the objects that attract fraudsters and criminals undermining credibility of banks as guarantors of preservation and accumulation of population, state funds and businesses.

Recently, in the field of financial and credit relations, fraud related to illegal credit operations has been increasingly recorded. This is one of the most common methods of financial fraud resorted to by both creditors (banks, funds, associations) and borrowers (businesses, individuals). In this case, the economic losses of these entities and financial institutions can reach significant amounts in national or foreign currency.

Analysis of Essential Researches and Publications. The issue of detecting offenses in the banking sector is revealed in the research paper of O. M. Bandurka, G. A. Matusovskyi, M. I. Kamlyk, M. T. Bilukha, F. F. Butynets, V. D. Ponikarov and others [1]. O. V. Anishenko and O. V. Homutenko paid special attention to this issue highlighting the classification of forensic economic examinations at the present stage of forensic science development [2]. They defined the main types of offenses and focused on the main characteristics of such offenses; general approaches to their detection; principles of forensic research when professionals study various documents on banking operations; persons involved in conducting banking operations. However, most aspects of conducting forensic economic analyses in provision of banking services via Internet have been overlooked by leading scholars.

---

[1] E.g., наприклад: Бандурка О. М., Литвинов О. М. Протидія злочинності та профілактика злочинів: монографія. Харків, 2011 ; Матусовский Г. А. Экономические преступления: криминалистический анализ. Харьков, 1999. 480 р. ; Понікаров В. Д., Кравченко С. С., Теленик С. С. Роль правоохоронних органів у здійсненні економічного контролю//*Економіка. Фінанси. Право.* 2004. № 3. P. 31—36 ; Камлик М. І. Особливості обліку і використання обліково-бухгалтерських документів при виявленні та розслідуванні корисливих злочинів у галузях економіки. Судова бухгалтерія. Київ, 1995. 256 р. ; Петрук О. М. Банківська справа: навч. посіб./за ред. Ф. Ф. Бутинця. Київ, 2007. 461 р. ; Білуха М. Т. Курс аудиту. Київ, 1998. 573 р.

[2] Аніщенко О. В., Хомутенко О. В. Класифікація судових економічних експертиз на сучасному етапі розвитку судової експертизи//*Теорія та практика судової експертизи і криміналістики:* зб. наук. пр. Харків, 2018. Вип. 18. P. 476—480.

The **Article Purpose**. This article purpose is to determine the place of Forensic Economics in combating fraud in provision of banking services via Internet.

Main Content Presentation. The legal framework related to this area contains the main documents: Laws of Ukraine: *On Consumer Lending* and *On Banks and Banking*, Resolutions of the NBU Board *on Approval of the Regulations on Financial Monitoring by Banks* and *On Approval of the Instruction on Procedure opening, use and closing of accounts in national and foreign currencies*, etc.

All numerous illegal financial and credit transactions can be conditionally divided into several groups depending on the entity (borrower or lender) that carries them out.

The *first group* includes the ways where the borrower encroaches on financial resources of financial institutions:

- individual entrepreneur or a legal entity who has the right to carry out business activities receive a loan on forged documents. For example, they falsify balance sheet data, documents on pledged property in order to justify the need for. Upon loan receipt and its appropriation, such entity shall go bankrupt be liquidated or otherwise cease its operating;
- officially registered borrower uses knowingly erroneous information to conclude a loan agreement. He uses the proceeds in business activities for purchase of inventory fixed assets for example;
- official (mostly a state-owned enterprise) receives a soft loan on legal grounds with its subsequent transfer to a certain commercial structure at interest or commercial structure by oral agreement settles with the official who appropriates the funds;
- individual issues a consumer loan on forged documents or on fictitious persons.

The *second group* of machinations contains the ways where bank employees' resort. The latter, using confidential information about the client that is a bank secret, withdraw credit funds from his current account and use them for their own needs or in another illegal way. This group of frauds includes the execution of a loan agreement in the name of the client with the subsequent appropriation of the received credit funds. Most often, such illegal transactions occur in remote separate divisions of the bank: branches, offices over which the control of the central branch is weaker.

The *third group* of credit fraud transactions involves a mutual agreement between the lender and the borrower to obtain an illegal loan, i.e. an organic combination of two previous groups. Implementation scheme of each methods of this group can be approximately as follows:

- lender together with the borrower create an enterprise to obtain a loan. After it receiving the repayment period is delayed, the company is likely to change the founders, owner, officials of the borrower;

- banking institution employee who has the appropriate authority provides an illegal loan to the borrower. In order to delay the loan repayment, they provide forged documents, false information, etc.;
- providing employees of financial institutions with a soft loan to the borrower, for example, at a low interest rate, on the basis of falsified documents. After receiving the borrower transfers to the current lender account the agreed amount that means difference between the interest rates of ordinary and soft loans [1].

In our opinion, in order to protect interests of subjects of financial and credit relations and avoid economic losses is recommended: by the lender (this applies primarily to banks) to ensure an appropriate level of financial control that is proper documentation of credit operations (organization of document circulation containing banking secrecy), loan validity to the client by double-checking relevant bank services and on the part of clients to constantly increase financial literacy in relation to the above relations.

It remains unclear how to deal with a new type of banking fraud involving online banking? With the rapid development of a market economy and the unstoppable increase in the number of new technologies through Internet, a new type of service has appeared in the banking sector: Internet Banking.

Online Banking, or web banking, is a type of remote banking service that provides access to accounts and account transactions at any time and from any computer over Internet [2].

Peculiarity of such a bank is that bank has no branches, all services are provided through a mobile application. Customers can be owners of Apple devices on *iOS 10* and *Android* version 4.4 and later. Answers to customer questions are provided via messenger (*Viber, Facebook or Telegram*).

For the banking sector of Ukraine, this is really something new and original. However, in other countries, banks without branches will not surprise anyone. One of the first virtual financial institutions is the American Security First Network Bank that started operations in 1995. For just a year and a half its assets reached $ 40 million and the number of open accounts: $ 10,000. In Europe, the first bank without an office network in 1996. became the German *Advance Bank*. However, it lasted only 7 years and was liquidated in 2003.

However, there is another successful project in Germany: *Fodor Bank* founded in 2009. It is essentially an IT system providing a variety of operations: transfers, currency exchange, purchase of precious metals, lending, opening deposits and even investing in cryptocurrency. In 2015, Fidor Bank entered the

[1] Горлачук О. А. Новини (станом на 12.06.2019 р.)/Офіційний сайт Тернопільського НДЕКЦ МВС України. URL: http://www.ndekc.te.ua/news/kreditn-mahnats-v-sfer-fnansovokreditnih-vdnosin-ta-zahist-nteresv-h-subktv (date accessed: 12.06.2019).

[2] Інтернет-банкінг. Вікіпедія. URL: https://uk.wikipedia.org/wiki/Інтернет-банкінг (date accessed: 12.06.2019).

UK market and was absorbed by *France's Groupe BPCE* in July 2016 but *Fidor Bank* continued to operate under its own brand.

Monobank is one of first representatives of Internet bank in Ukraine. However, *Monobank* is not exactly a bank in the usual sense of the word. The project does not have a banking license issued by the NBU which gives the right to carry out settlement operations, accept money for deposits or issue loans. *Monobank* is only an online service that provides access to banking services. Thus, operations are carried out directly by Universal Bank. He is a financial partner of *Monobank* and it operates customers' money. In other words, by connecting to the online service, a person, in fact, becomes a customer of *Universal Bank*. The client gets access to his services not directly in Universal Bank branches, but remotely through *Monobank*. Such a model, by the way is used by the Russian *Rocketbank*. At the beginning, its partner bank was *Intercommerce*.

Becoming a *Monobank* customer is very easy. You need to install the application from *Play Market (for Android)* or *Apple Store (iOs)* and order a payment card. To do this, after a brief registration in the application, you should take a passport and identification code photo, indicate information about the place of work and income. After processing the data, the future (or rather - already real) customer of *Monobank* will be able to pick up the finished card at one of the issuing points or receive it by courier. By the way, the card itself is a *MasterCard* payment system and it bears not only the name *Monobank* but also *Universal Ban*k which further confirms who is responsible for saving money [1].

Such introduction and use of computer technology in the field of payments is a characteristic feature of modern life. Banking services provided to customer remotely, as well as free cash payments, accelerate turnover, reduce the amount of money needed in circulation. As a result, this reduces the circulation cost, increases transparency of calculations. Due to its simplicity, mass, availability of technology, such banking operations are increasingly attracting fraudsters.

As a result, the number of crimes in the banking sector using Internet is growing significantly. In the modern legal literature *cybercrime in the banking sector term* is most often used to separate this category of crimes.

Analyzing foreign experience in the fight against cybercrime, it becomes clear that it (cybercrime) has a tendency to increase. One of the reasons for its growth is the constant improvement of technical systems of global communication and direct access of users to computer technology through PCs.

According to Interpol, annual damage suffered by Europe through cybercriminals is more than 300 billion euros, and almost a million Europeans fall victim to cybercrime every day. Cybercriminals illegally obtain bank card numbers and PIN codes for them, withdraw money to their accounts. At the same time, many online publications believe these problems are just the beginning

[1] Банк в кишені: що таке Monobank/Uteka. URL: https://uteka.ua/ua/publication/news-14-delovye-novosti-36-bank-v-karmane-chto-takoe-monobank (date accessed: 12.06.2019).

of what society can expect in the future. In order to combat criminal acts on Internet, on November 23, 2001, the Council of Europe adopted the Convention on Cybercrime in Budapest [1]. Since then, conferences on Internet security in Budapest have become regular and more and more countries not only in Europe but also around the world are participating.

In January 2013, at the initiative of the European Commission, the newly established European Cybercrime Center was launched. Among the priorities of this organization operating under the auspices of Europol is investigation of cases of fraud through electronic networks, separately in the field of Internet Banking.

Currently the issue of cyber fraud combating in the banking sector is relevant in Ukraine. Based on the analysis of consequences of cyber-fraud that occur in the field of use of payment instruments by banks, the most vulnerable place is the client himself, who under influence of various methods of social engineering becomes the object of fraud. Ukrainian banks do not have quite effective tools to combat this method of fraud. As a result, the forensic examination assignment of documents of financial and credit transactions that take place through Internet Banking and expansion of the content of forensic expert tasks [2].

It should be noted that along with the main tasks of the examination of financial and credit operations defined by Scientific and Methodological Recommendations on the preparation and appointment of forensic examinations and expert researches [3], experts are increasingly facing issues caused by changes and improvements in banking legislation.

According to E. Zozulya, effective counteraction to transnational banking cybercrime requires close, fast, effective and functional international cooperation of all state structures (first of all, law enforcement agencies) in investigation of such crimes [4].

Normative and legal acts regulating public relations in the field of information security in Ukraine should be considered: Laws of Ukraine:

---

[1] Конвенція про кіберзлочинність (as amended and supplemented): ухв. Радою Європи 23.11.2001 р., ратиф. Законом України від 07.09.2005 р. № 2824-IV. URL: https://zakon.rada.gov.ua/laws/show/994_575 ; https://zakon.rada.gov.ua/laws/show/2824-15 (date accessed: 12.06.2019).

[2] Яровенко Г. М., Бояджян М. М. Аналіз наслідків кібершахрайств в банківській системі України//*Економіка і суспільство*. 2018. Вип. 18. P. 836—837.

[3] 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 Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented). URL: http://zakon4.rada.gov.ua/laws/show/z0705-98 (date accessed:12.06.2019).

[4] Зозуля Є. В. Діяльність МВС України щодо протидії транснаціональній злочинності у сфері високих технологій//*Наукові записки.* Серія: Історія. 2011. Вип. 1. P. 205—211.

On Information [1] dated on 02.10.1992 № 2657-XII, *On protection of information in information and telecommunication systems* dated on 05.07.1994 № 80/94-BP [2], *On State Secret* dated 21.01.1994 № 3855-XII[3], *On Fundamentals of National Security of Ukraine* dated on 19.06.2003 № 964-IV[4]; Decrees of the President of Ukraine: *On Some Measures for the Protection of State Information Resources in Data Transmission Networks* dated on September 24, 2001 № 891/2001 [5], *On Regulations on Technical Protection of Information in Ukraine* dated on September 27, 1999 № 1229/99 [6], *On measures to strengthen the banking system of Ukraine and increase its role in the processes of economic transformation* dated on 14.07.2000 № 891/2000[7] etc.

As evidenced by the practice of combating cybercrime, these regulations need to be systematized, which one of the options is the adoption of the Code of Information that will serve as a basis for legal support to combat cybercrime. The Verkhovna Rada of Ukraine created special structures on organizational and legal support to combat cybercrime functioned at different times, namely: Interdepartmental Committee on Protection of Intellectual Property Rights, Government Commission on Information and Analytical Support of Executive Bodies, Interdepartmental working group to develop and agree on the Concept of legalization of software products and combating their illegal use.

According to S. H. Kalancha, the issue of global information network possibilities, in particular the Internet and their use to combat crimes not only

[1] Про інформацію: Закон України від 02.10.1992 р. № 2657-XII (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/2657-12 (date accessed: 12.06.2019).

[2] Про захист інформації в інформаційно-телекомунікаційних системах: Закон України від 05.07.1994 р. № 80/94-ВР (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/80/94-вр (date accessed: 12.06.2019).

[3] Про державну таємницю: Закон України від 21.01.1994 р. № 3855-XII (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/3855-12 (date accessed: 12.06.2019).

[4] Про основи національної безпеки України: Закон України від 19.06.2003 р. № 964-IV (утратив чинність). URL: https://zakon.rada.gov.ua/laws/show/964-15 (date accessed: 12.06.2019).

[5] Про деякі заходи щодо захисту державних інформаційних ресурсів у мережах передачі даних: Указ Президента України від 24.09.2001 р. № 891/2001. URL: https://zakon.rada.gov.ua/laws/show/891/2001 (date accessed: 12.06.2019).

[6] Про Положення про технічний захист інформації в Україні: Указ Президента України від 27.09.1999 р. № 1229/99 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/1229/99 (date accessed: 12.06.2019).

[7] Про заходи щодо зміцнення банківської системи України та підвищення її ролі у процесах економічних перетворень: Указ Президента України від 14.07.2000 р. № 891/2000. URL: https://zakon.rada.gov.ua/laws/show/891/2000 (date accessed: 12.06.2019).

with specific computer but also other types of crimes, especially transnational and organized has not been studied by criminology [1].

Thus, modern issues of cybercrime combating are becoming increasingly important, as the losses of domestic banks and their customers from this type of crime are growing every year. At the same time, high-tech crimes with use of the latest technology and software deserve special attention. Therefore, further research is needed: is it possible to prevent cybercrime in the banking sector.

In this case, forensic forecasting can be useful. Forensic forecasting is an independent doctrine, system of scientific provisions on the general laws of construction and verification of forecasts that reflect the prospects and directions of development of criminalistics and its objects of its cognition in the future.

It should be noted that for full functioning of forensic forecasting of cybercrime in the banking sector, it is necessary to prepare a variety of recommendations, which content can vary depending on the purpose of forecasts and the direction of forecasting research. If the purpose of such forecasting is to develop new methods, techniques and tools that will further ensure investigation of criminal activity that is changing, proposed recommendations will be creative. Expected conclusions for forensic science and forensic practice can be guidelines, which direction is most likely to develop the objects of forensic knowledge. At the same time, forecasting not only orients but provides dynamic, progressive development of forensic objects in accordance with the chosen direction, anticipating occurrence of negative, hopeless situations, when investigative bodies encounter criminal manifestations that have not found proper legal settlement appropriate forensic recommendations for their investigation and prevention.

For investigative and forensic practice (bodies that appoint forensic examination), issue of banking cybercrime is quite new. In addition, it should be noted that research on documents of financial and credit transactions via Internet should be considered as comprehensive one. In other words, it is necessary to involve several professionals to apply specific expertise from different branches of science and technology to solve common (integration) task (issue).

Forensic examination (research) of documents of financial and credit transactions conducted through Internet banking aimed at research of operations on transfer and crediting funds to the current account, payments for participation in online auctions, use of services for transfer or exchange of currency, payments in online stores, depositing funds or lending.

The tasks that forensic experts solve while such forensic researches are aimed at determining documentary validity of the following:

- banking operations on opening accounts and cash flows on accounts;
- operations for the issuance, use and repayment of loans and deposits, namely: their registration and accounting.

[1] Каланча С. Г. Кіберзлочинність: шляхи попередження та протидії//Наше право. 2012. № 3. Ч. 2. Р. 213—217.

At the same time, for forensic examination of documents of financial and credit operations Scientific and methodological recommendations on preparation and appointment of forensic examinations and forensic researches do not contain similar tasks and do not provide an indicative list of issues to be addressed by forensic expert.

As a result, while appointing forensic economic analysis or forensic research, very often the expert's decision is made on issues that involve audit actions or require a legal assessment that is not within the competence of forensic economists.

Conclusions. Therefore (in order to better meet the needs of investigative and judicial practice), appropriate changes are needed Scientific and methodological recommendations on the preparation and appointment of forensic examinations and expert research in terms of forensic economics in combating fraud in banking services via Internet, as the number of examinations related to the research on documents of financial and credit transactions is constantly increasing and the research subject is expanding.

References

Anishchenko, O. V., Khomutenko, O. V. (2018). Klasyfikatsiia sudovykh ekonomichnykh ekspertyz na suchasnomu etapi rozvytku sudovoi ekspertyzy. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky.* Kharkiv. № 18. URL: https://doi.org/10.32353/khrife.2018.54 (data zvernennia: 12.06.2020) [in Ukrainian].

Bank v kysheni: shcho take Monobank. Uteka. URL: https://uteka.ua/ua/publication/news-14-delovye-novosti-36-bank-v-karmane-chto-takoe-monobank (data zvernennia: 12.06.2019) [in Ukrainian].

Horlachuk, O. A. Ofitsiinyi sait Ternopilskoho NDEKTs MVS Ukrainy. URL: http://www.ndekc.te.ua/news/kreditn-mahnats-v-sfer-fnansovokreditnih-vdnosin-ta-zahist-nteresv-h-subktv (data zvernennia: 12.06.2019) [in Ukrainian].

Internet-bankinh. Vikipediia. URL: https://uk.wikipedia.org/wiki/Internet-bankinh (data zvernennia: 12.06.2019) [in Ukrainian].

Kalancha, S. H. (2012). Kiberzlochynnist: shliakhy poperedzhennia ta protydii. *Nashe pravo.* № 3. Ch. 2 [in Ukrainian].

Konventsiia pro kiberzlochynnist (zi zmin. ta dopov.): ukhv. Radoiu Yevropy 23.11.2001 r., ratyf. Zakonom Ukrainy vid 07.09.2005 r. № 2824-IV. URL: https://zakon.rada.gov.ua/laws/show/994_575 ; https://zakon.rada.gov.ua/laws/show/2824-15 (data zvernennia: 12.06.2019) [in Ukrainian].

Pro deiaki zakhody shchodo zakhystu derzhavnykh informatsiinykh resursiv u merezhakh peredachi danykh: Ukaz Prezydenta Ukrainy vid 24.09.2001 r. № 891/2001. URL: https://zakon.rada.gov.ua/laws/show/891/2001 (data zvernennia: 12.06.2019) [in Ukrainian].

Pro derzhavnu taiemnytsiu: Zakon Ukrainy vid 21.01.1994 r. № 3855-XII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/3855-12 (data zvernennia: 12.06.2019) [in Ukrainian].

Pro informatsiiu: Zakon Ukrainy vid 02.10.1992 r. № 2657-XII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2657-12 (data zvernennia: 12.06.2019) [in Ukrainian].

Pro osnovy natsionalnoi bezpeky Ukrainy: Zakon Ukrainy vid 19.06.2003 r. № 964-IV (utratyv chynnist). URL: https://zakon.rada.gov.ua/laws/show/964-15 (data zvernennia: 12.06.2019) [in Ukrainian].

Pro Polozhennia pro tekhnichnyi zakhyst informatsii v Ukraini: Ukaz Prezydenta Ukrainy vid 27.09.1999 r. № 1229/99 (zi zmin. ta dopov.) URL: https://zakon.rada.gov.ua/laws/show/1229/99 (data zvernennia: 12.06.2019) [in Ukrainian].

Pro zakhody shchodo zmitsnennia bankivskoi systemy Ukrainy ta pidvyshchennia yii roli u protsesakh ekonomichnykh peretvoren: Ukaz Prezydenta Ukrainy vid 14.07.2000 r. № 891/2000. URL: https://zakon.rada.gov.ua/laws/show/891/2000 (data zvernennia: 12.06.2019) [in Ukrainian].

Pro zakhyst informatsii v informatsiino-telekomunikatsiinykh systemakh: Zakon Ukrainy vid 05.07.1994 r. № 80/94-VR (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/80/94-vr (data zvernennia: 12.06.2019) [in Ukrainian].

Pro zatverdzhennia Instruktsii pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen ta Naukovo-metodychnykh rekomendatsii z pytan pidhotovky ta pryznachennia sudovykh ekspertyz ta ekspertnykh doslidzhen: nakaz Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.). URL: http://zakon4.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 12.06.2019) [in Ukrainian].

Yarovenko, H. M., Boiadzhian, M. M. (2018). Analiz naslidkiv kibershakhraistv v bankivskii systemi Ukrainy. *Ekonomika i suspilstvo.* № 18 [in Ukrainian].

Zozulia, Ye. V. (2011). Diialnist MVS Ukrainy shchodo protydii transnatsionalnii zlochynnosti u sferi vysokykh tekhnolohii. *Naukovi zapysky. Seriia: Istoriia.* № 1 [in Ukrainian].

К. І. Говорова

МІСЦЕ СУДОВО-ЕКОНОМІЧНОЇ ЕКСПЕРТИЗИ У ПРОТИДІЇ ШАХРАЙСТВАМ З НАДАННЯ ПОСЛУГ У БАНКІВСЬКІЙ СФЕРІ ЧЕРЕЗ ІНТЕРНЕТ

У статті окреслено місце судово-економічної експертизи у протидії шахрайствам з надання послуг у банківській сфері через інтернет. Окремо слід звернути увагу на високотехнологічні злочини з використанням новітньої техніки та програмного забезпечення, тому подальших досліджень

потребує питання: чи можливо попередити кіберзлочинність у банківській сфері. Розглянуто питання проведення судово-економічних досліджень щодо надання послуг у банківській сфері через інтернет. На основі аналізу наслідків кібершахрайств, які відбуваються у сфері використання клієнтами банків платіжних засобів, виявлено, що найбільш вразливим місцем є сам клієнт, який під дією різних методів соціальної інженерії стає об'єктом шахрайства.

Ключові слова: інтернет-банкінг, фінансово-кредитні операції, фінансові махінації, онлайн-сервіс, злочини у банківській сфері, банківські послуги, кредитні операції, комп'ютерні технології у сфері платежів, розрахунки через інтернет.

Е. И. Говорова

МЕСТО СУДЕБНО-ЭКОНОМИЧЕСКОЙ ЭКСПЕРТИЗЫ В ПРОТИВОДЕЙСТВИИ МОШЕННИЧЕСТВАМ ПО ПРЕДОСТАВЛЕНИЮ УСЛУГ В БАНКОВСКОЙ СФЕРЕ ЧЕРЕЗ ИНТЕРНЕТ

В статье обозначено место судебно-экономической экспертизы в противодействии мошенничеству по предоставлению услуг в банковской сфере через интернет, поскольку в последнее время в сфере финансово-кредитных отношений всё чаще фиксируются махинации, касающиеся незаконных кредитных операций. Отмечено, что это один из самых распространённых способов финансового мошенничества, к которому прибегают как кредиторы (банки, фонды, ассоциации), так и заёмщики (субъекты хозяйствования, физические лица), а экономический ущерб указанных субъектов и, в первую очередь, финансово-кредитных учреждений может достигать значительных сумм в национальной или иностранной валюте. Подчёркнуто, что все многочисленные незаконные финансово-кредитные операции условно можно разделить на несколько групп в зависимости от субъекта (заёмщик или кредитор). В статье с целью защиты интересов субъектов финансово-кредитных отношений и, соответственно, избегания ими экономического ущерба, рекомендуется: со стороны кредитора (это касается, в первую очередь, банков) — обеспечить соответствующий уровень финансового контроля, который заключается в надлежащем документальном оформлении кредитных операций (организации специального делопроизводства с документами, содержащими банковскую тайну), обоснованности предоставления кредита клиенту путём двойной проверки соответствующими службами банков, а со стороны клиентов — постоянно повышать финансовую грамотность вышеуказанных отношений.

Установлено, что особого внимания заслуживают высокотехнологичные преступления с использованием новейшей техники и программного

обеспечения, поэтому дальнейшие исследования нуждаются в предупреждении киберпреступности в банковской сфере. Рассмотрены вопросы проведения судебно-экономических исследований по предоставлению услуг в банковской сфере через интернет. На основе анализа последствий кибермошенничества в сфере использования клиентами банков платёжных средств выявлено, что наиболее уязвимым местом является сам клиент, который под действием различных методов социальной инженерии становится объектом мошенничества. Для борьбы с этим способом мошенничества украинские банки не имеют достаточно действенных инструментов. Постоянно растущее число назначенных экспертиз, связанных с исследованием документов финансово-кредитных операций, и расширение предмета исследования указанного сегмента экспертизы требуют внесения соответствующих изменений в законодательство с целью более полного удовлетворения потребностей следственной и судебной практики.

Ключевые слова: интернет-банкинг, финансово-кредитные операции, финансовые махинации, онлайн-сервис, преступления в банковской сфере, банковские услуги, кредитные операции, компьютерные технологии в сфере платежей, расчёты через интернет.

Received by Editorial Board: 04.08.2020

Hovorova K. I. Place of forensic economic examination in combating fraud on the provision of services in banking via the internet//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 461—472. DOI: https://doi.org/10.32353/khrife.2.2020.37.

DOI: https://doi.org/10.32353/khrife.2.2020.38
UDC 343.98:33

O. S. Fesenko,
Senior Forensic of the Department of Trade Analysis, Gemological and Economic Analyses, Forensic Structural Engineering, Forensic Property Valuation at Zaporizhzhia Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine,
Zaporizhzhia, Ukraine,
e-mail: fesenko_o.s.1703@ukr.net

Problematic issues and ways for their resolution while research on tax credit of value-added tax (Review Article)

The article deals with problematic issues faced by a forensic economist in practice when conducting a forensic economic examination in relation to confirmation of violations established by tax audit reports of the State tax service of Ukraine, particularly tax credit overstatement, which in their essence are legal in nature and require not only knowledge in the field of economics, accounting, tax accounting and reporting, but also legal knowledge.

The Article purpose is to highlight a number of challenging issues that arise during forensic economic examination; ways to resolve them are suggested, at the same time examples from forensic practice are offered.

The analysis of judicial practice and the role of availability of a court judgment concluded between enterprises on invalidation of documents, of the results of handwriting analysis for investigative bodies while appointment of forensic economic examination is substantiated.

According to the results of the carried out research, it was concluded that, in order to verify tax audit reports on violations of tax legislation, in terms of tax credit overstatement which in its essence are of a legal nature, a forensic expert should be provided not only with properly executed primary documents, but also judgment concluded between enterprises on recognition of invalid documents, court verdict on fictitious nature of the entity of economic activity, which became legally binding. Prior to appointment of forensic economic examination, it is expedient to conduct handwriting analysis (in case of signing of tax and expenditure invoices by a non-authorized person).

In questions addressed to a forensic expert-economist, it is useful to take into consideration court judgment and handwriting analysis forensic report. All the above will increase the number of disclosure of economic crimes and provide money to the budget of a country.

Keywords: forensic economic examination, forensic expert, value added tax, tax credit, tax bill, court judgment, handwriting analysis, primary document, tax audit report.

© O. S. Fesenko, 2020

Formulation of Research Problem. Value added tax (hereinafter referred to as VAT) is the main source of filling the State Budget of Ukraine and one of the most controversial and problematic taxes.

Currently, economic entities underestimate or do not pay VAT to the budget, so violation of economic entities of tax legislation in terms of accrual and payment of VAT is one of the pressing issues that negatively affects the economy of Ukraine because of reflection correctness in enterprise accounting of amounts of tax liability and tax credit depend on completeness, timeliness of calculations with the budget for this tax.

Analysis of Essential Researches and Publications. Many scientific and journalistic publications both in Ukraine and abroad are devoted to researches on accrual and payment of value added tax.

In the world economic space, value added tax system was first proposed in Germany in 1919 by Wilhelm von Siemens. At that time, this tax was called "ennobled turnover tax" or "ennobled sales tax ". In 1954, France replaced the sales tax with a value added tax. Subsequently, VAT became widespread, first in Europe and later in Asia, Africa and Latin America [1].

VAT administration issue has been studied by many scientists, in particular O. Vasylyk [2], Y. Ivanov [3], A. Krysovaty and others [4]. Significant contribution to the development of the organization and methods of accounting for VAT calculations was made by domestic researchers O. Adamyk [5], V. Babich, S. Sahova [6], M. Kotsupatry [7], K. Ullubieva [8], M. Shigun and others. [9]

[1] E.g., Книшек О., Дяченко Є. Оптимальна ставка податку на додану вартість — основа успішних податкових надходжень//*Економічний аналіз:* зб. наук. пр. Тернопіль, 2012. Т. 10 (1). P. 410. URL: http://nbuv.gov.ua/UJRN/ecan_2012_10(1)__88 (date accessed: 03.06.2019).

[2] Василик О. Д. Податкова система України: навч. посіб. Київ, 2004. 478 p.

[3] Иванов Ю. Н. Экономическая статистика: учебник/под ред. Ю. Н. Иванова. 2-е изд., перераб. и доп. Москва, 2002. P. 480.

[4] Крисоватий А. І., Десятнюк О. М. Податкова система: навч. посіб. Тернопіль, 2004. 331 p.

[5] Адамик О. Доходи суб'єктів державного сектору: економічна сутність, вітчизняна та міжнародна інтерпретація//*Бухгалтерський облік і аудит.* 2012. № 1. P. 29—36.

[6] Бабіч В. В., Сагова С. В. Фінансовий облік (облік активів): навч. посіб. Київ, 2006. 282 p.

[7] Коцупатрий М. М., Ковач С. І., Безверхий К. В. Облік і звітність в оподаткуванні у схемах і таблицях: навч. посіб. Київ, 2015. 196 p.

[8] Уллубієва К. К. Шляхи удосконалення методики внутрішнього контролю розрахунків за податком на додану вартість на основі ризик-орієнтованого підходу// *Науковий вісник Херсонського державного університету.* Серія: Економічні науки. 2014. Вип. 6 (5). P. 201—204.

[9] E.g., Юрченко О. Податок на додану вартість: аналіз податкової реформи 2016 року//*Бухгалтерський облік і аудит.* 2016. № 12. P. 18. URL: http://194.44.12.92:8080/jspui/handle/123456789/903 (date accessed: 03.06.2019).

Article Purpose. Coverage of problems and suggestions for solutions which forensic expert encounters during the forensic economic examination to confirm violations identified by acts of documentary audits (in terms of tax credit overstatement) that are essentially legal in nature and require knowledge not only in the fields of economics, accounting, tax accounting and reporting but also in the field of jurisprudence.

Main Content Presentation. During 1997-2010, VAT was accrued and paid to budget in accordance with the requirements of the Law of Ukraine: *On Value Added Tax* [1].

Starting from January 2011 until today, the relations arising in the field of taxes and fees (in particular, exhaustive list and procedure for administration of taxes and fees to be paid in Ukraine) are regulated by the Tax Code of Ukraine (hereinafter referred to as TCU) and other legislation and regulations.

According to the current Tax Code of Ukraine, VAT is a national, indirect tax, that is a component of the price of goods (services) which is paid by the buyer, but transferred to budget by the seller. Accrue and pay VAT in accordance with the rules of Chap. V of Tax Code of Ukraine[2].

The control over implementation and observance by business entities of timely accrual and payment of VAT is entrusted to the State Fiscal Service of Ukraine.

Thus, in accordance with requirements of paragraph 75.1 of Art. 75 of the TCU, regulatory authorities have the right to conduct in-house, documentary (scheduled or unscheduled; on-site or off-site) and factual inspections.

According to p/p. 75.1.2 of TCU, timeliness, reliability, completeness of accrual and payment of all TCU taxes and fees (including VAT), as well as compliance with currency and other legislation, which control is entrusted to the supervisory authorities, check supervisory authorities while documentary inspection.

Tax declarations (calculations), financial, statistical and other reporting, registers of tax and accounting, which maintenance is provided by law, primary documents used in accounting and tax accounting and related to the accrual and payment of taxes and fees, execution are subject to documentary verification. requirements of other legislation which control over observance is entrusted to controlling bodies, as well as documents and tax information received in the

[1] Про податок на додану вартість: Закон України від 03.04.1997 р. № 168/97-ВР (expired). URL: http://zakon.rada.gov.ua/laws/show/168/97-вр (date accessed: 03.06.2019).

[2] Податковий кодекс України: Закон України від 02.12.2010 р. № 2755-VI (as amended and supplemented)//*Відомості Верховної Ради України (ВВР)*. 2011. № 13—14, 15—16, 17, ст. 112. URL: https://zakon.rada.gov.ua/laws/show/2755-17 (date accessed: 03.06.2019).

manner prescribed by controlling body, in particular based on the results of inspections of other taxpayers [1].

The results of documentary inspections should be drawn up in the form of an act of documentary inspection or a certificate of documentary inspection. If violations are identified while inspection, a documentary inspection [2] report shall be drawn up and a tax notice-decision shall be issued.

Most often, taxpayers appeal tax notices-decisions made by the State Tax Service based on the results of a documentary audit due to disagreement with conclusions set out by controlling body in the act of documentary audit.

In the case of a taxpayer's lawsuit, before the entry into force of court decision, the tax liability is considered inconsistent. Therefore, representatives of regulatory authorities and investigators should make every effort to prove legality of violations set forth in the act of documentary verification and protection of state interests in court.

According to forensic expert practice and data of the Unified State Register of Judicial Decisions (hereinafter referred to as USRJD) [3], consideration of cases by courts on violations of tax legislation identified during 2012—2016 continues by now.

One of the ways to confirm violations of tax law by taxpayers that contributes to a comprehensive, complete and objective investigation of case circumstances, adoption of lawful and reasonable court decisions and at the same time one of the most popular species of forensic science is forensic economics.

Most often, forensic economic analysis to confirm violations of tax legislation by business entities is appointed by investigative bodies, investigating judge or court after the supervisory body conducts a documentary inspection, as audit activities (determination by forensic experts of any economic indicators without prior documentary inspections financial and economic activities of the control subject) does not belong to the tasks of forensic economics [4].

---

[1] Ibid.

[2] Про затвердження Порядку оформлення результатів документальних перевірок дотримання законодавства України з питань державної митної справи, податкового, валютного та іншого законодавства платниками податків — юридичними особами та їх відокремленими підрозділами: наказ Мінфіну України від 20.08.2015 р. № 727 (as amended and supplemented). URL: https://zakon0.rada.gov.ua/laws/show/z1300-15 (date accessed: 03.06.2019).

[3] Єдиний державний реєстр судових рішень — автоматизована система збирання, зберігання, захисту, обліку, пошуку та надання електронних копій судових рішень (e.g., Про доступ до судових рішень: Закон України від 22.12.2005 р. № 3262-IV (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/3262-15 (date accessed:14.06.2019). All decisions of courts of Ukraine in civil, administrative, commercial cases, cases of administrative offenses and criminal proceedings are recorded in the Register.

[4] Інформаційний лист Державного НДЕКЦ МВС України від 18.11.2014 р. № 19/15-8533 (date accessed:14.06.2019).

One of current issues faced by a forensic expert while forensic economic analysis which solution raises the issue of confirming the conclusions of acts of documentary inspections of regulatory authorities (in terms of overcharging tax, understatement of VAT payable to the budget) is the lack at the controlling body and at the initiator of appointment of economic examination on the court decision on invalidation of the documents concluded between enterprises.

At first glance, confirmation of violations specified in the act of documentary verification of the overstatement of the tax credit and (as a consequence) understatement of the amount of VAT payable to the budget belongs to tasks of forensic economics. However, most of conclusions are based on the fact that while determined and these transactions are non-commodity; primary documents of enterprise or individual entrepreneur indicate business transactions that did not actually take place due to which tax, expenditure and income invoices, contracts do not have the legal force of primary documents, etc.

Investigated violations require not only the knowledge of an expert in the field of accounting, tax accounting and reporting but invalidation of documents concluded between enterprises. A procedural document confirming availability or missing of these facts is a court decision to invalidate contracts and primary documents concluded between enterprises adopted exclusively in court. After all, in accordance with Art. 204 of the Civil Code of Ukraine: transaction is lawful if its invalidity is not directly established by the law or if it is not recognized by court as invalid [1].

In other words, recognition of primary documents as invalid (without a previous court decision) goes beyond forensic expert specific expertise, as it is essentially legal in nature. In Art. 242 of the Criminal Procedural Code of Ukraine [2] clearly states that it is not allowed to conduct an examination to clarify issues of law.

In order to remain within the limits of his specific expertise, forensic expert examines the documents of sale and receipt of goods, services (expenditure, income and consignment notes; acts of delivery-acceptance, provision of services, performance of works, etc.) cash and bank documents to receive money funds, checks availability of all mandatory details including availability of signatures and seals. Then he compares data specified in the primary documents with data of balance sheets and tax invoices, as well as checks the inclusion of tax invoices in the register of issued and received tax invoices and compares with the data specified in the VAT tax return and in Annex 5 to the tax VAT returns.

---

[1] Цивільний кодекс України: Закон України від 16.01.2003 р. № 435-IV (as amended and supplemented). URL: http://zakon.rada.gov.ua/laws/show/435-15#n1163 (date accessed: 03.06.2019).

[2] Кримінальний процесуальний кодекс України: Закон України від 13.04.2012 р. № 4651-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/4651-17#n2256 (date accessed: 03.06.2019).

All these operations allow forensic expert to determine compliance of primary documents submitted for examination to a certain amount of tax credit, tax liability for VAT, the amount of VAT payable for the reporting period.

Let us consider some examples of violations mentioned in the acts of documentary inspections of regulatory authorities, overestimation of tax credit and ways to address issues arising in practice while forensic economic analysis of these violations.

However, decision of forensic economic examination raises the issue of documentary confirmation of the conclusions of the act of documentary inspection in terms of overstatement of the tax credit by enterprise "A" (buyer) in relations with enterprise "B" (seller).

Forensic expert was provided with all primary documents of relations between enterprises "A" and "B" for examination: expense invoices, income invoices, consignment notes, contract, specifications, tax invoices, documents confirming payment for goods (payment invoices, payment orders), turnover and balance information on sub-accounts 631 *Settlements with suppliers*, 644 *Tax credit with VAT*, etc. Primary documents were signed bilaterally (by the buyer without specifying the name and surname), the signatures were sealed by the parties.

Comparison by forensic expert of data specified in the expense and income invoices, tax invoices, register of issued and received tax invoices, appendix 5 to the VAT tax return and data of analytical accounting did not reveal discrepancies, enterprise "A" made the payment in full, there is no debt to counterparty "B".

In other words, forensic expert was provided with all properly executed documents that meet requirements of the primary document and confirm the implementation of business transactions between enterprises "A" and "B".

Violation of the tax credit overstatement by enterprise "A" (buyer) in relations with enterprise "B" (seller) could occur due to the following circumstances.

1. In the act of documentary inspection the controlling body notes that enterprise "A" in relations with enterprise "B" included VAT amounts in the tax credit, but the fact of commodity transactions by supplier enterprise "B" to the address of enterprise "A" was not confirmed by inspection. In provided expense invoices it is impossible to identify the person (signature in the line *Received* is made on behalf of the director of enterprise "A" without indication of the full name and a position of the person signed this document) which actually received the goods and there is no mandatory details "place of compiling". In addition, primary documents of the counterparty (enterprise "B") indicate business transactions that did not actually take place. In such circumstances, tax invoices, expense and income invoices, contracts do not have the legal force of primary documents and the company "A" illegally formed accounting records and tax reporting on the basis of such primary documents.

Recognition of primary documents as invalid (without a previous court decision) goes beyond the forensic expert specific expertise.

While research on primary documents, the forensic expert checks availability of all mandatory details, and in their absence (or the presence of deficiencies or minor errors) may indicate this in his conclusion. However, forensic expert has no right to claim and conclude that primary documents of enterprise "B" indicate business transactions that did not actually take place.

Formal compiling is not in compliance with the requirements of Part 2 of Art. 9 of the Law of Ukraine: *On Accounting and Financial Reporting in Ukraine* [1] primary documents are mostly interpreted by regulatory authorities as a sign of business transactions.

However, the court takes a slightly different position in its decisions.

For example, in the decision of the Zaporizhzhia District Administrative Court dated on 21.09.2016 in case № 808/1968/16 the court noted that, given the availability of primary accounting documents of the company "A" confirming the cost of purchasing goods taking into account that these documents are not recognized as invalid, the counterparty of the enterprise "B" at the time of transactions is registered in the manner prescribed by law as a VAT payer, so the enterprise "A" quite rightly declared the amount of VAT tax credit [2].

The same opinion in the case № 808/1968/16 is held by the Supreme Administrative Court of Ukraine (hereinafter referred to as SACU; decision of 26.01.2017): "*In addition, documents and other data that refute reality of business transaction that is reflected in tax accounting, should be assessed taking into account the specifics of each business transaction; conditions of transportation, storage of goods, content of services provided, etc. In this case, availability or lack of individual documents, as well as errors in their design is not a basis for conclusions about lack of business transaction, if other data show that actual movement of assets or changes in equity or liabilities of the taxpayer with his business activities took place*" [3].

Similar legal position is set out in the decisions of the Supreme Administrative Court of Ukraine dated 17.02.2015 in case № 804/10323/13-a [4], dated on 12.07.2016 in case № 826/10030/15[5], in the Resolution of Supreme

[1] Про бухгалтерський облік та фінансову звітність в Україні: Закон України від 16.07.1999 р. № 996-XIV ((as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/996-14 (date accessed: 03.06.2019).

[2] Постанова Запорізького окружного адмінсуду від 21.09.2016 р. у с808/1968/16. праві № 808/1968/16. URL: http://reyestr.court.gov.ua/Review/61733121 (date accessed: 03.06.2019).

[3] Ухвала ВАСУ від 26.01.2017 р. у справі № 808/1968/16. URL: http://reyestr.court.gov.ua/Review/64624451 (date accessed: 03.06.2019).

[4] Ухвала ВАСУ від 17.02.2015 р. у справі № 804/10323/13-а. URL: http://reyestr.court.gov.ua/Review/42842592 (date accessed: 03.06.2019).

[5] Ухвала ВАСУ від 12.07.2016 р. у справі № 826/10030/15. URL: https://www.uacourt.openregister.info/administratyvni-spravy-do-01-01-2019-3000/spravy-zi-sporiv-z-pryvodu-realizatsiyi-podatkovoyi-polityky-ta-za-zvernennyamy-podatkovykh-organiv-iz-deyakymy-vydamy-vymog-zokrema-zi-sporiv-shchodo-5610/

Court of Ukraine (hereinafter referred to as SCU) dated 18.12.2018 in the case № 816/1118/17 [1].

In the Resolution of Supreme Court of Ukraine dated on 05.02.2019 in case № 816/652/15-a the court also noted: "*Lack or availability of certain documents, as well as some errors or inaccuracies in their design are not grounds for conclusions about the lack of business transaction, if it follows from other data that actual movement of assets or changes in equity or liabilities of the taxpayer in connection with his business activities have occurred (occurred), and certain deficiencies in the completion of primary documents are of evaluative nature*" [2].

Therefore, in order for forensic expert not to go beyond his specific expertise while forensic economic analysis and confirmation of documentary inspections on violations of tax legislation (in particular, on tax credit overstatement, which are essentially legal in nature); it is advisable to provide for research to forensic expert the decision of the court on invalidation of the documents concluded between the enterprises "A" and "B" (expense invoices, acts of acceptance-transfer, tax invoices, etc.) came into force.

2. In the act of documentary inspection controlling body noted a violation that means tax credit overstatement because of expenditure and tax invoices are issued on behalf of persons who deny their participation in the creation and operation of the taxpayer's counterparty. For example, all primary documents are signed citizen "D" listed as the founder and director of the company "B", however, practically no relation to this company citizen "D" does not have, does not carry out financial and economic activities, does not perform administrative and managerial functions of the enterprise head.

In this case, forensic expert examines the submitted primary documents, checks availability of all mandatory details, compares data in the related documents.

Obligation to determine and prove that the information contained in properly executed primary documents is inaccurate, contradictory to the actions of individuals and is the result of insignificant transactions is beyond forensic expert specific expertise, as this issue belongs to legal category.

In Art. 234 of Civil Code of Ukraine states that a transaction is fictitious that is committed without the intention to create the legal consequences caused by this transaction. The fictitious transaction is declared invalid by the court [3].

---

administruvannya-okremykh-podatkiv-zboriv-platezhiv-u-tomu-chysli-5617/podatku-na-dodanu-vartist-krim-byudzhetnogo-vidshkoduvannya-z-podatku-na-dodanu-vartist-11691?document=58953707 (date accessed:03.06.2019).

[1] Постанова ВСУ від 18.12.2018 р. у справі № 816/1118/17. URL: http://reyestr.court.gov.ua/Review/78773797 (date accessed:13.06.2019).

[2] Постанова ВСУ від 05.02.2019 р. у справі № 816/652/15-а. URL: http://reyestr.court.gov.ua/Review/79638539 (date accessed: 13.06.2019).

[3] Цивільний кодекс України: … . URL: http://zakon.rada.gov.ua/laws/show/435-15#n1163 (date accessed: 03.06.2019).

According to Art. 205 of the Criminal code of Ukraine, fictitious business is creation or acquisition of subjects of business activity (legal entities) for the purpose of cover of illegal activity or implementation of prohibited kinds of activity [1].

In the decisions of 16.01.2018 in the case № 2a-7075/12/2670[2] and dated on 27.04.2018 in the case № 2a-4901/12/1070 [3] the Supreme Court of Ukraine notes that status of a fictitious, illegal enterprise is incompatible with legal entrepreneurial activity. Business transactions of such enterprises cannot be legalized even with formal confirmation by accounting documents.

According to the Resolution of Supreme Court of Ukraine dated on February 6, 2018 in the case № 826/6986/14: *"This circumstance cannot be ignored by the courts, as the status of a fictitious enterprise is incompatible with legal entrepreneurial activity the fact that the primary documents that became the basis for formation of tax credit and gross expenses issued by the counterparty, fictitiousness that is established by a court judgment, cannot be considered properly executed and signed by authorized persons reporting documents certifying the purchase of goods, works or services and therefore attribution of VAT amounts reflected in them to the tax credit is unfounded"* [4].

At the same time, there is an opposite position of the Supreme Court. Thus, in the Resolution dated on March 29, 2018 in the case № 826/3498/15 the court noted: *"check the proof of each tax offense and conduct a comprehensive study of all components of business transactions counting the circumstances established in the sentence that has entered into force"*. In the court decision noted that the court's verdict established that the accused PERSON_1, PERSON_2, PERSON_3 committed fictitious business, in particular acquired a business entity (enterprise "B") in order to cover up illegal activities. However, this verdict does not establish any facts that would indicate the implementation of unrealistic economic activity by this enterprise, in particular in the legal relations with enterprise "A". In particular, this verdict does not establish the guilt of authorized person of the plaintiff's counterparty, the enterprise "B" (I. I. Ivanova) signed primary documents [5].

---

[1] Кримінальний кодекс України: Закон України від 05.04.2001 р. № 2341-III (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/2341-14#n1382 (date accessed: 03.06.2019).

[2] Постанова ВСУ від 16.01.2018 р. у справі № 2а-7075/12/2670. URL: http://reyestr.court.gov.ua/Review/71630425 (date accessed: 03.06.2019).

[3] Постанова ВСУ від 27.04.2018 р. у справі № 2а-4901/12/1070. URL: http://reyestr.court.gov.ua/Review/73764158 (date accessed: 03.06.2019).

[4] Постанова ВСУ від 06.02.2018 р. у справі № 826/6986/14. URL: http://reyestr.court.gov.ua/Review/72089405 (date accessed: 03.06.2019).

[5] Постанова ВСУ від 29.03.2018 р. у справі № 826/3498/15. URL: http://reyestr.court.gov.ua/Review/73081934 (date accessed: 03.06.2019).

In other words, to confirm conclusions of the tax authority, forensic expert should provide a court verdict not only on recognition of enterprise "B" fictitious but also on determining the fact of fictitious economic activity of enterprise "B" (in particular, with enterprise "A").

3. Another, no less important, is the issue that in practice the forensic expert faces while forensic economic analysis to confirm the violations specified in the act of documentary verification (in terms of overstatement of the tax credit) is the lack of appointment of economic examination by the initiator and supervisory authority conducted a documentary check, results of handwriting analysis.

For example, violation of tax legislation regarding tax credit overstatement recorded in the act of documentary audit is based on the fact that tax invoices are signed not by officials listed in the Unified State Register of Legal Entities and individual entrepreneurs but by an unknown person or signed allegedly on behalf of responsible persons but the officials claim that they did not sign these documents.

In this case (to find out the truth) before appointing a forensic economic examination, it is advisable that the investigative bodies obtain conclusions of handwriting analysis and questioned document examination which results forensic expert uses in drawing up a conclusion or appoint a multidisciplinary forensic handwriting and economic examination. After all, while examination of primary documents, forensic expert does not have the right to independently determine the person who actually signed the documents.

It should be noted that handwriting and questioned document examination should be carried out only on those primary documents that relate to the economic relations of enterprises that are directly related to, namely for which period the violation was detected.

In expert practice, there are cases when the tax authority in the act of documentary audit in case of violation of the tax credit refers to the conclusion of handwriting analysis which results determined that signatures on behalf of the director of enterprise "B" citizen "C" in the primary accounting documents not citizen "C" but another person (persons). However, instead of primary documents (expenditure, income invoices, tax invoices) directly related and affect the formation of the tax credit, forensic expert is provided with only invoices for payment or a contract with additional agreements.

According to the case law (case № 808/1968/16), the court does not accept the reference of tax authorities to the conclusion of the handwriting analysis, because after its detailed study the court concludes that forensic examination was provided with primary documents of the counterparty, namely invoices, however, these documents do not apply to economic relations of enterprises "A" and "B" [1].

[1] Постанова Запорізького окружного адмінсуду від 21.09.2016 р. у с808/1968/16 .праві № 808/1968/16 … .

Another example: examining the act of documentary inspection, forensic expert found that tax credit overstatement was found for the period from June to December 2014 (reporting tax periods when the taxpayer could file tax invoices in paper form) and handwriting analysis which reference is given in the act of documentary check, carried out on tax and expense invoices only for the period of from June to July, 2014.

Conclusions. Summarizing the above, in order to resolve the issues arising while forensic economic analysis and to confirm the acts of documentary inspections on violations of tax legislation (in terms of overstatement of tax credit) that are essentially legal in nature, forensic expert should provide not only properly executed primary documents (signed by persons responsible for business transactions, or certified in accordance with current legislation) but the court decision to invalidate documents entered into force, concluded between enterprises.

Before forensic economic analysis assignment, it is advisable to conduct a handwriting analysis or questioned document examination, those documents and for the period which violation of tax law or to appoint a multidisciplinary forensic handwriting and economic analyses (in case of signing tax, expense invoices by an unauthorized person).

References

Adamyk, O. (2012). Dokhody subiektiv derzhavnoho sektoru: ekonomichna sutnist, vitchyzniana ta mizhnarodna interpretatsiia. *Bukhhalterskyi oblik i audyt.* № 1 [in Ukrainian].

Babich, V. V., Sahova, S. V. (2006). *Finansovyi oblik (oblik aktyviv):* navch. posib. Kyiv [in Ukrainian].

Informatsiinyi lyst Derzhavnoho NDEKTs MVS Ukrainy vid 18.11.2014 r. № 19/15-8533 (data zvernennia: 14.06.2019) [in Ukrainian].

Ivanov, Iu. N. (2002). *Ekonomicheskaia statistika:* uchebnik. Ed.: Iu. N. Ivanova. 2-e izd., pererab. i dop. Moscow [in Russian].

Knyshek, O., Diachenko, Ye. (2012). Optymalna stavka podatku na dodanu vartist — osnova uspishnykh podatkovykh nadkhodzhen. *Ekonomichnyi analiz.* T. 10 (1). URL: http://nbuv.gov.ua/UJRN/ecan_2012_10(1)__88 (data zvernennia: 03.06.2019) [in Ukrainian].

Kotsupatryi, M. M., Kovach, S. I., Bezverkhyi, K. V. (2015). *Oblik i zvitnist v opodatkuvanni u skhemakh i tablytsiakh*: navch. posib. Kyiv [in Ukrainian].

Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 r. № 2341-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2341-14 (data zvernennia: 27.06.2019) [in Ukrainian].

Kryminalnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4651-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/4651-17#n2256 (data zvernennia: 03.06.2019) [in Ukrainian].

Krysovatyi, A. I., Desiatniuk, O. M. (2004). *Podatkova systema:* navch. posib. Ternopil [in Ukrainian].

Podatkovyi kodeks Ukrainy: Zakon Ukrainy vid 02.12.2010 r. № 2755-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2755-17 (data zvernennia: 03.06.2019) [in Ukrainian].

Postanova VCU vid 06.02.2018 r. u spravi № 826/6986/14. URL: http://reyestr.court.gov.ua/Review/72089405 (data zvernennia: 03.06.2019) [in Ukrainian].

Postanova VCU vid 29.03.2018 r. u spravi № 826/3498/15. URL: http://reyestr.court.gov.ua/Review/73081934 (data zvernennia: 03.06.2019) [in Ukrainian].

Postanova VSU vid 05.02.2019 r. u spravi № 816/652/15-a. URL: http://reyestr.court.gov.ua/Review/79638539 (data zvernennia: 13.06.2019) [in Ukrainian].

Postanova VSU vid 16.01.2018 r. u spravi № 2a-7075/12/2670. URL: http://reyestr.court.gov.ua/Review/71630425 (data zvernennia: 03.06.2019) [in Ukrainian].

Postanova VSU vid 18.12.2018 r. u spravi № 816/1118/17. URL: http://reyestr.court.gov.ua/Review/78773797 (data zvernennia: 13.06.2019) [in Ukrainian].

Postanova VSU vid 27.04.2018 r. u spravi № 2a-4901/12/1070. URL: http://reyestr.court.gov.ua/Review/73764158 (data zvernennia: 03.06.2019) [in Ukrainian].

Postanova Zaporizkoho okruzhnoho adminsudu vid 21.09.2016 r. u spravi № 808/1968/16. URL: http://reyestr.court.gov.ua/Review/61733121 (data zvernennia: 03.06.2019) [in Ukrainian].

Pro bukhhalterskyi oblik ta finansovu zvitnist v Ukraini: Zakon Ukrainy vid 16.07.1999 r. № 996-XIV (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/996-14 (data zvernennia: 03.06.2019) [in Ukrainian].

Pro podatok na dodanu vartist: Zakon Ukrainy vid 03.04.1997 r. № 168/97-VR (утратив чинність). URL: http://zakon.rada.gov.ua/laws/show/168/97-vr (data zvernennia: 03.06.2019) [in Ukrainian].

Pro zatverdzhennia Poriadku oformlennia rezultativ dokumentalnykh perevirok dotrymannia zakonodavstva Ukrainy z pytan derzhavnoi mytnoi spravy, podatkovoho, valiutnoho ta inshoho zakonodavstva platnykamy podatkiv — yurydychnymy osobamy ta yikh vidokremlenymy pidrozdilamy: nakaz Minfinu Ukrainy vid 20.08.2015 r. № 727 (zi zmin. ta dopov.). URL: https://zakon0.rada.gov.ua/laws/show/z1300-15 (data zvernennia: 03.06.2019) [in Ukrainian].

Tsyvilnyi kodeks Ukrainy: Zakon Ukrainy vid 16.01.2003 r. № 435-IV (zi zmin. ta dopov.). URL: http://zakon.rada.gov.ua/laws/show/435-15#n1163 (data zvernennia: 03.06.2019) [in Ukrainian].

Ukhvala VASU vid 12.07.2016 r. u spravi № 826/10030/15. URL: https://www.uacourt.openregister.info/administratyvni-spravy-do-01-01-2019-3000/spravy-zi-sporiv-z-pryvodu-realizatsiyi-podatkovoyi-polityky-ta-za-zvernennyamy-podatkovykh-organiv-iz-deyakymy-vydamy-vymog-zokrema-zi-sporiv-shchodo-5610/administruvannya-okremykh-podatkiv-zboriv-platezhiv-u-tomu-chysli-5617/podatku-na-dodanu-vartist-krim-byudzhetnogo-vidshkoduvannya-z-podatku-na-dodanu-vartist-11691?document=58953707 (data zvernennia: 03.06.2019) [in Ukrainian].

Ukhvala VASU vid 17.02.2015 r. u spravi № 804/10323/13-a. URL: http://reyestr.court.gov.ua/Review/42842592 (data zvernennia: 03.06.2019) [in Ukrainian].

Ukhvala VASU vid 26.01.2017 r. u spravi № 808/1968/16. URL: http://reyestr.court.gov.ua/Review/64624451 (data zvernennia: 03.06.2019) [in Ukrainian].

Ullubiieva, K. K. (2014). Shliakhy udoskonalennia metodyky vnutrishnoho kontroliu rozrakhunkiv za podatkom na dodanu vartist na osnovi ryzyk-oriientovanoho pidkhodu. *Naukovyi visnyk Khersonskoho derzhavnoho universytetu.* Seriia: Ekonomichni nauky. № 6 (5) [in Ukrainian].

Vasylyk, O. D. (2004). *Podatkova systema Ukrainy*. Kyiv [in Ukrainian].

Pro dostup do sudovykh rishen: Zakon Ukrainy vid 22.12.2005 r. № 3262-IV (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/3262-15 (data zvernennia: 14.06.2019) [in Ukrainian].

Yurchenko, O. (2016). Podatok na dodanu vartist: analiz podatkovoi reformy 2016 roku. *Bukhhalterskyi oblik i audyt.* № 12. URL: http://194.44.12.92:8080/jspui/handle/123456789/903 (data zvernennia: 03.06.2019) [in Ukrainian].

О. С. Фесенко

ПРОБЛЕМНІ ПИТАННЯ ТА ШЛЯХИ ЇХ ВИРІШЕННЯ ПІД ЧАС ДОСЛІДЖЕННЯ ПОДАТКОВОГО КРЕДИТУ З ПОДАТКУ НА ДОДАНУ ВАРТІСТЬ

(оглядова стаття)

Розглянуто проблемні питання, з якими стикається судовий експерт на практиці під час проведення судової економічної експертизи щодо підтвердження порушень, визначених актами документальних перевірок контролюючих органів України (у частині завищення податкового кредиту), які за своєю сутністю мають правовий характер і потребують знань не лише у сферах економіки, бухгалтерського, податкового обліку і звітності, а й у сфері юриспруденції.

Метою статті є висвітлення та шляхи вирішення проблемних питань, що виникають під час проведення судової економічної експертизи, наведено приклади з експертної практики.

Проаналізовано судову практику й за результатами дослідження зроблено відповідні висновки.

Ключові слова: економічна експертиза, судовий експерт, податок на доданувартість, податковий кредит, податкова накладна, рішення суду, почеркознавча експертиза, первинний документ, акт документальної перевірки.

Е. С. Фесенко

ПРОБЛЕМНЫЕ ВОПРОСЫ И ПУТИ ИХ РЕШЕНИЯ ПРИ ИССЛЕДОВАНИИ НАЛОГОВОГО КРЕДИТА ПО НАЛОГУ НА ДОБАВЛЕННУЮ СТОИМОСТЬ

(обзорная статья)

В статье рассмотрены проблемные вопросы, с которыми сталкивается судебный эксперт-экономист на практике при проведении судебной экономической экспертизы относительно подтверждения нарушений, определённых актами документальных проверок Государственной налоговой службы Украины (в части завышения налогового кредита), которые по своей сути носят правовой характер и нуждаются в знаниях не только в сфере экономики, бухгалтерского, налогового учёта и отчётности, но и в сфере юриспруденции.

Целью статьи является освещение и определение путей решения проблемных вопросов, возникающих при проведении судебной экономической экспертизы; приведены примеры из экспертной практики. Проанализирована судебная практика и определена роль наличия у следственных органов при назначении судебной экономической экспертизы решения суда о признании недействительными документов, заключённых между предприятиями, а также результатов почерковедческой экспертизы.

По результатам проведённого исследования сделаны выводы, что для подтверждения актов документальных проверок о нарушениях налогового законодательства (в части завышения налогового кредита), которые по своей сути носят правовой характер, для исследования судебному эксперту-экономисту необходимо предоставить не только надлежащим образом оформленные первичные документы, но и решение о признании недействительными документов, заключённых между предприятиями, приговор суда о фиктивности субъекта хозяйственной деятельности, вступивший в законную силу. Перед назначением экономической экспертизы целесообразно провести почерковедческую экспертизу (в случае подписания налоговых, расходных накладных неуполномоченным лицом).

В вопросах, поставленных на решение судебному эксперту-экономисту, целесообразно указывать о судебном решении и заключении

почерковедческой экспертизы. Всё перечисленное увеличит количество раскрытия экономических преступлений и наполнит бюджет страны.

Ключевые слова: экономическая экспертиза, судебный эксперт, налог на добавленную стоимость, налоговый кредит, налоговая накладная, решения суда, почерковедческая экспертиза, первичный документ, акт документальной проверки.

Received by Editorial Board: 25.06.2020

Fesenko O. S. Problematic issues and ways for their resolution while research on tax credit of value-added tax (Review Article)//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 473—487. DOI: https://doi.org/10.32353/khrife.2.2020.38.

DOI: https://doi.org/10.32353/khrife.2.2020.39
UDC 343.98

I. V. Sabadash,
PhD in Law, Head of the Laboratory of Forensic Economic and Commodity Examinations in High Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-1967-9271, e-mail: saba-inna@ukr.net
S. A. Kozub,
Leading Forensic Expert at the Laboratory of Forensic Economic and Commodity Examinations in High Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-4692-7958, e-mail: skozub78@ukr.net
T. V. Marchenko,
Leading Forensic Expert at the Laboratory of Forensic Economic and Commodity Examinations in High Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-8060-3850,
e-mail: tanyamarchenko@ukr.net

On the issue of tax proceedings on charging rent for subsoil use for the extraction of raw hydrocarbons

The procedure for taxation of certain operations on charging lessor's royalty for extraction of raw hydrocarbons in the period of 2015 during forensic economic examinations is considered. Based on the results of review, certain peculiarities of taxation of operations on charging lessor's royalty for raw hydrocarbons extraction in the course of 2015 that emerged as a result of entry into force of the Law of Ukraine № 71-VIII: On amendments to the Tax Code of Ukraine [1] and certain legislative acts of Ukraine regrading tax reform dated December 28, 2014, have been identified.

Practical experience in conducting examinations on the issue of taxation on charging lessor's royalty for extraction of raw hydrocarbons in the period of 2015 demonstrates ambiguity of forensic approaches, as a result of interpretation of legal norms to the extent of their understanding and of certain situations that may lead to forensic economists' falling outside the limits of their competence which accordingly will affect the forensic expert support of justice in general.

[1] Про внесення змін до Податкового кодексу України та деяких законодавчих актів України щодо податкової реформи: Закон України від 28.12.2014 р. № 71-VIII (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/71-19 (date accessed: 29.05.2020).

© I. V. Sabadash, S. A. Kozub, T. V. Marchenko, 2020

Accordingly, it has been determined that since 2015, charging lessor's royalty for extraction of raw hydrocarbons that are fully or partially lie at depths to 5000 meters at the time of preparation of relevant tax calculations is a subject to fixed rate in the amount of 55%.

Exclusively in case of identification in a document on examination appointment (engaging a forensic expert) of significant circumstances on the case that are vital for forensic examination and in case of availability of clarifications regarding a specific legal position which lay down a systematic analysis of the current legislation of Ukraine, namely changes to rental rates, which are introduced by the Law of Ukraine № 71-VIII can be applied in accordance with the principle of stability of taxation only since 2016, accordingly, only a variant conclusion is to be provided, namely without taking into account such legal evaluation and separately based on a similar legal evaluation, for further adoption by court of a final decision.

The above procedure for taxing certain operations of charging lessor's royalty for extraction of raw hydrocarbons during the period of 2015 while forensic economic examinations will ensure the most comprehensive and unbiased preparation of forensic reports on this issue.

Keywords: lessor's royalty; rent payment; base tax (report) period; tax calculation; rental rate.

Formulation of Research Problem. Research on the issue of tax proceedings on charging rent for subsoil use for the extraction of raw hydrocarbons during 2015 is relevant, since while tax inspections authorized bodies of the State Fiscal Service draw up inspection reports on additional taxes and forensic science institutions receive a significant number of requests from law enforcement agencies and courts to conduct forensic economic examinations on the issues of documentary evidence of audit (inspection) report conclusions of the bodies of the State Fiscal Service of Ukraine (hereinafter referred to as *SFS*) to identify violations on taxation in indicated proceedings.

Analysis of Essential Researches and Publications. Taxation of charging rent for subsoil use for the extraction of raw hydrocarbons during 2015 is relevant, as in terms of changes in current legislation of Ukraine on taxation (as a result of the entry into force of the Law № 71-VIII, which repealed section XI: *Subsoil use fee* and introduced a new section IX: *"Rent" Tax Code of Ukraine*) this issue has not been previously considered in the context of forensic expert support of justice.

The **Article Purpose** is to substantiate the procedure for conducting researches on tax proceedings for charging rent as to subsoil use for the extraction of raw hydrocarbons during 2015 while forensic economic examinations.

Main Content Presentation. The procedure of tax proceedings on charging rent as to subsoil use for the extraction of raw hydrocarbons is regulated by the provisions of the TCU, tax clarifications of SFS authorized bodies and regulations of relevant ministries and agencies.

Control and inspection on accuracy of tax proceedings as to charging rent for subsoil use for the extraction of raw hydrocarbons during 2015, in accordance with the TCU, is entrusted to SFS authorities which detect facts of violations in spending aforementioned funds and determine the amount of losses during inspections (audits).

In the future, materials of inspections are forwarded to corresponding law enforcement agencies for registration of criminal proceedings. In the course of pre-trial investigation on the basis of these inspections, forensic economic examinations are appointed on the issues of documentary evidence of audit report conclusions regarding the amount of additional tax payments.

Provisions regulating the procedure of tax proceedings as to charging rent for subsoil use for the extraction of raw hydrocarbons are outlined in the constantly changing TCU norms (in particular, as a result of the entry into force of Law № 71-VIII, Section XI: *Subsoil Use Fee* was repealed and a new section IX: *"Rent"* of the TCU was introduced), which complicates the procedure of conducting expert researches.

According to paragraphs 252.1.1 of the TCU, *"payers of rent for subsoil use for minerals extraction are economic entities, <...>, having acquired the right to use the object (area) of subsoil on the basis of obtained special permits for subsoil use <...> within particular areas of subsoil for the purpose of conducting economic activities for minerals extraction <...> within specified in such special permits facilities (areas) of subsoil"* [1].

According to paragraph 257.1 of Art. 257 of the TCU basic tax (reporting) period for rent in 2015 was equal to a calendar quarter.

Peculiarity of tax proceedings for charging rent as to subsoil use for the extraction of raw hydrocarbons and results of tax inspections on this issue is identification by SFS of circumstances of submission by economic entities of tax calculations on the payment for subsoil use for extraction of minerals where rates in amounts other than those specified in p. 252.20 of Art. 252 of the TCU are applied, which, accordingly, led to an understatement of tax liabilities of the indicated tax [2].

In this case, SFS inspectors mostly do not reject definition and declaration of data as to entities of taxation (in particular, the units value of extracted minerals and applied adjustment factors for 2015) by economic entities in tax calculations for fees for subsoil use for extraction of minerals.

Law № 71-VIII amended the TCU, according to which certain payments have been transformed into rent (date of entry into force: 01.01.2015). That is, from 01.01.2015, the fee for subsoil use for the extraction of oil, natural gas

[1] Податковий кодекс України: Закон України від 02.12.2010 р. № 2755-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/2755-17 (date accessed: 29.05.2020).

[2] Ibid..

and gas condensate have been transformed into the rent for subsoil use for the extraction of oil, natural gas and gas condensate [1].

However, in the course of expert researches on this issue, circumstances regarding submission by economic entities of tax reports (calculations taking into account adjustments) on rent for 2015 to the tax authority, in which indicators of tax liability on rent for subsoil use for extraction of minerals (in the part of extracted natural gas: gas dissolved in oil, butane, ethane, propane) during determination of tax liability for reporting tax period the rent rate of 28% is applied, which (according to SFS conclusions) does not meet the requirements of paragraph 252.20 of Art. 252 of the TCU (as amended by Law № 71-VIII) in which the rate of rent for natural gas (of any origin) from deposits that lie entirely or partially at a depth of up to 5000 m, is set at 55%.

For the first time, rate increase from 28 to 55% is temporarily stipulated by the Law of Ukraine: *On Amendments to the Tax Code of Ukraine and Certain Other Legislative Acts of Ukraine* № 1621-VII (hereinafter referred to as Law № 1621-VII) [2] dated on 31.07.2014, which entered into force on 03.08.2014.

Nevertheless, the rate of 55% is always enshrined by Law № 71-VIII which entered into force on 01.01.2015. The same Law repealed section XI: *Subsoil Use Fee* and introduced a new section IX: *Rent* of the TCU, which accordingly introduced rent.

According to paragraphs 4.1.9, paragraph 4.1 of Art. 4 of the TCU, changes to any elements of taxes and fees may not be made later than 6 months before the beginning of a new budget period, where new rules and rates will be applied. Taxes and fees, their rates, as well as tax exemptions are not amended during a budget year [3].

That is, temporary increase by the Law № 1621-VII of rates for subsoil use for the extraction of natural gas from deposits that lie entirely or partially at a depth of up to 5,000 m is a change to the tax rate introduced later than 6 months before a new budget period [4].

What is more, change to the tax rate (rent for the use of subsoil for the extraction of natural gas from deposits which entirely or partially lie at a depth of 5000 m) introduced later than 6 months before the start of a new budget period is regulation by Law № 71-VIII of the rate of 55% on a permanent basis.

[1] Ibid.

[2] Про внесення змін до Податкового кодексу України та деяких інших законодавчих актів України: Закон України від 31.07.2014 р. № 1621-VII (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/1621-18 (date accessed: 29.05.2020).

[3] Податковий кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2755-17 (date accessed: 29.05.2020).

[4] Про внесення змін до Податкового кодексу України та деяких інших законодавчих актів України: … . URL: https://zakon.rada.gov.ua/laws/show/1621-18 (date accessed: 29.05.2020).

Sometimes, during expert researches on this issue, in materials provided, there are crucial decisions compiled under contracts to the Energy Charter Treaty and in accordance with Arbitration Rules of the Arbitration Institute of the Stockholm Chamber of Commerce (in the procedure of arbitration), which are recognized and implemented in Ukraine. The substantive provision of these international documents stipulates requirements for the entity refraining (in this case: the corresponding declarant) from payment of rates exceeding 28 %, regulated by the TCU until 31.07.2014.

According to Art. 26 (8) of the Energy Charter Treaty [1], arbitration awards, which may contain decisions on the payment of interest, are sufficient and obligatory for disputing parties, and each party shall promptly enforce any of such awards and ensure effective accomplishment of such decisions on its territory. According to paragraph 2 of Art. 34 of UNCITRAL Model Law on International Commercial Arbitration [2], the arbitral tribunal has the right to issue such a ruling if neither party has substantiated objections to discontinue proceedings. Therefore, the party of a case must implement a decision (in this case: decision on preliminary measures) immediately and without any other procedures, i.e. does not require recognition of this decision and its implementation in Ukraine.

At the same time, Part 1 of Art. 462 of the Civil Procedure Code of Ukraine [3] provides that decisions of a foreign court (court of a foreign state; other competent authorities of foreign states which competence is consideration of civil cases) are recognized and enforced in Ukraine, if their recognition and enforcement is provided by an international treaty, consent to be bound by the Verkhovna Rada of Ukraine, or by the principle of reciprocity.

However, tax notices-decisions are SFS legal acts drawn up on the basis of acts of SFS tax inspection reports which are within the legal relationship of tax control and aimed at recovering funds from a corresponding economic entity, which may have consequences that are prohibited in the decision on precautionary measures of the above-mentioned international arbitral tribunals.

It should also be stressed that above-mentioned decisions of arbitral tribunals do not change the provisions of paragraph 252.20 of the TCU and by no means affect the rules of domestic tax law, and are beyond the competence of forensic economists.

[1] Договір до Енергетичної Хартії та Заключний акт до неї: від 17.12.1994 р. № 995_056; ратиф. Законом України від 06.02.1998 р. № 89/98-ВР (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/995_056 (date accessed: 29.05.2020).

[2] Арбитражный регламент ЮНСИТРАЛ: принят ООН 15.06.1976 г. № 995_059. URL: https://zakon.rada.gov.ua/laws/show/995_059 (date accessed: 29.05.2020).

[3] Цивільний процесуальний кодекс України: Закон України від 18.03.2004 р. № 1618-IV (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/1618-15 (date accessed: 29.05.2020).

Also beyond the competence of a forensic expert are any statements providing legal evaluation, in particular on the following:

- norms of the Law № 71-VIII violate the requirements of the TCU, namely paragraphs 4.1.6, 4.1.8, 4.1.9, which define the principles of taxation: stability, neutrality, social justice;
- Law № 71-VIII was adopted due to violation of the Budget Code of Ukraine [1] and the Law of Ukraine: *On the Rules of Procedure of the Verkhovna Rada of Ukraine* [2], as paragraph 7.3 of the TCU prohibits amendments to this Code, *"except for laws containing only provisions to amend this Code and / or provisions that establish liability for violation of tax legislation"* [3];
- Law № 71-VIII contradicts Art. 19 of the Constitution of Ukraine [4].

As of today and at the time of submission of tax returns (calculations with clarifications) on rent for 2015 by business entities to the tax authority, for which indicators of tax liability on rent for subsoil use for extraction of minerals (during determination of tax liability for reporting tax period) the provisions of paragraph 252.20 of the TCU were in force, since the relevant judicial body did not recognize provisions of paragraph 252.20 of the TCU as contrary to the requirements of Art. 19 of the Constitution of Ukraine.

In subparagraph 91: *Peculiarities of charging rent for subsoil use for minerals extraction* of TCU (paragraph 1.1) in the version of Law № 71-VIII [5] it is stipulated that temporarily, until 01.07.2015, *"the following peculiarities of certain provisions application of section IX: "Rent fee" of this Code:*

1.1. Rent rates for subsoil use for extraction of natural gas, defined in paragraph 252.20 of Article 252 of this Code for natural gas produced during implementation of agreements on joint activities, are established for the period specified in the first paragraph of this subsection, as a percentage of the value

---

[1] Бюджетний кодекс України: Закон України від 08.07.2010 р. № 2456-VI (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/2456-17 (date accessed: 29.05.2020).

[2] Про Регламент Верховної Ради України: Закон України від 08.07.2010 р. № 1861-VI (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/1861-17 (date accessed: 29.05.2020).

[3] Податковий кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2755-17 (date accessed: 29.05.2020).

[4] Конституція України: Закон України від 28.06.1996 р. № 254к/96-ВР (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/254к/96-ВР (date accessed: 29.05.2020).

[5] Про внесення змін до Податкового кодексу України та деяких інших законодавчих актів України: Закон України від 28.12.2014 р. № 71-VI (перша ред.) URL: https://zakon.rada.gov.ua/laws/show/71-19/ed20141228 (date accessed: 29.05.2020).

of mining enterprise commodities: extracted minerals (mineral resources) in the following amounts:

- *over the period from January 1 to March 31, 2015 (inclusive) — 60%;*
- *over the period from April 1 to June 30, 2015 (inclusive) — 65%;*
- *from July 1, 2015: the rate specified in paragraph 252.20 of Article 252 of this Code [1] is applied".*

At the same time, subsections 9[1] and 10: *Other transitional provisions* of the TCU [2] do not stipulate that norms of paragraph 252.20, Art. 251 of the TCU (the wording of Law № 71-VIII) can be applied in compliance with the principle of taxation stability only from 2016, since this Law has made changes for less than 6 months before the beginning of a new budget period (01.01.2015).

Given the above, statements regarding changes to taxes introduced by this Law for less than 6 months before the beginning of a new budget period (01.01.2015) can be applied in compliance with the principle of taxation stability only from 2016, and that in this case conditions of paragraphs 4.1.9 of the TCU (according to which any elements of taxes and dues cannot be amended later than after 6 months before the start of a new budget period [3])will be met, does not meet requirements of paragraph 252.20 Art. 252 of TCU, and this provides a systematic analysis of the current legislation of Ukraine, which is also not within the expertise of forensic economists.

However, it should be stressed: conditions of paragraphs 3.3 of Instructions on the appointment and conduct of forensic examinations and expert researches [4] stipulate that, in particular case circumstances affecting forensic examination are mentioned in a document on forensic examination appointment (involving a forensic expert).

Therefore, in case of the presence in the relevant document on appointment of forensic examination (with involvement of a forensic expert) of substantial circumstances of a case that are essential for forensic economic examination: in particular, as to the need to consider clarification of a particular legal position where a systematic analysis of the current legislation of Ukraine (for example, regarding changes in rental rates that can be applied in accordance with the principle of tax stability (paragraphs 4.1.9 of TCU) only from 2016) is outlined in the course of research, such a legal position can be taken into account when

[1] Податковий кодекс України: … (as amended and supplemented); у ред. Закон України від 28.12.2014 р. № 71-VI). III). URL: https://zakon.rada.gov.ua/laws/show/2755-17/ed20150101 (date accessed: 29.05.2020).

[2] Ibid.

[3] Ibid.

[4] Інструкція про призначення та проведення судових експертиз та експертних досліджень: затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 29.05.2020).

conducting research which in turn specifies the need to take into account provisions of paragraphs 4.1.4, Art. 4 of the TCU.

Provisions of paragraphs 4.1.4, Art. 4 of the TCU (among basic principles of Ukrainian tax legislation) define the principle of presumption of legality of taxpayer's decisions if the norm of law or other regulatory legal act issued on the basis of law, or if norms of different laws or regulatory legal acts assume ambiguous (multiple) interpretation of rights and obligations of taxpayers or regulatory authorities, as a result of which it is possible to make a decision in favor of both the taxpayer and the supervisory authority [1].

The above is agreed with provisions of paragraph 56.21 of Art. 56 of the TCU, which stipulates that if the norm of this Code or other regulatory legal act issued on the basis of this Code, or if the norms of different laws or regulatory legal acts presuppose ambiguous (multiple) interpretation of rights and obligations of taxes payers or regulatory authorities, as a result of which it is possible to make a decision in favor of both the taxpayer and the supervisory authority, the decision is made in favor of the taxpayer [2].

According to paragraphs 14.1.157 of the TCU, tax demand is a written notice of a supervisory authority (decision) on taxpayer obligation to pay the sum of financial obligation defined by the supervisory authority [3], i.e. the subject of decision making in case of appeal by a taxpayer of tax liabilities is a supervisory authority making it impossible to apply provisions of paragraph 56.21 of the TCU and the principle of presumption of legality of payer's decisions directly by forensic experts in the course of research, so the need to draw a reasonable and objective conclusion and answer posed questions presupposes compilation of an alternative conclusion.

Thus, since the TCU norms in the above part (regarding determination of fee for subsoil use for the extraction of natural gas from deposits that are fully or partially deposited at a depth of up to 5000 m [4] (fixing rate of 55% on an ongoing basis)), at the time of compiling corresponding tax calculations for 2015 are valid (not repealed or amended by the relevant legislative act), and the issue on legality of amendments to legislative acts are essentially a matter of law and not within the competence of forensic economists, as well as provided substantial circumstances of a case which are crucial for forensic economic examination (in particular, on the need for research, based on explanation from a certain legal position: conclusions of judicial review, etc.), only an alternative conclusion (without legal evaluation and considering mentioned legal evaluation) is provided.

[1] Податковий кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2755-17 (date accessed: 29.05.2020).

[2] Ibid.

[3] Ibid.

[4] Ibid.

Conclusions. In accordance with the above, since norms of paragraph 252.20, Art. 252 of the TCU (with amendments and in wording of Law № 71-VIII) in determining rent for subsoil use for the extraction of natural gas from deposits fully or partially deposited at a depth of up to 5000 m [1], at the time of compiling corresponding tax calculations for 2015 are valid (not repealed or amended by the relevant legislative act), rent should be paid according to the fixed rate of 55 %.

Exceptionally in the case of determining in a document on the appointment of forensic examination (involvement of a forensic expert) of the essential circumstances of a case which are essential for forensic economic examination and the availability of clarification from a certain legal position, in which a systematic analysis of current legislation of Ukraine is laid out (in particular, change in rent rates in accordance with Law № 71-VIII, which can be applied in compliance with the principle of tax stability only from 2016), only a variant conclusion is to be provided, namely without taking into account the legal evaluation and taking into account such legal evaluation: for further court final decision.

References

Arbitrazhnyi reglament IuNSITRAL: priniat OON 15.06.1976 g. № 995_059. URL: https://zakon.rada.gov.ua/laws/show/995_059 (data zvernennia: 29.05.2020) [in Russian].

Biudzhetnyi kodeks Ukrainy: Zakon Ukrainy vid 08.07.2010 r. № 2456-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2456-17 (data zvernennia: 29.05.2020) [in Ukrainian].

Dohovir do Enerhetychnoi Khartii ta Zakliuchnyi akt do nei: vid 17.12.1994 r. № 995_056; ratyf. Zakonom Ukrainy vid 06.02.1998 r. № 89/98-VR (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/995_056 (data zvernennia: 29.05.2020) [in Ukrainian].

Instruktsiia pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen: zatv. nakazom Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 29.05.2020) [in Ukrainian].

Konstytutsiia Ukrainy: Zakon Ukrainy vid 28.06.1996 r. № 254k/96-VR (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/254k/96-vr (data zvernennia: 29.05.2020) [in Ukrainian].

Podatkovyi kodeks Ukrainy: Zakon Ukrainy vid 02.12.2010 r. № 2755-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2755-17 (data zvernennia: 29.05.2020) [in Ukrainian].

[1] Податковий кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2755-17 (date accessed: 29.05.2020).

Pro Rehlament Verkhovnoi Rady Ukrainy: Zakon Ukrainy vid 10.02.2010 r. № 1861-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1861-17 (data zvernennia: 29.05.2020) [in Ukrainian].

Pro vnesennia zmin do Podatkovoho kodeksu Ukrainy ta deiakykh inshykh zakonodavchykh aktiv Ukrainy: Zakon Ukrainy vid 31.07.2014 r. № 1621-VII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1621-18 (data zvernennia: 29.05.2020) [in Ukrainian].

Pro vnesennia zmin do Podatkovoho kodeksu Ukrainy ta deiakykh zakonodavchykh aktiv Ukrainy shchodo podatkovoi reformy: Zakon Ukrainy vid 28.12.2014 r. № 71-VIII (zi zmin. ta dopov.) URL: https://zakon.rada.gov.ua/laws/show/71-19 (data zvernennia: 29.05.2020) [in Ukrainian].

Tsyvilnyi protsesualnyi kodeks Ukrainy: Zakon Ukrainy vid 18.03.2004 r. № 1618-IV (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1618-15 (data zvernennia: 29.05.2020) [in Ukrainian].

І. В. Сабадаш, С. О. Козуб, Т. В. Марченко

ДО ПИТАННЯ ОПОДАТКУВАННЯ ПЕВНИХ ОПЕРАЦІЙ ЗІ СПРАВЛЯННЯ РЕНТНОЇ ПЛАТИ ЗА КОРИСТУВАННЯ НАДРАМИ ДЛЯ ВИДОБУВАННЯ ВУГЛЕВОДНЕВОЇ СИРОВИНИ

Розглянуто питання оподаткування операцій зі справляння рентної плати за користування надрами для видобування вуглеводневої сировини впродовж 2015 р. Оподаткування таких операцій є вузькоспеціалізованим питанням, яке раніше докладно не розглядали, що, відповідно, обґрунтовує новизну цієї теми.

За результатами розгляду визначено певні особливості оподаткування операцій зі справляння рентної плати за користування надрами для видобування вуглеводневої сировини впродовж 2015 р., що виникли в результаті набрання чинності Законом України від 28.12.2014 р. № 71-VIII «Про внесення змін до Податкового кодексу України та деяких законодавчих актів України щодо податкової реформи», яким скасовано розд. XI «Плата за користування надрами» Податкового кодексу України та запроваджено новий розд. IX «Рентна плата».

Ключові слова: плата за користування надрами, рентна плата, базовий податковий (звітний) період, податковий розрахунок, ставка рентної плати.

И. В. Сабадаш, С. А. Козуб, Т. В. Марченко

К ВОПРОСАМ НАЛОГООБЛОЖЕНИЯ НЕКОТОРЫХ ОПЕРАЦИЙ ПО ВЗИМАНИЮ РЕНТНОЙ ПЛАТЫ ЗА ПОЛЬЗОВАНИЕ НЕДРАМИ ДЛЯ ДОБЫЧИ УГЛЕВОДОРОДНОГО СЫРЬЯ

Рассмотрены проведённые судебные экономические экспертизы порядка налогообложения отдельных операций по взиманию рентной платы за пользование недрами для добычи углеводородного сырья в 2015 г. По результатам рассмотрения определены отдельные особенности налогообложения операций взимания рентной платы за пользование недрами для добычи углеводородного сырья в 2015 г., возникшие в результате вступления в силу норм Закона Украины от 28.12.2014 г. № 71-VIII «О внесении изменений в Налоговый кодекс Украины и некоторые законодательные акты Украины относительно налоговой реформы».

Практический опыт проведения экспертиз по вопросам налогообложения отдельных операций взимания рентной платы за пользование недрами для добычи углеводородного сырья в 2015 г. свидетельствует о неоднозначности экспертных подходов — вследствие трактовки норм законодательства, что может привести экспертов-экономистов к выходу за пределы их компетенции, а значит, повлиять на экспертное обеспечение правосудия в целом.

Определено, что с 2015 г. в Украине взимают рентную плату за пользование недрами для добычи углеводородного сырья из залежей, полностью или частично залегающих на глубине до 5000 м, на момент составления соответствующих налоговых расчётов, исходя из закреплённой на постоянной основе ставки в размере 55 %.

Исключительно в случае определения в документе о назначении экспертизы (привлечении эксперта) существенных обстоятельств дела (имеющих значение для проведения экспертизы) и наличия разъяснений относительно определённой правовой позиции, в которых заложен системный анализ действующих норм законодательства Украины (а именно: что изменения ставок рентной платы, внесённые Законом Украины № 71-VIII, могут применяться в соответствии с принципом стабильности налогообложения только с 2016 г.), предоставлению подлежит только вариантное заключение.

Приведённый порядок проведения судебных экономических экспертиз налогообложения отдельных операций взимания рентной платы за пользование недрами для добычи углеводородного сырья в 2015 г. обеспечит наиболее полное и непредвзятое составление экспертных заключений по данному вопросу.

Ключевые слова: плата за пользование недрами; рентная плата; базовый налоговый (отчётный) период; налоговый расчёт; ставка рентной платы.

Received by Editorial Board: 26.08.2020

Sabadash I. V., Kozub S. A., Marchenko T. V. On the issue of tax proceedings on charging rent for subsoil use for the extraction of raw hydrocarbons//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 488—499. DOI: https://doi.org/10.32353/khrife.2.2020.39.

DOI: https://doi.org/10.32353/khrife.2.2020.40
UDC 343.98:33

N. I. Panchenko,
Department Head at Sumy Branch of National Scientific Center
"Hon. Prof. M. S. Bokarius Forensic Science Institute" Sumy, Ukraine,
e-mail: svhndise@meta.ua

I. M. Hordiyenko,
Leading Forensic Expert at Sumy Branch of National Scientific Center
"Hon. Prof. M. S. Bokarius Forensic Science Institute" Sumy, Ukraine,
e-mail: svhndise@meta.ua

Peculiarities of forensic economic examinations on the issues of military equipment accounting

The list of military equipment needed for forensic experts work when solving the issues of munition accounting and preservation of legislative and regulatory acts which regulate accounting procedure, circulation and write-off of munition, is provided in the article. The list of military equipment which according to its characteristics belongs to military is specified. Ensuring safety of classified information has been highlighted in cases provided by legislation and separate accounting of survival kit military equipment which is intended for use while special cases and peace time in long-term storage in military units, from other military equipment.

It is specified that military equipment accounting is conducted both in peacetime and while particular time at facilities of military (ship) administration, services of providing bodies of military management, services of military units and formations, in warehouses, bases, arsenals according to requirements of regulatory legal acts of the Ministry of Defence.

Peculiarities of accounting inherent in this field are outlined. Results of the forensic expert practice from the Sumy branch of KhRIFE are outlined. Research objects are identified and a range of powers granted to forensic experts while conducting forensic economic examination related to resolving issues regarding documentary confirmation of the established facts of shortage, embezzlement, replacement, unjustified write-off and surplus of military equipment is defined.

Keywords: military equipment, peculiarities of equipment accounting, arms, military technology, ammunition, quantitative, qualitative, registration and number accounting, accounting of military equipment in cost indicators.

Formulation of Research Problem. Political situation in Ukraine is closely related to aggression of Russia in Crimea and western Ukraine, and existing problems in the military field as to insufficient regulatory and legislative support of accounting and handling of military equipment are relevant: since over the last few years the number of criminal proceedings violated under Art, 191, 410—

© N. I. Panchenko,
I. M. Hordiyenko, 2020

412 of the Criminal Code of Ukraine [1] on the facts of losses caused to military units from the lack or surpluses of material assets. For confirmation of losses from shortages, substitution, waste, damage or surplus of military property and adoption of appropriate decisions by courts, forensic economic examinations are appointed which have certain features associated with different types of accounting.

Currently, there is no clear and consistent algorithm for conducting such forensic examinations since still such methodology is not available in the Register of Methods of the Ministry of Justice of Ukraine.

Analysis of Essential Researches and Publications. S. H. Moroz, O. Yu. Vorobiova and others dedicated their scientific papers to solving pressing issues related to conduct of forensic examination as to accounting of military equipment.

The **Article Purpose** is formation of an existing problem on the absence of unified methodological bases while solving expert tasks posed by courts and investigators in relation to documentary evidence of loses and surpluses of material equipment caused to military units or their formations.

Main Content Presentation. The issue of preserving military equipment is becoming relevant in recent years. First of all, this is due to military aggression of Russia in Crimea and western Ukraine, economic situation developed in our country and, moreover, existing problems in the military field of insufficient regulatory and legislative support of accounting and handling of military equipment (in particular, in terms of writing it off), which elimination will enable protect military equipment from theft, damage, destruction, etc.

Military property is state property assigned to military units, institutions, establishments and organizations of the Armed Forces of Ukraine. Military property includes buildings, structures, transmitting devices, all types of weapons, military and other equipment, ammunition, fuel and lubricants, provisions, technical, airfield property, naval stores, tangible, cultural and educational, medical, veterinary, household, chemical property, engineering assets, communication equipment, etc.

Ministry of Defence of Ukraine manages military equipment by assigning it to military units (in case of its formation and reformation) and redistributing this equipment between military units (in case of its disbandment).

Military property is assigned to military units of the Armed Forces of Ukraine under the right of operational management.

All military property is subject to accounting (regardless of its purpose and sources of supply). Accounting for military property must be timely, reliable and accurate. The purpose of its maintenance is primarily to obtain data on its availability, loss, shortage, movement, value and quality (technical) condition,

[1] Кримінальний кодекс України: Закон України від 15.12.1993 р. № 2341-III (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 27.06.2019).

which in turn is an obligatory factor for proper organization of military units logistics, establishment of appropriate control over storage conditions, expediency and efficiency of its use, as well as for the purpose of preparing data for compilation of accounting documents and state statistical reporting.

Given the ongoing problems in Ukraine, forensic economists increasingly addressed with tasks as to documentary and regulatory substantiation of defined as a result of carried out inspections or other monitoring activities of losses amount from the lack or surplus of material assets in military units (in particular, in formations performing set tasks on aggression suppression in western Ukraine).

However, forensic experts have the right to act only within powers granted to them, that's why during forensic economic examinations (appointed by decisions of investigating judges, investigators' decisions) on the facts of shortage, destruction, waste, damage, substitution of military property or their surpluses, these issues are studied taking into account peculiarities of accounting and movement of military property characteristic for the rules of acceptance, issuance and write-off of property in the Armed Forces of Ukraine which are regulated by corresponding regulations, in particular:

- The Law of Ukraine: *On the Legal Regime for Property in the Armed Forces of Ukraine* № 1075-XIV [1] dated on 21.09.1999;
- Regulations on the procedure for registration, storage, write-off and use of military property in the Armed Forces approved by the Resolution of the Cabinet of Ministers of Ukraine (hereinafter referred to as Resolution of CMU) № 1225 [2] dated on 04.08.2000;
- National Regulation (Standard) of Accounting in the 121 Public Sector: *Fixed Assets* approved by the Order of the Ministry of Finance of Ukraine № 1202 [3] dated on 12.10.2010;
- Instructions on organization as to material support of servicemen of the Armed Forces of Ukraine in peacetime and special periods approved by the Order of the Ministry of Defence of Ukraine № 232 [4] dated on 29.04.2016;

[1] Про правовий режим майна у Збройних силах України: Закон України від 21.09.1999 р. № 1075-XIV (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/1075-14 (date accessed: 27.06.2019).

[2] Положення про порядок обліку, зберігання, списання та використання військового майна у Збройних силах: затв. Постановою КМУ від 04.08.2000 р. № 1225 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/1225-2000-п (date accessed: 27.06.2019).

[3] Національне положення (стандарт) бухгалтерського обліку в державному секторі 121 «Основні засоби»: затв. наказом Мінфіну України від 12.10.2010 р. № 1202 (as amended and supplemented) URL: https://zakon.rada.gov.ua/rada/show/ru/z1017-10#n18 (date accessed: 27.06.2019).

[4] Інструкція про організацію речового забезпечення військовослужбовців Збройних сил України в мирний час та особливий період: затв. наказом Міноборони України від 29.04.2016 р. № 232 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/z0768-16 (date accessed: 27.06.2019).

- Regulations on organization of housing and maintenance of the Armed Forces of Ukraine approved by the Order of the Ministry of Defence of Ukraine № 448 [1] dated on 03.07.2013;
- Instruction on military property accounting in the Armed Forces of Ukraine approved by the Order of the Ministry of Defence of Ukraine № 440 [2] dated on 17.08.2017;
- Procedure for supply items codification approved by the Order of the Ministry of Defence of Ukraine № 673 [3] dated on 18.12.2017;
- Regulations on military property inventory in the Armed Forces approved by the Resolution of the Cabinet of Ministers № 748 [4] dated on 03.05. 2000;
- The procedure for application of the Chart of Accounts in the public sector approved by the Order of the Ministry of Finance of Ukraine № 1219 [5] dated on 29.12.2015;
- Order of the Ministry of Finance of Ukraine: *On approval of certain regulations on accounting in the public sector* [6] № 1219 dated on 29.12.2015;
- the procedure for compiling standard forms of memorial orders and other ledgers of public sector entities approved by the Order of the Ministry of Finance of Ukraine № 755 [7] dated on 08.09.2017;

[1] Положення про організацію квартирно-експлуатаційного забезпечення Збройних сил України: затв. наказом Міноборони України від 03.07.2013 р. № 448 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/z1590-13 (date accessed: 27.06.2019).

[2] Про правовий режим майна у Збройних силах України: затв. наказом Міноборони України від 17.08.2017 р. № 440 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/z1192-17 (date accessed: 27.06.2019).

[3] Порядок кодифікації предметів постачання: затв. наказом Міноборони України від 18.12.2017 р. № 673. URL: https://data.rada.gov.ua/laws/show/z0050-18 (date accessed: 27.06.2019).

[4] Положення про інвентаризацію військового майна у Збройних силах: затв. Постановою КМУ від 03.05.2000 р. № 748 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/748-2000-п (date accessed: 27.06.2019).

[5] Порядок застосування Плану рахунків бухгалтерського обліку в державному секторі: затв. наказом Мінфіну України від 29.12.2015 р. № 1219 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/z0085-16#n24 (date accessed: 27.06.2019).

[6] Про затвердження деяких нормативно-правових актів з бухгалтерського обліку в державному секторі: наказ Мінфіну України від 29.12.2015 р. № 1219 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0085-16 (date accessed: 27.06.2019).

[7] Порядок складання типових форм меморіальних ордерів та інших облікових регістрів суб'єктів державного сектору: затв. наказом Мінфіну України від 08.09.2017 р. № 755. URL: https://zakon.rada.gov.ua/laws/show/z1416-17 (date accessed: 27.06.2019).

- Instructions on organization and maintenance of accounting in the Armed Forces of Ukraine approved by the Order of the Ministry of Defence of Ukraine № 905 [1] dated on 19.12.2014.

At the same time, it should be borne in mind that accounting of military property in cases stipulated by law is carried out in compliance with requirements on ensuring preservation of state secrets.

Military property of emergency stocks which is intended for use in a special period and is in long-term storage in military units while peacetime is accounted separately from other military property.

The accounting of military property is performed both in peacetime and special period in sites of military (ship) facilities, in services of support of military administration bodies, in services of military units and formations, in warehouses, bases, in arsenals according to requirements of regulatory legal acts of the Ministry of Defence.

The accounting of military units provides reflection of a full and accurate information on military property and funds, income and expenses, as well as all business transactions for:

- balance sheet and off-balance sheet provided by the Procedure for application of the Chart of accounts in the public sector approved by the Order of the Ministry of Finance of Ukraine № 1219 [2] dated on 29.12.2015;
- general and special funds of the State Budget of Ukraine;
- codes of expenditures program classification;
- codes of economic classification of expenditures or codes of classification of budget income for a special fund;
- items of expenditure in the cost estimate of the Ministry of Defence or types of special fund icome;
- security services;
- structural units;
- materially liable persons;
- military units supported by government.

What are types of military property accounting conducted by corresponding services (food, clothing, housing and operations, fuel and lubricants, etc.), features of accounting. What forensic experts should know while forensic examination of military property?

There are four main types of military property accounting, namely:

1) quantitative;
2) high quality;

[1] Інструкція з організації та ведення бухгалтерського обліку у Збройних силах України: затв. наказом Міноборони України від 19.12.2014 р. № 905 (as amended and supplemented) URL: https://studfile.net/preview/2265825 (date accessed: 27.06.2019).

[2] Порядок застосування Плану рахунків ... . URL: https://zakon.rada.gov.ua/laws/show/z0085-16#n24 (date accessed: 27.06.2019).

3) in registration number indicators;
4) in price indicators.

Quantitative accounting of military property is conducted in physical indicators in standard units of measurement and accounting defined by the State Classifier of Ukraine ДК 011-96: *Classifier of the system of designations for units of measurement and accounting* approved by the Order of the State Committee for Standardization, Metrology and Certification of Ukraine № 8 [1] dated on 09.01.1997.

According to the quality (technical) condition, military property is accounted by categories (not more than five), degrees of suitability (suitable, unsuitable) or by types in accordance with state standards.

There are 5 following categories for a high quality accounting of military property:

1) new (not in use). This property which is stored in support centers and warehouses of military units, as well as meets requirements of technical conditions and corresponding standards with inexhaustible terms of operation (wear) and is quite suitable for its intended use;
2) which is in operation (was in use). This property is kept in supply centers and warehouses of military units, and also meets all requirements of operational documentation suitable for its intended use (with repair or after repair) and used within a certain period (term) of operation (wear);
3) property specified term of operation (wear) of which expired, but by its condition it is suitable for direct use after repair (requires medium repair) or without repair;
4) property that by its condition requires major repairs (is stored beyond a specified period of storage) which is economically feasible;
5) property that is technically defective and in its condition unsuitable for further use, obsolete and out-of-dated, does not meet requirements of technical conditions and relevant standards, which restoration (repair) is technically impossible or economically impractical and the subject to write-off.

The accounting of military property in stock and serial number indicators is performed in accordance with serial numbers of military property samples.

Value accounting of military property is carried out in the national currency of Ukraine. The value of military property at the time of its receipt by the sphere of management of the Ministry of Defense is determined by its purchase price or by value (price) specified in the contracts concluded for its production and supply.

[1] ДК 011-96. Державний класифікатор України «Класифікатор системи позначень одиниць вимірювання та обліку»: затв. наказом Держстандарту України від 09.01.1997 р. № 8 (as amended and supplemented) URL: https://zakon.rada.gov.ua/rada/show/v0008217-97 (date accessed: 27.06.2019).

Value of the military property which is in a military unit and assigned to it on the right of operational management is specified according to Methods for determining the residual value of property in the Armed Forces of Ukraine and other military formations approved by the Resolution of the Cabinet of Ministers № 759 [1] dated on 28.05.1998 , excluding cases when the value of military property is determined on the basis of property valuation report compiled in accordance with the Law of Ukraine № 2658-III: *On property valuation, property rights and professional evaluation activities in Ukraine* [2] dated on 12.07.2001.

It should also be stressed that military property accounting is conducted by materially liable persons and corresponding services.

Military property by its characteristics can be classified as noncurrent assets (tangible and intangible assets and objects that belong to a budget institution (organization), ensure its operation and have an expected term of efficiency or operation of more than one year), account (according to the requirements: 1) General Order of Headquarters of State Treasury and State Statistics Committee of Ukraine: *On approval of standard forms for accounting and write-off of fixed assets belonging to institutions and organizations maintained by state or local budgets and Instructions for their preparation* № 125/70 (expired on 14.11.2016) [3] dated on 02.12.1997; 2) order of the Ministry of Finance of Ukraine № 818: *On approval of standard forms for accounting and write-off of fixed assets by public sector entities and procedure for their compilation* [4] dated on 13.09.2016) according to the following ledgers:

- inventory card of fixed assets accounting;
- inventory card of fixed assets group accounting.

These ledgers keep records on machines and equipment, vehicles and tools, accessories and inventory, tangible and other property, which according to their characteristics can be considered non-current assets (defined by rules, manning charts and tables of organization and equipment of the military unit during

[1] Методика визначення залишкової вартості майна Збройних сил України та інших військових формувань: затв. Постановою КМУ від 03.05.2000 р. № 759 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/759-98-п (date accessed: 27.06.2019).

[2] Про оцінку майна, майнових прав та професійну оціночну діяльність в Україні: Закон України від 12.07.2001 р. № 2658-III (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/2658-14 (date accessed: 27.06.2019).

[3] Про затвердження типових форм з обліку та списання основних засобів, що належать установам і організаціям, які утримуються за рахунок Державного або місцевого бюджетів та Інструкції з їх складання: спільний наказ Головного управління Держказначейства та Держкомстату України від 02.12.1997 р. № 125/70 (утрат. чин.). URL: https://zakon.rada.gov.ua/laws/show/z0612-97 (date accessed: 27.06.2019).

[4] Про затвердження типових форм з обліку та списання основних засобів суб'єктами державного сектору та Порядку їх складання: наказ Мінфіну України від 13.09.2016 р. № 818. URL: https://zakon.rada.gov.ua/laws/show/z1336-16 (date accessed: 27.06.2019).

wartime and intended for combat operations), as well as property that is in long-term storage and accounted for in emergency supplies stock and stock of the center.

Military property, which according to its characteristics can be classified as stocks, is accounted for (in agreement with the Order of State Treasury of Ukraine № 130: *On approval of standard forms of accounting and write-off of stocks of budgetary institutions and Instructions on their compilation* [1] dated on 18.12.2000) according to such ledgers:

- book of accrual accounting (standard form № 3-6);
- book of accrual accounting (standard form № 3-6a);
- accrual accounting card (standard form № 3-7);
- turnover sheet (typical form № 3-11).

That is, military property is recorded in cards, ledgers, on other material carriers of a special format (paper, electronic) in the form of information, warrants, books, magazines, typescripts and other information, data on quantity, quality (technical) condition, account and serial numbers, value (price) of military property, as well as its movement, loss and shortage.

Military property accounting in military administration bodies is carried out operatively (on the basis of dispatches and reports) and on the basis of accounting source documents.

Operational accounting of military property is the main type of accounting.

Operational accounting is conducted on the basis of messages and reports, which periodicity is defined in the tables of urgent messages.

Military property received from the supplier, as well as armaments, equipment and other military property based on nomenclature which is in military units and subordinate military warehouses shall be subject to accounting according to an accounting source document.

Accounting source document include invoices, work orders, work order accounts, stub requisitions, cost sheets, acts, receipts, way bills, work sheets, work distribution sheets and cost sheets, certificates.

Accounting source documents are intended for execution of operations which relate to movement and change of value and qualitative (technical) condition of military property and are the basis for records of accounting data in journals.

Journals reflect presence, movement and quality (technical) condition of military property (its value).

Records on military property are maintained at the place of its safekeeping (location) and in financial service.

Accounting in military units is conducted according to the memorial-order form of accounting.

[1] Про затвердження типових форм обліку та списання запасів бюджетних установ та Інструкції про їх складання: наказ Держказначейства України від 18.12.2000 р. № 130 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/z0962-00 (date accessed: 27.06.2019).

All memorial orders are registered in ledgers of synthetic accounting: the *Journal-Main* book.

That is, studied objects during forensic economic examination of the documentary evidence of shortages, waste, damage, substitution of military property or its surpluses are:

- accounting source documents;
- contracts of property sale or supply;
- materials of conducted inventories,
- ledgers of military property as to its quantity, condition, registration and serial numbers, as well as movement, loss, shortage, surplus;
- ledgers of synthetic accounting: the *Journal-Main* books.

On the basis of the results of a thorough analysis of the above documents, a forensic expert conducts research on issues addressed to him and draws an expert conclusion.

Unfortunately, real forensic expert practice has shown that documents provided for research oftentimes make a forensic expert's (forensic experts') answers ambiguous, since such documents either do not contain full and sufficient information, or are selective, or contain a great number of unreasonable corrections; and documents relating to account of military equipment and armament which is in ATO zone are prepared not in a timely manner.

Thus, on the one hand the issue of military property preservation is highly important, and on the other hand in the course of forensic economic examinations certain problems arise in cases related to documentary confirmation of results of inspections or other control measures, the amount of damage from shortages, theft, damage, substitution of military property or its surplus.

It is also worth noting that (to solve issues addressed to a forensic economist on documentary evidence of damage caused to a military unit or its formations as a result of the lack of military property) it is necessary to conduct a multidisciplinary research on independent evaluation according to national standards.

While forensic economic examinations connected with military property accounting, experts solve the following range of issues and tasks:

1) "Whether conclusions of an audit report (inspection or other control measure) on causing material damage in terms of shortage (fuel and lubricants, weapons, tangible property or other military property) to the state (*indicate a military unit name*) are documented and normatively substantiated for a total (*indicate sum)* of hryvnias?";
2) "Whether expert conclusions on causing material damage to the state (military unit) in terms of shortage of ammunition for a total (*indicate sum*) of hryvnias taking into account an expert conclusion of a handwriting analysis are documented and substantiated legally, provided that accounting source documents which, according to court, contain knowingly false information

on the issuance of ammunition in military supply unit (*indicate military unit name*) are not considered;

3) "Whether conclusions of the inspection report are supported documentary regarding identified over the period (*indicate period*) dated on *(indicate a date)* of military property surplus (*indicate what kind*) in the military unit (*indicate military unit date*) documented in the inventory description on (*indicate date*)?"

Given the relevance of the problem of military property preservation, the Academic Council of the National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" at the request of the Sumy branch proposed to add to research plan of the Ministry of Justice of Ukraine for 2020 the development of guidelines for forensic economic examinations in cases related to military property which will consists of a precise algorithm of conducting researches and be applicable.

Conclusions. The theoretical and practical aspects of forensic economic examinations related to documentation of the amount of losses from shortages, waste, damage, substitution of military property or its surpluses, identified as a result of inspections or other measures of control, can be used in forensic expert practice to optimize forensic experts' working time.

References

DK 011-96. *Derzhavnyi klasyfikator Ukrainy «Klasyfikator systemy poznachen odynyts vymiriuvannia ta obliku»*: zatv. nakazom Derzhstandartu Ukrainy vid 09.01.1997 r. № 8 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/rada/show/v0008217-97 (data zvernennia: 27.06.2019) [in Ukrainian].

Instruktsiia pro formy memorialnykh orderiv biudzhetnykh ustanov ta poriadok yikh skladannia: zatv. nakazom Derzhkaznacheistva Ukrainy vid 27.07.2000 r. № 68 (utrat. chyn.). URL: https://zakon.rada.gov.ua/laws/show/z0570-00 (data zvernennia: 27.06.2019) [in Ukrainian].

Instruktsiia pro orhanizatsiiu rechovoho zabezpechennia viiskovosluzhbovtsiv Zbroinykh syl Ukrainy v myrnyi chas ta osoblyvyi period: zatv. nakazom Minoborony Ukrainy vid 29.04.2016 r. № 232 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0768-16 (data zvernennia: 27.06.2019) [in Ukrainian].

Instruktsiia z obliku viiskovoho maina u Zbroinykh sylakh Ukrainy: zatv. nakazom Minoborony Ukrainy vid 17.08.2017 r. № 440 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z1192-17 (data zvernennia: 27.06.2019) [in Ukrainian].

Instruktsiia z orhanizatsii ta vedennia bukhhalterskoho obliku u Zbroinykh sylakh Ukrainy: zatv. nakazom Minoborony Ukrainy vid 19.12.2014 r. № 905 (zi zmin. ta dopov.). URL: https://studfile.net/preview/2265825 (data zvernennia: 27.06.2019) [in Ukrainian].

Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 r. № 2341-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2341-14 (data zvernennia: 27.06.2019) [in Ukrainian].

Metodyka vyznachennia zalyshkovoi vartosti maina Zbroinykh syl Ukrainy ta inshykh viiskovykh formuvan: zatv. Postanovoiu KMU vid 28.05.1998 r. № 759 (zi zmin.

ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/759-98-p (data zvernennia: 27.06.2019) [in Ukrainian].

Natsionalne polozhennia (standart) bukhhalterskoho obliku v derzhavnomu sektori 121 «Osnovni zasoby»: zatv. nakazom Minfinu Ukrainy vid 12.10.2010 r. № 1202 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/rada/show/ru/z1017-10#n18 (data zvernennia: 27.06.2019) [in Ukrainian].

Plan rakhunkiv bukhhalterskoho obliku biudzhetnykh ustanov: zatv. nakazom Minfinu Ukrainy vid 26.06.2013 r. № 611 (utrat. chyn.). URL: https://zakon.rada.gov.ua/laws/show/z1214-13 (data zvernennia: 27.06.2019) [in Ukrainian].

Polozhennia pro inventaryzatsiiu viiskovoho maina u Zbroinykh sylakh: zatv. Postanovoiu KMU vid 03.05.2000 r. № 748 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/748-2000-p (data zvernennia: 27.06.2019) [in Ukrainian].

Polozhennia pro orhanizatsiiu kvartyrno-ekspluatatsiinoho zabezpechennia Zbroinykh syl Ukrainy: zatv. nakazom Minoborony Ukrainy vid 03.07.2013 r. № 448 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z1590-13 (data zvernennia: 27.06.2019) [in Ukrainian].

Polozhennia pro poriadok obliku, zberihannia, spysannia ta vykorystannia viiskovoho maina u Zbroinykh sylakh: zatv. Postanovoiu KMU vid 04.08.2000 r. № 1225 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1225-2000-p (data zvernennia: 27.06.2019) [in Ukrainian].

Poriadok kodyfikatsii predmetiv postachannia: zatv. nakazom Minoborony Ukrainy vid 18.12.2017 r. № 673. URL: https://data.rada.gov.ua/laws/show/z0050-18 (data zvernennia: 27.06.2019) [in Ukrainian].

Poriadok skladannia typovykh form memorialnykh orderiv ta inshykh oblikovykh rehistriv subiektiv derzhavnoho sektoru: zatv. nakazom Minfinu Ukrainy vid 08.09.2017 r. № 755. URL: https://zakon.rada.gov.ua/laws/show/z1416-17 (data zvernennia: 27.06.2019) [in Ukrainian].

Poriadok zastosuvannia Planu rakhunkiv bukhhalterskoho obliku v derzhavnomu sektori: zatv. nakazom Minfinu Ukrainy vid 29.12.2015 r. № 1219 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0085-16#n24 (data zvernennia: 27.06.2019) [in Ukrainian].

Pro otsinku maina, mainovykh prav ta profesiinu otsinochnu diialnist v Ukraini: Zakon Ukrainy vid 12.07.2001 r. № 2658-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2658-14 (data zvernennia: 27.06.2019) [in Ukrainian].

Pro pravovyi rezhym maina u Zbroinykh sylakh Ukrainy: Zakon Ukrainy vid 21.09.1999 r. № 1075-XIV (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1075-14 (data zvernennia: 27.06.2019) [in Ukrainian].

Pro zatverdzhennia deiakykh normatyvno-pravovykh aktiv z bukhhalterskoho obliku v derzhavnomu sektori: nakaz Minfinu Ukrainy vid 29.12.2015 r. № 1219 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0085-16 (data zvernennia: 27.06.2019) [in Ukrainian].

Pro zatverdzhennia typovykh form obliku ta spysannia zapasiv biudzhetnykh ustanov ta Instruktsii pro yikh skladannia: nakaz Derzhkaznacheistva Ukrainy vid 18.12.2000 r. № 130 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0962-00 (data zvernennia: 27.06.2019) [in Ukrainian].

Pro zatverdzhennia typovykh form z obliku ta spysannia osnovnykh zasobiv subiektamy derzhavnoho sektoru ta Poriadku yikh skladannia: nakaz Minfinu Ukrainy vid 13.09.2016 r. № 818. URL: https://zakon.rada.gov.ua/laws/show/z1336-16 (data zvernennia: 27.06.2019) [in Ukrainian].

Н. І. Панченко, І. М. Гордієнко

ОСОБЛИВОСТІ ПРОВЕДЕННЯ СУДОВИХ ЕКОНОМІЧНИХ ЕКСПЕРТИЗ З ПИТАНЬ ОБЛІКУ ВІЙСЬКОВОГО МАЙНА

У статті наведено перелік законодавчих і нормативних актів, які регулюють порядок обліку, руху та списання військового майна й необхідні для роботи судових експертів під час вирішенні питань обліку військового майна та його збереження, а також перелік майна, яке за своїми характеристиками належить до військового. Наголошено на забезпеченні збереження державної таємниці у випадках, передбачених законодавством, та окремому (від іншого військового майна) обліку військового майна непорушних запасів, яке призначене для використання в особливий період, а в мирний час перебуває на довгостроковому зберіганні у військових частинах.

Зазначено, що військове майно обліковують згідно з вимогами нормативно-правових актів Міноборони як у мирний час, так і в особливий період на об'єктах військового (корабельного) господарства, у службах забезпечення органів військового управління, службах військових частин і з'єднань, на складах, базах, в арсеналах.

Подано характерні для цієї галузі особливості обліку й зазначено їх види. Наведено результати експертної практики судових експертів Сумського відділення. Узагальнено об'єкти дослідження та констатовано коло повноважень, наданих судовим експертам під час проведення судових економічних експертиз, пов'язаних з вирішенням питань щодо документального підтвердження фактів нестач, крадіжок, підміни, необґрунтованого списання й надлишків військового майна.

Ключові слова: військове майно, особливості обліку майна, озброєння, бойова техніка, боєприпаси, кількісний, якісний, обліково-номерний облік, облік військового майна у вартісних показниках.

Н. И. Панченко, И. Н. Гордиенко

ОСОБЕННОСТИ ПРОВЕДЕНИЯ СУДЕБНЫХ ЭКОНОМИЧЕСКИХ ЭКСПЕРТИЗ ПО ВОПРОСАМ УЧЁТА ВОЕННОГО ИМУЩЕСТВА

В статье приведён перечень законодательных и нормативных актов, регулирующих порядок учёта, движения и списания военного имущества и необходимых для работы судебных экспертов при решении вопросов учёта военного имущества и его сохранности. Указан перечень имущества, которое по своим характеристикам относится к военному. Сделан акцент на обеспечении сохранения государственной тайны в случаях, предусмотренных законодательством, и отдельном (от другого военного имущества) учёте военного имущества неприкосновенных запасов, которое предназначено для использования в особый период, а в мирное время пребывает на долгосрочном хранении в воинских частях.

Отмечено, что учёт военного имущества ведётся согласно требованиям нормативно-правовых актов Минобороны как в мирное время, так и в особый период на объектах войскового (корабельного) хозяйства, в службах обеспечения органов военного управления, службах воинских частей и соединений, на складах, базах, в арсеналах.

Приведены присущие этой отрасли особенности учёта и их виды. Указаны результаты экспертной практики судебных экспертов Сумского отделения. Обобщены объекты исследования и констатирован круг полномочий, предоставленных судебным экспертам при проведении судебных экономических экспертиз, связанных с решением вопросов относительно документального подтверждения фактов недостач, хищений, подмены, необоснованного списания и излишков военного имущества.

Ключевые слова: военное имущество, особенности учёта имущества, вооружение, боевая техника, боеприпасы, количественный, качественный, учётно-номерной учёт, учёт военного имущества в стоимостных показателях.

Received by Editorial Board: 12.06.2020

Panchenko N. I., Hordiyenko I. M. Peculiarities of forensic economic examinations on the issues of military equipment accounting//*Theory and Practice of Forensic Science and Criminalist*ics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 500—512. DOI: https://doi.org/10.32353/khrife.2.2020.40.

DOI: https://doi.org/10.32353/khrife.2.2020.41
UDC 343.98:658.62

O. Yu. Kholodova,
PhD in Technology, Docent, Senior Researcher at the Laboratory of Forensic Economic and Commodity Examinations of Dnipropetrovsk Scientific Research Institute of Forensic Expertise, Dnipro, Ukraine,
ORCID: https://orcid.org/0000-0001-8678-3955,
e-mail: kholodova1984@ukr.net
V. N. Hubareva,
Leading Forensic Expert at the Laboratory of Forensic Economic and Commodity Examinations in High Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0003-1425-4469,
e-mail: victoriy2006@ukr.net
A. A. Sych,
Researcher at the Laboratory of Forensic Commodity Examinations and Intellectual Property Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine,
ORCID: https://orcid.org/0000-0002-7915-3506,
e-mail: anna82017@ukr.net

Methodology for determining the value of machines, equipment, raw materials and consumer goods taking into account retrospective of evaluation while forensic commodity examination

The research purpose is to create a unified and comprehensive approach when conducting forensic commodity examinations to determine the value of goods in the past and to develop a methodology that will be used in forensic practice while conducting forensic commodity examinations in order to ensure systematization and methodological uniformity of forensic practice, reduce labor intensity and time spent during forensic examination, improve research effectiveness which has a significant impact on the quality of compiling a comprehensive and objective report while determining the value of machinery, equipment, raw materials and consumer goods, taking into account retrospective of evaluation.

The algorithm of forensic commodity examination for defining the value of goods in the past consists of successively carried out steps that are recommended for use in forensic practice.

Research objects during retrospective of evaluation can be food and non-food products, industrial equipment, machinery and mechanisms, mineral fertilizers and other industrial and technical products, as well as various types of raw materials, supporting materials, containers and packaging, technical and

© O. Yu. Kholodova, V. N. Hubareva, A. A. Sych, 2020

technological documentation, monitoring devices, accounting records, reports on technical condition and restoration.

The article outlines peculiarities of goods value evaluation of previous years' commodities, out-of-date, discontinued, manufactured goods (handicraft business), specialized commodities, etc., for the past years.

Application of the algorithm is offered to aim for thoroughness in the study on cost of goods, taking into account the retrospective of evaluation, as well as to eliminate shortcomings reducing the probative value of forensic reports.

Taking into account the provisions of legislative and regulatory acts, the authors of the article examined methodological approaches to solving problems that arise in forensic practice while appointment and conduct of forensic examination to determine the value of machinery, equipment, raw materials and consumer goods, taking into account the retrospective of evaluation.

Keywords: forensic commodity examination, algorithm for determining market value of goods, evaluation retrospective, methodology for determining value, consumer goods.

Formulation of Research Problem. Economic reforms taking place in Ukraine are accompanied by criminalization of society and increase in crime, increase in the number of abuses and offenses.

Recently situations in which determination of the value of a particular object as of a date specified by court or of a date of a committed offense is not possible due to the absence of a corresponding reference information collection (price lists of trade organizations, bulletins, etc.).

The term: *retrospective valuation* is used in scientific and journal articles dedicated to problematic issues of independent evaluation, as well as issues related to the difficulty of determining the value of certain property within the framework of forensic examination.

The term retrospective (from Latin *retrospectare*: look back) means looking back, looking at some past events. As a result, retrospective is something discovering past events, that is backward-looking. Thus, the so-called retrospective evaluation should be understood the evaluation carried out of a certain retrospective date of evaluation which accordingly took place in the past.

Analysis of Essential Researches and Publications. Methodological and theoretical bases of research on this problem are known general theoretical provisions and researches in related fields of expert activity.

Thanks to scientific papers on the forensic examination of goods of such scientists and specialists in the field as A. I. Lozovyi, O. S. Dontsova [1],

[1] Лозовий А. І., Донцова О. С., Бобрицький С. М., Стебіх О. І. Методика визначення вартості майна. Харків, 2004. 112 р.

O. V. Pavlenko, O. O. Zhelavska [1], T. M. Artiukh [2], T. P. Podkura, I. A. Petrova and others, the basis of forensic commodity examination have been formed. Analysis of intersectoral examinations (forensic, commodity, sanitary-epidemiological, environmental, customs, etc.) and study of their legal regulation will contribute to the development of methodology of forensic commodity examinations to assess the cost of goods in the past and solution of scientific and methodological problems. The relevance and insufficient consideration of these issues, the need for practical use of forensic commodity examination condition the conduct of further research in this area.

The **Article Purpose** is to create a unified and multidisciplinary approach to conducting forensic commodity examinations to assess the value of goods in the past and to develop a methodology that forensic experts will use in forensic expert practice while forensic commodity examinations to ensure systematization and methodological uniformity of forensic expert practice, reduction of labor intensity and time spent while forensic examinations and improving effectiveness of research.

Main Content Presentation. Considering practical experience of forensic experts from Dnipro RIFE and National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", oftentimes court and investigative bodies appoint a forensic commodity examination to determine the value of machines, equipment, raw materials and consumer goods at the date that has passed.

It is worth noting that general requirements for organization and conduct of forensic examinations to determine the cost of machines, equipment, raw materials and consumer goods, taking into account the retrospective of evaluation (regardless of names of examination objects, their characteristics and condition) are laid down in the Law of Ukraine: *On Evaluation of Property, Property Rights and Professional Evaluation Activities in Ukraine* [3], Resolution of the Cabinet of Ministers: *National Standard № 1 "General principles of evaluation of property and property rights"* [4] (in cases of smuggling: in the Resolution of the Cabinet of Ministers: *The procedure for accounting, storage, evaluation of confiscated and*

[1] Павленко О. В., Желавська О. О. та ін. Методичні рекомендації щодо дослідження непродовольчих товарів з метою визначення їх вартості. Харків, 2009. 91 р.

[2] Артюх Т. М., Індутний В. В. Методологічні проблеми товарознавчої експертизи коштовностей//*Вісник КНТЕУ.* 2003. № 4. Р. 49—57.

[3] Про оцінку майна, майнових прав та професійну оціночну діяльність в Україні: Закон України від 12.07.2001 р. № 2658-III (as amended and supplemented)//*Відомості Верховної Ради України (ВВР).* 2001. № 47. Ст. 251.

[4] Національний стандарт № 1 «Загальні засади оцінки майна і майнових прав»: затв. Постановою КМУ від 10.09.2003 р. № 1440 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/1440-2003-п/ed20150415 (date accessed: 21.09.2019).

other property becoming the state property, and its disposal [1] and the Instruction on the appointment and conduct of forensic examinations and expert researches approved by the Ministry of Justice [2] (hereinafter referred to as *Professional Instructions*).

Research on goods to determine the value of machines, equipment, raw materials and consumer goods, taking into account the evaluation retrospective is performed using a base that corresponds to the market value or non-market values. The choice of evaluation base for the purpose of determining the value of studied objects depends on the task by which the value of goods is estimated in the past, their characteristics, as well as regulatory requirements.

It should be stressed that in the case when regulatory legal acts on evaluation of goods and the procedural document on appointment of forensic examination provided by law and drawn up by an authorized person (body) does not specify the type of value that should be determined using the approaches and methods stipulated by paragraph 19 of the National Standard № 1: "*Non-market types include replacement value, reproduction value, depreciated replacement value (reproduction), value in use, consumer value, liquidation value, <…> net realizable value, estimated value and other types <…>"* [3].

Forensic expert activity in determining the value of goods in the past (retrospective evaluation) is that this process contains both scientific and practical aspects of knowledge. The course of expert research is important for an appropriate solution of a task assigned to a forensic expert. This process is based on the knowledge of general laws, categories and specific features of the material world reflection, as well as on narrowly specialized knowledge of an experienced person which this person uses in the course of an expert research.

Therefore, research objects can be food and non-food products, industrial equipment, machines and mechanisms, fertilizers and industrial-technical purpose goods, different types of raw materials, supporting materials, containers and packaging, technical and technological documentation, control devices, accounting documents, mechanical and maintenance and repair work reports.

Thus, according to this concept, forensic commodity examination objects can be divided into two groups:

1) objects directly provided for research (consumer goods (both new and used), parts of products, packaging);

[1] Порядок обліку, зберігання, оцінки конфіскованого та іншого майна, що переходить у власність держави, і розпорядження ним: затв. Постановою КМУ від 25.08.1998 р. № 1340 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/1340-98-п (date accessed: 21.09.2019).

[2] Інструкція про призначення та проведення судових експертиз та експертних досліджень: затв. наказом Мін'юсту України від 08.10.1998 р. № 5 (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 21.09.2019).

[3] Національний стандарт № 1 … . URL: https://zakon.rada.gov.ua/laws/show/1440-2003-п/ed20150415 (date accessed: 21.09.2019).

2) documents (case file) which contain information on commercial specifications of a product, its actual condition and what happened to it. If commodity research objects (products, samples (tests), packaging) can not be provided to a forensic expert, and also it is impossible to study processes which happened to products (since it happened in the past), the only information material for a forensic expert are documents reflecting:
   - commercial and quality characteristics of a product;
   - actual condition of a product;
   - what happened to a product;
   - packing condition;
   - conditions of transportation, storage, acceptance and operation of a product.

Such documents include: technical passports and product manuals, product labels, quality certificates, product and fiscal receipts, invoices, consignment notes, customs declarations, list of defects, property inspection protocols, contracts of sale, specifications etc. In this case, documents are similar to information carriers which help a forensic expert get an idea of an object existed in a certain period of time while research. Source data set out in documents provided for commodity research are accepted as reliable and used in the course of study; therefore, the quality of an expert conclusion and accomplishment of the set goal directly depend on the quality and integrity of documents provided for research.

Apart from products themselves, their labeling, samples, in some cases a forensic commodity expert must present documents reflecting the state of a product, information on what happened to it, implementation of commodity operations (acceptance, inspection, sale), which help to obtain additional information about products. These include:

- documents containing information on the origin of products (customs declarations, certificates of origin and quality, quality certificates, technical passports and operation manuals, product labels, etc.);
- shipping documents which indicate information about terms and conditions of goods transportation (waybills and rail consignment note, invoices, etc.);
- documents containing data on the quality characteristics of goods during its acceptance (conclusion of sanitary and epidemiological examination, physio-chemical laboratory tests, list of defects, reports on goods inspection, repricing report, acceptance notes and disbursement bills, operation manuals, etc.);
- documents of warehouse turnover where information on conditions of placement and storage of goods is indicated;
- acts of technical condition.

Tasks that are most often solved by commodity experts when determining the value of goods in the past are grouped into the following sections:

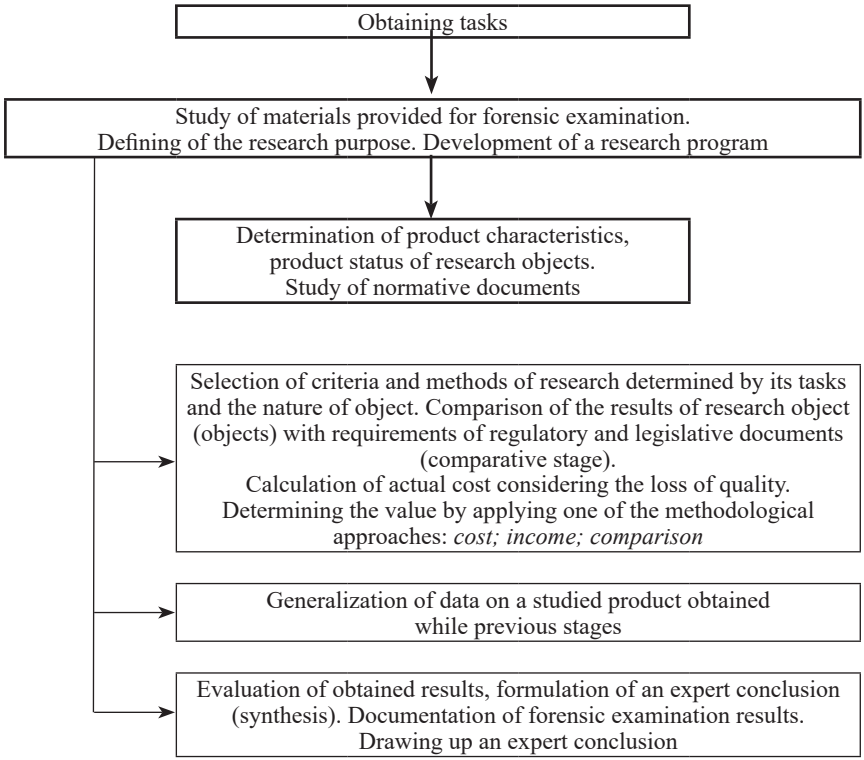
- determination of the market value in the past for all groups of goods (in particular, confiscated and smuggled);

- determination of market value in the past taking into account different types of wear (physical, functional or economic);
- determination of the amount of material damage as a result of damage (mechanical and thermal damage, traffic collisions, flooding, fire, etc.).

Forensic expert practice demonstrates that recently the number of expert tasks to determine the value of goods stolen or damaged in the event of a crime in the past is increasing.

The algorithm of commodity research to determine the value of goods in the past consists of successive steps that are recommended for use in forensic expert practice (e.g., diagram below).

The algorithm is developed on the basis of generalization of experience regarding conducted forensic commodity examinations on determination of the value of goods in the past (retrospective of evaluation). The application of the algorithm is suggested to reach the integrity of research on the value of goods considering retrospective evaluation, as well as to eliminate shortcomings that may affect the probative value of expert conclusions.



Algorithm of commodity research to determine the value of goods in the past

At the first stage of the algorithm: *Obtaining a task. Study of provided for forensic examination materials. Defining the research purpose. Development of a research program*, a forensic expert examines the procedural document on appointment of forensic examination drawn by an authorized person (body), or agreement with an expert or forensic science institution compiled by a written request of a person in cases stipulated by law [1], and examines all additional source data concerning studied objects. After studying these documents, the commodity expert determines the purpose of study and develops a research program.

Commodity research includes several stages: it starts with acquaintance with initial materials allowing the expert to understand issues to be solved; clarification of issues and scope of research (if needed) in agreement with competence of the commodity expert and circumstances of a case, as well as solution of organizational issues while forensic examination.

At the second stage, the expert begins study by inspecting provided objects, their packaging (if any), as well as premises where there were products and their storage conditions.

Inspection of commodity research objects according to research purpose and studying of general signs comprises of several stages:

- for products determine their marketability and general condition, type of packaging, etc .;
- for packaging: general appearance, presence of mechanical damage, labeling details, sealing ensuring preservation of a product;
- for labeling: method of application, presence of corrections, etc.;
- for documents: a list indicating general details (name, number, date of compilation, presence of signatures, seals).

Based on the review, the forensic expert formulates a conclusion on the possibility of solving issues raised, i.e. suitability of an object for commodity research and sufficiency of materials provided.

During packaging inspection, the following features are identified enabling to solve the issue on the actual condition of research objects and their compliance with regulatory documents:

- actual condition of packaging (identify packaging damages, study the presence of defects on both products and packaging and possibility of their matching. Such a study is important to determine the causes of defects);
- labeling and its content;
- type and means of packaging, materials used, presence of essential elements.

When examining the commodity research object, the expert first determines the name of a product, quantity, material of production, the peculiarity of

[1] Інструкція про призначення та проведення судових експертиз … . URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 21.09.2019).

execution, that is determines classification features to identify the commodity group to which product belongs.

Bulky objects are inspected by a forensic expert at their location, but a person or body who appointed forensic examination is obliged to provide a commodity expert with the opportunity to inspect them. According to paragraph 3.9 of Professional Instructions, *"if it is required to conduct a forensic examination (research) at the scene or inspection of an object by its location, the body (person) that appointed the examination (s) (involved a forensic expert) (commissioned a research), must ensure the arrival of a forensic expert, unimpeded access to the object location, as well as proper working conditions, and if necessary, contact participants of the process or other persons"*[1]. While commodity research on large quantities of goods, all identified and seized goods or their samples must be provided for research. Sampling in practice is carried out by specialized services (depending on commodity group), guided by relevant state standards, technical conditions, which specify the procedure for sampling.

If a forensic expert is addressed with the issue on terms and conditions of goods storage (terms of goods storage with set expiration date, placement according to commodity group, temperature and humidity) and possible impact of unfavorable conditions on the quality of goods. Such data are indicated in a conclusion.

Using the organoleptic method, the forensic expert determines the presence of defects, nature of their emergence, size, location, geometric dimensions. After using this method, the commodity specialist identifies the research object condition, changes in the actual state and its consumer properties.

The forensic expert compares product characteristics identified as a result of inspection with basic requirements of normative documents, determines coefficient of suitability and percentage of quality reduction from the influence of negative factors of different nature, etc.

The commodity expert notes not only the presence of defects, their impact on product quality, but also (according to the guidelines for property evaluation) calculates the percentage of wear (loss of quality), possibility of using it for its intended purpose on the basis of inspection results. When determining the quality of certain groups of goods (e.g., industrial equipment, computer equipment, etc.), degree of wear, the forensic expert uses mechanical reports specifying the condition of equipment at the date of evaluation.

At the third stage, the forensic expert determines the nature of objects, compares obtained results of objects of commodity research with the requirements of regulations (in particular, the requirements of DSTU for a particular commodity group, legislative acts, certified methods recommended

[1] Інструкція про призначення та проведення судових експертиз … . URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 21.09.2019).

by the Ministry of Justice of Ukraine for use in forensic expert practice). The value is determined by applying one of the methodological approaches: cost, income or comparison.

At this stage of research, the forensic expert examines legislative documents, methodological and specialized literature, regulations (in particular, DSTU and TU) which specify requirements, clarifications and recommendations for conducting commodity research on certain commodity groups. Currently, the Register of Methods of Forensic Examinations of the Ministry of Justice of Ukraine (according to the Resolution of the Cabinet of Ministers № 595 dated on 02.07.2008) includes 21 methods and guidelines for forensic commodity examinations of various commodity groups developed by researchers of Ukrainian forensic science institutions.

"Expert methodologies are description of practical actions used while research alone or in combination with methods and means implemented".[1] Methodologies describe techniques, the most feasible operations, rational sequence of research, etc.

In Ukraine, there are regulations determining the order of pricing for specific goods or services.

"Pricing is the process of setting prices for goods and services. In market-based pricing, the real process of price formation takes place not in the workplace and not in the enterprise, but in the field of sales, i.e. in the market under the influence of supply and demand, commodity-money relations. The price of the product and its benefits are tested by the market and finally formed at the market" [2].

"The pricing process is based on methodology. The pricing methodology is a set of the most general rules of price formation associated predominantly with macroeconomic features of the economic system, as well as with various areas of pricing" [3].

"The mechanism of pricing in market relations manifests itself in prices, their dynamics. Price dynamics is formed by two important factors: strategic and tactical.

The first is manifested when prices are formed on the basis of goods value. Prices fluctuate constantly around value. This process is extremely complicated. This is a factor of long-term, promising results.

The second is that prices for specific goods are formed under the influence of market conditions" [4].

---

[1] Головко М. П., Полупан В. В., Олійник А. І. Судово-товарознавча експертиза: опорні конспекти лекцій. Харків, 2018. 13 р.

[2] Відоменко О. І. Ціноутворення: навч.-метод. комплекс. Київ, 2005. P. 12.

[3] Ibid.

[4] Відоменко О. І. Op. cit. P. 13.

Peculiarities of evaluation on of the value of goods can be considered determination of the value of goods produced in earlier years, obsolete or withdrawn from production; made in a non-industrial way (craft production); with a specific expiration date; special purpose, aimed at a particular buyer, etc.

In the course of valuing such goods to determine their value, it is recommended to apply a correction factor (in each case: its own) in accordance with relevant methods and guidelines.

Determination of the value of goods taking into account the evaluation retrospective during forensic commodity examinations is carried out using methodological approaches and evaluation methods which are elements of methodological approaches or results of using several methodological approaches as well as evaluation procedures.

Methodological regulation of the evaluation process is performed in accordance with regulatory legal acts on evaluation of property: provisions on property evaluation approved by the Cabinet of Ministers of Ukraine, methodologies and other regulatory legal acts, national standards which include definitions of concepts (in particular, the concepts of market value, principles of evaluation, methodological approaches and peculiarities of evaluation of certain products depending on the evaluation purpose).

When conducting forensic examination, a forensic expert usually uses several methodological approaches fully meeting purpose defined by evaluation, type of value (if there is reliable information from various sources for its implementation).

Methodological approaches are general methods of determining the value of property based on the principles of evaluation. Evaluation can be:

- cost;
- income;
- comparison.

Several methodological approaches are used while evaluation, as well as their combinations.

Impossibility or inexpediency of applying a certain methodological approach is associated with the absence or inaccuracy of necessary for applying this approach source data on the evaluation object (non-food products) and other information (separately substantiated in a conclusion of forensic examination or expert research).

The cost approach is based on the principles of utility and substitution and involves estimating the value of an object considering the value of its reproduction (substitution) in prices at the evaluation date with further adjustment for the value of wear (depreciation).

The income approach is based on the principles of the most efficient use, expectation and involves evaluation, given the ability of an object to generate income for the owner.

"The comparison approach is based on the principles of substitution, supply and demand. The comparison approach involves analyzing the prices of sales and offering of similar property with a corresponding adjustment of differences between comparison objects and evaluation objects" [1].

Each approach has specific methods that are used to evaluate individual objects.

Evaluation methods are methods of determining the value of evaluation objects, sequence of evaluation procedures enabling to implement a certain methodological approach. Each method is based on a set of evaluation procedures. Meanwhile, a number of evaluation procedures do not constitute the essence of any of the methods. It is a separate stage of evaluation. Thus, evaluation procedures are actions (stages) which implementation in a certain sequence allows to perform evaluation.

At the fourth stage, data obtained at previous stages are generalized.

At the final stage of the algorithm, conclusions on a conducted research are drawn and forensic examination conclusions are documented according to current regulations.

Conclusions. Given the above provisions of regulatory legal acts, authors considered methodological approaches to solving problems arising while forensic expert practice during appointment and conduct of forensic examinations to determine the value of machines, equipment, raw materials and consumer goods taking into account the retrospective evaluation.

References

Artiukh, T. M., Indutnyi, V. V. (2003). Metodolohichni problemy tovaroznavchoi ekspertyzy koshtovnostei. *Visnyk KNTEU.* № 4 [in Ukrainian].

Holovko, M. P., Polupan, V. V., Oliinyk, A. I. (2018). *Sudovo-tovaroznavcha ekspertyza: oporni konspekty lektsii.* Kharkiv [in Ukrainian].

Instruktsiia pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen: zatv. nakazom Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 21.09.2019) [in Ukrainian].

Lozovyi, A. I., Dontsova, O. S., Bobrytskyi, S. M., Stebikh, O. I. (2004). *Metodyka vyznachennia vartosti maina.* Kharkiv [in Ukrainian].

Natsionalnyi standart № 1 «Zahalni zasady otsinky maina i mainovykh prav»: zatv. Postanovoiu KMU vid 10.09.2003 r. № 1440 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1440-2003-p/ed20150415 (data zvernennia: 21.09.2019) [in Ukrainian].

[1] Національний стандарт № 1 … . URL: https://zakon.rada.gov.ua/laws/show/1440-2003-п/ed20150415 (date accessed: 21.09.2019).

Pavlenko, O. V., Zhelavska, O. O. ta in. (2019). *Metodychni rekomendatsii shchodo doslidzhennia neprodovolchykh tovariv z metoiu vyznachennia yikh vartosti.* Kharkiv [in Ukrainian].

Petrova, I. A. (2011). Osoblyvosti vyznachennia ekspertom-tovaroznavtsem vartosti tovariv v umovakh rynkovykh vidnosyn. *Naukovyi visnyk LDUVS.* Lviv. № 4 [in Ukrainian].

Podkur, T. P. (2014). Shchodo osoblyvostei otsinky tovariv i vyznachennia yikh rynkovoi vartosti v umovakh sohodennia. *Kryminalistychnyi visnyk*. № 2 [in Ukrainian].

Poriadok obliku, zberihannia, otsinky konfiskovanoho ta inshoho maina, shcho perekhodyt u vlasnist derzhavy, i rozporiadzhennia nym: zatv. Postanovoiu KMU vid 25.08.1998 r. № 1340 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1340-98-p (data zvernennia: 21.09.2019) [in Ukrainian].

Pro otsinku maina, mainovykh prav ta profesiinu otsinochnu diialnist v Ukraini: Zakon Ukrainy vid 12.07.2001 r. № 2658-III (zi zmin. ta dopov.). Vidomosti Verkhovnoi Rady Ukrainy (VVR). 2001. № 47. St. 251 [in Ukrainian].

Vidomenko, O. I. (2005). *Tsinoutvorennia:* navch.-metod. kompleks. Kyiv [in Ukrainian].

О. Ю. Холодова, В. М. Губарева, Г. А. Сич

МЕТОДОЛОГІЯ ВИЗНАЧЕННЯ ВАРТОСТІ МАШИН, ОБЛАДНАННЯ, СИРОВИНИ ТА СПОЖИВЧИХ ТОВАРІВ З УРАХУВАННЯМ РЕТРОСПЕКТИВНОСТІ ОЦІНКИ ПІД ЧАС ПРОВЕДЕННЯ СУДОВО-ТОВАРОЗНАВЧИХ ЕКСПЕРТИЗ

Зазначено можливість вироблення єдиного підходу до проведення товарознавчих експертиз з оцінки вартості товарів у минулому часі та розроблення методики, яка застосовуватиметься в експертній практиці до проведення товарознавчих експертиз, для забезпечення систематизації та методичної одноманітності експертної практики, скорочення трудомісткості й витрат часу проведення експертиз і підвищення результативності досліджень.

Розглянуто методичні підходи до розв'язання проблем, які виникають в експертній практиці під час призначення й проведення судово-товарознавчих експертиз із визначення вартості машин, обладнання, сировини та споживчих товарів з урахуванням ретроспективності оцінки.

Ключові слова: судово-товарознавча експертиза, алгоритм визначення ринкової вартості товарів, ретроспективність оцінки, методологія визначення вартості, споживчі товари.

О. Ю. Холодова, В. Н. Губарева, А. А. Сыч

МЕТОДОЛОГИЯ ОПРЕДЕЛЕНИЯ СТОИМОСТИ МАШИН, ОБОРУДОВАНИЯ, СЫРЬЯ И ПОТРЕБИТЕЛЬСКИХ ТОВАРОВ С УЧЁТОМ РЕТРОСПЕКТИВНОСТИ ОЦЕНКИ ПРИ ПРОВЕДЕНИИ СУДЕБНО-ТОВАРОВЕДЧЕСКИХ ЭКСПЕРТИЗ

Цель исследования — выработать единый и всесторонний подход при проведении товароведческих экспертиз по определению стоимости товаров в прошедшем времени и разработать методику, которую можно применить в экспертной практике при проведении товароведческих экспертиз для обеспечения систематизации и методического единообразия экспертной практики, сокращения трудоёмкости и затрат времени, повышения результативности исследований, что существенно повлияет на качество, полноту и объективность вывода при определении стоимости машин, оборудования, сырья и потребительских товаров с учётом ретроспективности оценки.

Алгоритм товароведческого исследования по установлению стоимости товаров в прошедшем времени состоит из последовательно осуществляемых этапов.

Объектами исследования при проведении ретроспективной оценки могут быть продовольственные и непродовольственные товары, промышленное оборудование, машины и механизмы, минеральные удобрения и другая продукция промышленно-технического назначения, а также различные виды сырья, вспомогательные материалы, тара и упаковка, техническая и технологическая документация, приборы контроля, бухгалтерские документы, акты технического состояния и ремонтно-восстановительных работ.

Рассмотрены особенности оценки стоимости товаров выпуска прошлых лет, морально устаревших, снятых с производства, товаров, изготовленных промышленным (кустарным) способом, товаров специального назначения и др.

Применение алгоритма необходимо для достижения полноты проведения исследования стоимости товаров с учётом ретроспективности оценки, а также для устранения недостатков, снижающих доказательную ценность экспертных выводов.

Учитывая положения законодательных и нормативных актов, авторы статьи рассмотрели методические подходы к решению проблем, возникающих в экспертной практике при назначении и проведении судебно-товароведческой экспертизы по определению стоимости машин, оборудования, сырья и потребительских товаров с учётом ретроспективности оценки.

Ключевые слова: судебно-товароведческая экспертиза, алгоритм определения рыночной стоимости товаров, ретроспективность оценки, методология определения стоимости, потребительские товары.

Received by Editorial Board: 03.09.2020

Kholodova O. Yu., Hubareva V. N., Sych A. A. Methodology for determining the value of machines, equipment, raw materials and consumer goods taking into account retrospective of evaluation while forensic commodity examination//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 513—526. DOI: https://doi.org/10.32353/khrife.2.2020.41.

DOI: https://doi.org/10.32353/khrife.2.2020.42
UDC 339.137.2:347.77

I. I. Bordakova,
Senior Forensic Expert at the Department of Forensic Commodity Examinations, Forensic Gemology, Forensic Economics, Forensic Structural Engineering, Land Forensics and Evaluation Activity of Sumy Scientific Research Forensic Center of the Ministry of Justice of Ukraine,
Kharkiv, Ukraine,
ORCID://orcid.org/0000-0003-0997-2685,
e-mail: bordachok.2011@ukr.net

The use of trademarks (trade names) and their meaning

The main stages of formation of own name, style, image of the manufacturer of own products were analyzed in this article. One of the main criteria of a product and the most important source of information about products (goods) at the market is presence of marking (brand name, sign, image, style, etc.). Presence of label elements makes up individualization of goods and services. The term 'trademark' refers to a trade-mark or its juridically protected part that gives a shop assistant the exclusive right to use a brand name or a brand mark.

There is no doubt that the use of a trademark is a kind of link between manufacturers and consumers, an effective method for attracting customers attention to the product allowing consumers to choose appropriate products of a particular manufacturer.

It should be noted that one of the means of identifying a product is marking. Marking is considered to be an integral part of goods. It provides consumers with relevant information on a corresponding product, container and packaging. It also reflects quality and safety of products. Significance of trademarks-brands is increasing considerably in conditions of market-oriented economy for distinguishing the same goods produced by different manufacturers. Since goods introduced to consumer market by different manufacturers always differ by characteristics, features, qualities, etc. A trademark (brand) is a sign that helps to distinguish a product of one manufacturer from the same product of another.

The growing role of brands and trademarks is stressed in today international market. Thus, a manufacturer is in front of the choice of registration of trademarks which in turn become objects of intellectual property. However, creating an exclusive international scale brand is only possible for large commodity producers who are able to produce quality goods delivered to different markets and invest enormously into their promotion. Accordingly, trademark holders aim to protect their products from counterfeiting, individualize them and promote at the consumer market in a civilized way. But there are many people who want to make money using a name of a famous brand, therefore, counterfeiting that

© I. I. Bordakova, 2020

spoils reputation of a brand manufacturer appears. This problem is connected with a large number of counterfeiting illegally imported into the territory of Ukraine without commodity accompanying documents, and then sold in stores and markets.

Thus, known trademarks are required to be registered in accordance with the current legislation in order to avoid cases of illegal copying.

To conclude, registration of a trademark is a preventive and protective measure aimed at preventing violations of the rights of an owner. The modern regulatory framework regulating protection of trademarks as objects of intellectual property in Ukraine, in general, complies with international standards, but needs to be further improved taking into consideration counterfeiting at the market.

Keywords: marking, trademark, trade names, style, brand, fake, intellectual property.

Formulation of Research Problem. Labeling is an integral part of identifying goods and services. The presence of labeling elements individualizes goods and services. Product labeling can be viewed as the first step to simplify the delivery of goods from a manufacturer to a consumer. In order for the consumer to easily distinguish the goods of a particular manufacturer from many goods and services of other manufacturers, the product must have signs of individuality which are reflected in its labeling. The main purpose of labeling is provision of basic information about a product to consumers as well as product identification.

Analysis of Essential Researches and Publications. The issue of creation and purpose of labeling, as well as the processes of forming the individuality of trademarks as brands are reflected in detail in research papers by S. S. Harkavenko [1], M. I. Didkivskyi [2], V. Ya. Kardash [3], V. D. Malyhina, L. D. Tytarenko [4]. Based on examples of existing commercial enterprises, the authors: S. M. Illiashenko [5], I. Ya. Rozhkov i V. H. Kysmereshkin [6] outlined the main varieties and features of trademarks, trade name, style, etc. In addition, the identification procedure is analyzed considering methods and means that affect a final result [7].

Legalization procedure on the right to property of marks for goods and services, which is carried out with reference to the legal framework, namely the

[1] Гаркавенко С. С. Маркетинг: підручник: Київ, 2002. 712 р.

[2] Дідківський М. І. Зовнішньоекономічна діяльність підприємства: навч. посіб. Київ, 2006. 462 с.

[3] Кардаш В. Я. Маркетингова товарна політика: навч.-метод. посіб. для самост. вивч. дисцип. Київ, 2000. 124 р.

[4] Малигіна В. Д., Титаренко Л. Д. Основи експертизи продовольчих товарів: навч. посіб. для студент. внз. Київ, 2009. 296 р.

[5] Ілляшенко С. М. Маркетингова товарна політика: підручник: 2005. 234 р.

[6] Рожков И. Я., Кисмерешкин В. Г. Брендинг: учеб. для бакалавр. Москва, 2019. 331 р.

[7] Малигіна В. Д., Титаренко Л. Д. Op. cit.

Law of Ukraine: *On the Protection of Marks for Goods and Services* [1] and the Criminal Code [2] of Ukraine have been studied.

The **Article Purpose** is to highlight significance of labeling for commodity identification, commodity originality, determine inconsistencies between an original product, copy and fake, as well as specify procedure for trademark protection which is provided on the basis of its state registration; determine exclusivity of the trademark owner right to use and manage this trademark, and also prohibit its use by other people.

Main Content Presentation. Labeling of goods is of particular importance especially when referring to *online* trade (the Internet) and in the case of goods distribution in self-service locations, more precisely: while selling goods through vending machines. However, for ordinary trade, labeling is also important, significantly reducing the need for and availability of personal consultations, information provision about the manufacturer and its popularity in the consumer market. Unfortunately, an urgent problem is the increase in the consumer market of low-quality products belonging to the category of fakes under the name of well-known brands.

In the course of product planning, an essential element for the manufacturer is to determine trade name: a name, sign or symbol (or their combination) by means of which products and services of certain manufacturers and mediators are identified.

It should be stressed that labeling of goods has got several meanings for the manufacturer:

- establishment of direct relations between consumers, thus helping to avoid intermediate links in distribution outlets;
- extensive report on differences of one product from other similar to it (to ensure an intensive impact on a particular market segment and the most favorable conditions for the implementation of an effective pricing policy based on trust to a brand);
- emphasis on the identity of similar products according to certain criteria (quality, price line);
- symbolic reference to consumer properties and usefulness of products for buyers;
- protection against fakes and unfair use of resemblance.

Product labeling is also important for consumers.

[1] Про охорону прав на знаки для товарів і послуг: Закон України від 15.12.1993 р. № 3689-XII (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/3689-12 (date accessed: 04.06.2020).

[2] Кримінальний кодекс України: Закон України від 15.12.1993 р. № 2341-III (as amended and supplemented) URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 04.06.2020).

Firstly, labeling helps to identify or distinguish a product which is associated with some positive or negative experience. This allows a consumer to purchase a product with minimal efforts and time spent.

Secondly, it facilitates recognition of particularly prestigious products.

Thirdly, a well-known brand is an additional guarantee of quality which is highly important for buyers who lack professional knowledge for qualified evaluation of technically complex goods[1].

In advertising and communication practice, there are many terms specifying trademarks.

Oftentimes the term: *trademark* is replaced by such concepts as a *trade name*, *logo*, *corporate emblem, brand mark*, *brand*, etc.

Trademarks are verbal, sound, combined, three-dimensional, etc. In addition, initials, numbers, mythological images, proper names, geographic names, foreign words, word combinations, etc. could be used.

The main element of labeling is a trademark which differs in identification features, originality and can be registered. A registered trademark is the object of intellectual property and is protected by law.

Therefore, let's consider typical terms and their meanings.

Trade name is an abbreviation, word, symbol, number (for example, *Rastishka*, stylized image of the Pleiades constellation in *Subaru* cars, brand of a network of pharmacies: *36.6,* etc.). Identification functions of the brand can be fulfilled by slogans (*The world of your freedom — MTS!*), sounds (*Sh-sh-sh-sh* — in *Schweppes* drinks), jingles (positive, characteristic tunes), specific form of products (classic *Coca-Cola* bottle), characters (cat Matroskin in *Prostokvashyno* fermented milk products), etc.

A *business name* is a mark under which a company runs business activities. Sometimes it coincides with a trademark (*Sony, Siemens, Philips*) [2].

Let's look at some examples of identifying different trade names that use trademarks:

- brand name is a letter, word, set of letters or words (for example, *Sumy SELMI, VAT* is developed from the abbreviation of Sumy Plant of Electron Microscopes);
- brand mark is a symbol, picture, distinctive color or other designation (for example, a brand mark of PJSC LEBEDYN SEED PLANT is a swam silhouette inscribed in a circle);
- brand image is a personalized trade name (for example, designer clothing: *Mykhailo Voronin*);
- trademark is a brand name, brand mark, brand image or their combination, officially registered in the International Register and legally protected

[1] Кардаш В. Я. Op. cit.

[2] Рожков И. Я., Кисмерешкин В. Г. Op. cit.

(for example, *Tom Klaim* designer clothing and accessories, *Mitsubishi* trefoil knot, etc.) [1].

Thus, a trademark is an important element of such a generalized concept as corporate identity, i.e. a set of means (colors, words and word combinations, graphics and printing) that provide immediate recognition by buyers and identification of these products from a great variety of similar products-competitors.

Corporate identity, in addition to a trademark, has a personal logo (original image of a full or partial name of a company), corporate color (combination of colors), corporate types of fonts, as well as corporate constants (print format, system of typing and illustrations creation) [2].

What is more, there is such a concept as *brand* is a graphic combination of product or service with a set of characteristics, expectations and associations, which emerge in a buyer's imagination. According to the definition, any brand is a trademark, but not every trademark can become a brand.

It should be noted that a brand is a trade mark of an international level which has gained worldwide recognition and established its reputation (well known to consumers, society and popular with public).

Consequently, every trademark tries to turn to a brand and become famous all over the world.

The process of brand formation includes the following stages:

- brand positioning;
- formation of brand strategy;
- brand idea development;
- search for a brand name;
- brand testing [3].

Therefore, to gain brand status, a trade name must become popular in the market and gain the trust of customers. The prestige of a product makes a brand even more valuable which depends on a variety of factors, such as characteristics of a country, area, field where a product is produced, and the authority of a manufacturer. For example, France is known for its haute couture, Switzerland is accuracy, Germany is quality factor. Bourgogne wines, Scotch whiskey, Swiss cheese are bought primarily because they are produced in these regions and their high quality is beyond doubt.

Accordingly, the main requirement that a labeled product must meet is invariability of its quality, since this is the basis of the consumer's loyalty to a particular trademark of a product that has gained a world name and become a brand.

[1] Ілляшенко С. М. Op. cit.

[2] Кардаш В. Я. Op. cit.

[3] Гаркавенко С. С. Op. cit.

Given the above about the strategy of creating a manufacturer's own name, the importance of product labeling and emphasizing its originality and quality in the world market: all these criteria must meet the original.

The question arises: how to distinguish (identify) goods of the same group with the same labeling: does a certain product belong to the original product, or is it a licensed copy or a fake?

The identification procedure is performed to detect the identity of an unknown object to a known one based on features coincidence. *Identification* (from Latin *identifico*: identification) is identification of objects, recognition, determination of conformity of a recognized object to an image (sign).

Thus, identification of goods is a process of identifying conformity of studied goods (objects) with analogues (basic models, samples) from a homogeneous group, which is characterized with a set of technical indicators or description of goods on labeling based on characteristic identification features. At the same time, means of product identification are normative and technical documents (standards, TR, etc.) which regulate quality indicators as well as documents accompanying goods (invoices, certificates, quality certificates, reflecting information about a product for non-food group of goods: product name, brand, model, article, etc.).

One of the simplest methods of identification is the organoleptic method. Using this method, the ratio of conformity of a product according to certain criteria based on the analysis of human senses perception is defined. While product identification, the following indicators can be established: appearance, shape, color, shine, transparency, consistency, density, elasticity, odor, aroma, race, juiciness, tenderness, etc.

It should be stressed that the advantage of the organoleptic method is its availability and simplicity, and the disadvantage is the lack of reliability. Therefore, organoleptics cannot be the only criterion for identification, and for greater probability and objectivity, other methods should be used: depending on the means of measurement which in turn are divided into physical, chemical, physicochemical and microbiological.

Identification usually requires multidisciplinary research both by experienced merchandising experts and highly qualified scientists-experts [1].

Therefore, to understand what a fake and a copy are, and which criteria determine belonging of a product to a certain category, a multidisciplinary approach is required taking into account the study on existing labeling and the actual condition of a product.

A fake should be considered any product that has the name of a manufacturer which has nothing to do with this thing. In simple terms, if a bag has the *Louis Vuitton* logo, and the label shows the emblem of an unknown Turkish manufacturer, most likely it is a fake.

[1] Малигіна В. Д., Титаренко Л. Д. Op. cit.

In addition, sometimes a fake can be detected by organoleptic indicators, namely comparing characteristics of main consumer properties and appearance (shape, material, color, accuracy and precision of decorated inserts or, conversely, their absence, the presence of bright pronounced odor of paint that is not typical for the original, etc.) with the help of senses.

It is worth noting that offer price is also important. Thus, the cost of fakes under names of well-known brands is much lower than the cost of original goods of these brands (for example, a dress of a famous *Gucci* brand cannot cost $ 20-30: this indicates that such product is a fake).

Some well-known brands do their best to protect their products from counterfeiting, that's why they keep constantly facilitating protection of products with various innovations (e.g., holograms, introduction of the latest technological processes and other means of protection). High quality of products is the main protection, since not everyone is able to repeat the entire technological process of production, however, there are exceptions. Today absolutely everything is forged: from clothes to accessories, grooming water and other goods.

Fakes are most often imported from China, Indonesia, Turkey and other countries of Eastern Europe and East Asia. However, this does not mean that a country clearly refers to a fake as most manufacturers relocate their enterprises due to low taxes and cheap labor, which ultimately significantly reduces the cost of production of footwear and clothing.

Property right to trademarks for goods and services is realized in two ways: domestically and internationally. Most countries have introduced a system of registration and protection of trademarks of both foreign and domestic manufacturers.

It should be mentioned that in international practice, a registered trademark is indicated by the *R* letter in a circle. Trademark registration is voluntary, since it requires significant costs.

The system of registration and protection of trademarks within a country includes: Ukraine, France, Italy, Austria, Sweden, Spain, Portugal, Greece, Turkey, Russia, Latin American countries, where the *principle of registration*, i.e. to protect a trademark the very fact of trademark registration in patent office is required, which provides protection (registration priority) [1].

In Ukraine, state registration of trademarks is carried out by State Enterprise Ukrainian Intellectual Property Institute (UKRPATENT) on the basis of the Law: *On Protection of Rights on Inventions and Utility Models* [2].

Thus, in Ukraine in accordance with Art. 5 of the mentioned Law, property right to a trademark is confirmed by a certificate which issuance indicates that a trademark is registered. A certificate gives its owner the exclusive right to freely use and dispose a trademark, to prohibit the use of a registered mark by

[1] Дідківський М. І. Op. cit.

[2] Про охорону прав на знаки для товарів і послуг: … . URL: https://zakon.rada.gov.ua/laws/show/3689-12 (date accessed: 04.06.2020).

other people without the owner's permission unless the use of a trademark is not recognized by law as violation of the rights of a certificate holder.

Certificate validity is 10 years from the date of application submission to the National Intellectual Property Authority (hereinafter referred to as *NIPA*) and is extended by the NIPA at the request of a certificate holder for 10 years (provided fees are paid in accordance with paragraph 2 of Article 18 of this Law). The procedure for extending certificate validity is determined by the central executive body which ensures the formation of state policy in the field of intellectual property. In accordance with paragraph 5 of Art. 16 of the Law: *On Protection of Rights on Inventions and Utility Models* certificate gives its owner an exclusive right to prohibit to use a trademark by other persons without his consent unless otherwise provided by this Law [1].

According to Art. 229 of the Criminal Code of Ukraine, the subject of a crime is illegal use of a trademark for goods and services, trade name, qualified indication of origin of goods or other intentional violation of the right to these objects, if it caused significant material damage [2].

In addition, it should be stressed that in accordance with Art. 16 of the Law: *On Protection of Rights on Inventions and Utility Models* a certificate holder has the right to authorize the use of a trademark on the basis of a licensed agreement. Licensed agreement should contain a condition that quality of goods and services produced or provided in accordance with a licensed agreement will not be lower than the quality of goods and services of a certificate holder, and that the latter will control the compliance with this condition [3].

Currently, many people want to buy clothes of well-known brands, but financial capabilities vary from person to person so modern couturiers actively produce clothes under a license agreement by the name of a well-known brand: a so-called copy. The customer country closely monitors that the manner and handwriting of a master in this case remain unchanged as well as the style and image of a brand. The choice of an executor depends on possibilities of a specific factory as it is needed that there was a mass production of qualitative clothes, footwear and accessories. Usually China is a manufacturer of secondary lines of well-known brands.

In order for the price of products to be democratic, fabrics with a simpler composition are used, and production technology is fully automated. Representatives of a brand control the production process in an implementing country and are responsible for each product. In addition, a customer is obliged to provide a factory with their drawings, patterns and French curves, to set clear

[1] Про охорону прав на знаки для товарів і послуг: … . URL: https://zakon.rada.gov.ua/laws/show/3689-12 (date accessed: 04.06.2020).

[2] Кримінальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 04.06.2020).

[3] Про охорону прав на знаки для товарів і послуг: … . URL: https://zakon.rada.gov.ua/laws/show/3689-12 (date accessed: 04.06.2020).

requirements for processing, labels, to provide appropriate accessories (buttons, snap fastener, zippers, etc.) and even future packaging. Thanks to all these measures, you can expect to purchase quality products made in accordance with the requirements of a well-known brand at an affordable price.

In Ukraine, trademarks that are identical or similar enough so that they can be easily confused with other trademarks for homogeneous goods or services or trade names which are famous in Ukraine and belong to other people (for example, *Soni Ericssyn* instead of *Sony Ericsson*, *Panasonix* instead of *Panasonic*, *Smirnov* instead of *Smirnoff*, etc.) [1]. A certificate holder has the right to claim their removal from the range of goods and packaging as stipulated by Art. 229 of the Criminal Code of Ukraine, under which the following is punished: "*illegal use of a trademark for goods and services, trade name, qualified indication of goods origin or other intentional violation of the right to these objects, if it caused significant material damage*" [2].

Conclusions. Summarizing the above, it should be stressed that a trademark not only emphasizes the individuality of a manufacturer, but is a unique object of intellectual property. To avoid illegal copying of well-known trade names, it is necessary to register them in accordance with current legislation. Therefore, trademark registration is a precautionary and protective measure aimed at preventing violation of the owner rights.

The current legal framework governing protection of trademarks as intellectual property objects in Ukraine is generally in line with international standards, but due to the presence of low-quality products and fakes on the market, it should be further advanced.

Referenses

Didkivskyi, M. I. (2006). *Zovnishnoekonomichna diialnist pidpryiemstva:* navch. posib. Kyiv. [in Ukrainian].

Harkavenko, S. S. (2002). *Marketynh:* pidruchnyk. Kyiv. [in Ukrainian].

Illiashenko, S. M. (2005). *Marketynhova tovarna polityka:* pidruchnyk. [in Ukrainian].

Kardash, V. Ya. (2000). *Marketynhova tovarna polityka:* navch.-metod. posib. Kyiv. [in Ukrainian].

Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 r. № 2341-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2341-14 (data zvernennia: 04.06.2020). [in Ukrainian].

Malyhina, V. D., Tytarenko, L. D. (2009). *Osnovy ekspertyzy prodovolchykh tovariv:* navch. posib. [in Ukrainian].

Pro okhoronu prav na znaky dlia tovariv i posluh: Zakon Ukrainy vid 15.12.1993 r. № 3689-XII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/3689-12 (data zvernennia: 04.06.2020). [in Ukrainian].

Rozhkov, I. Ia., Kismereshkin, V. G. *Brending.* (2019). Ucheb. dlia bak-v. Moscow. [in Russian].

[1] Дідківський М. І. Op. cit.

[2] Кримінальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 04.06.2020).

І. І. Бордакова

ВИКОРИСТАННЯ ТОВАРНИХ ЗНАКІВ (ТОРГОВИХ МАРОК) ТА ЇХ ЗНАЧЕННЯ

У статті висвітлено питання значення товарних знаків, їх створення та використання. Розглянуто особливості маркування і значення типової термінології, а також досліджено процедуру ідентифікації товару з урахуванням маркувальних позначень. Ефективна система маркування сприяє захисту споживачів від недобросовісної торгівлі та конкуренції. Товарні знаки (торгові марки) потрібні також державним органам, що відповідають за перевірку якості товарів і послуг і допомагають розпізнати товари й послуги, які не відповідають вимогам закону або які виявлено в результаті скарг чи лабораторних перевірок. Акцентовано увагу на питаннях правового регулювання, користування та розпорядження товарними знаками.

Ключові слова: маркування, товарний знак, торгова марка, торговельне найменування, фірмовий стиль, бренд, ідентифікація, підробка, копія, якість, право власності, інтелектуальна власність.

И. И. Бордакова

ИСПОЛЬЗОВАНИЕ ТОВАРНЫХ ЗНАКОВ (ТОРГОВЫХ МАРОК) И ИХ ЗНАЧЕНИЕ

В статье проанализированы основные этапы формирования собственного имени, стиля, образа производителя. Одним из основных критериев товара и важнейшим источником информации о продукции (товаре) на рынке является наличие маркировочных обозначений (фирменного имени, знака, образа, стиля и т. д.). Наличие элементов маркировки индивидуализирует товары и услуги. Под товарным знаком понимают марку или её часть, защищённую юридически, что даёт продавцу исключительное право использовать марочное имя или марочный знак.

Безусловно, использование товарного знака является своеобразным звеном между производителем и потребителем, служит активным средством привлечения внимания покупателей к продукту и позволяет потребителям выбрать необходимые им товары определённого производителя.

Следует отметить, что одним из средств идентификации товара является маркировка. Маркировка товаров считается неотъемлемой частью товара. Она обеспечивает потребителей актуальной информацией о соответствующем товаре, таре и упаковке, а также отражает качество и безопасность продукции. В условиях рыночной экономики существенно возрастает значение товарных знаков — брендов, для распознавания одинаковых товаров, выпускаемых различными производителями, поскольку товары, представленные на потребительском рынке различными производителями, всегда отличаются характеристиками,

признаками, качеством и т. п., а товарный знак (бренд) — это знак, помогающий отличить продукт (товар) одного производителя от такой же продукции другого производителя.

На современном международном рынке отмечается всё возрастающая роль торговых марок и знаков, что ставит производителя перед необходимостью регистрировать свои торговые марки, которые, в свою очередь, становятся объектами интеллектуальной собственности. Однако, создать престижную марку международного масштаба под силу только крупным товаропроизводителям, способным выпускать качественные товары, поставляемые на различные рынки, и вкладывать значительные средства в их продвижение. Соответственно, правообладатели товарных знаков стремятся защитить свою продукцию от подделки, индивидуализировать её и цивилизованно продвигать на потребительском рынке. Но желающих заработать на имени известного бренда очень много, поэтому появляются подделки, что вредит репутации производителя бренда. Эта проблема связана с большим количеством подделок, незаконно ввезённых на территорию Украины без товарно-сопроводительных документов и реализуемых в магазинах и на рынках.

Таким образом, для того чтобы избежать незаконного копирования известных торговых марок, требуется их регистрация в соответствии с действующим законодательством.

Следовательно, регистрация торговой марки является мерой и охранным мероприятием, направленным на предупреждение нарушения прав собственника. Современная нормативно-правовая база, регулирующая защиту торговых марок как объектов интеллектуальной собственности в Украине, в целом соответствует международным стандартам, но (учитывая присутствие на рынке подделок) нуждается в совершенствовании.

Ключевые слова: маркировка, товарный знак, торговая марка, торговое наименование, фирменный стиль, бренд, идентификация, подделка, копия, качество, право собственности, интеллектуальная собственность.

Received by Editorial Board: 14.07.2020

Bordakova I. I. The use of trademarks (trade names) and their meaning//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 527—537. DOI: https://doi.org/10.32353/khrife.2.2020.42.

DOI: https://doi.org/10.32353/khrife.2.2020.43
UDC 343.95

I. O. Savchenko,
Department Head at Sumy Branch of National Scientific Center **"**Hon. Prof. M. S. Bokarius Forensic Science Institute**"**, Sumy, Ukraine,
e-mail: svhndise@ukr.net

S. L. Babych,
Senior Forensic Expert at Sumy Branch of National Scientific Center **"**Hon. Prof. M. S. Bokarius Forensic Science Institute**"**, Sumy, Ukraine,
e-mail: svhndise@ukr.net

R. Uscila,
PhD, Senior Research Fellow Law Institute, Lithuanian Centre for Social Sciences, Vilnius, Lithuania,
e-mail: rokas.uscila@teise.org

Some issues on forensic psychological examination of victims enduring domestic violence (Review Article)

The main aspects of forensic psychological examination of a victim while criminal proceedings listed in the Unified Register of pre-trial investigations according to criminal offense elements provided for by Article 126-1 of the Criminal Code of Ukraine are considered. Attention is paid to legal and theoretical-methodological grounds for the appointment and conduct of this subject type of forensic psychological examination. The relationship between the concepts of "violence", "aggression" and "coercion" is defined, content and main forms of violence are revealed. An attempt is made to summarize empirical evidence results of this type of forensic examinations. The study on women (victims of domestic violence) psychology is emphasized. The necessity in developing methodical recommendations as to forensic psychological examination of victims in the course of domestic violence investigations is proved.

Keywords: forensic psychological examination, subject types of forensic psychological examination, forensic psychological examination of victims in criminal proceedings initiated under Article 126-1 of the Criminal Code of Ukraine, aggression, coercion, violence, domestic violence, physical violence, moral violence, psychological violence, emotional violence, sexual violence, aesthetic violence,, individual psychological features, current emotional state, internal conflict, destructive behavioral strategies, destructive toxic interaction.

Formulation of Research Problem. The practice of expert psychologists of Research Institutions of Forensic Examinations of the Ministry of Justice of Ukraine demonstrates the benefit of increasing the role of forensic psychological examination as a significant source of evidence to arrive at truth, in particular, in criminal justice. Since the Law of Ukraine *On preventing and combating*

© I. O. Savchenko, S. L. Babych, R. Uscila, 2020

domestic violence dated on 07.12.2017, № 2229-VIII (hereinafter referred to as the *Law № 2229-VIII)* has entered into force [1], adopted withing the framework of the implementation of the National Strategy in the field of human rights, approved by the Decree of the President of Ukraine dated on 25.08.2015, № 501/2015[2], the quality of the appointment and conducting of forensic psychological examinations regarding the victims in criminal proceedings established under the Art. 1261 of the Criminal Code of Ukraine (hereinafter referred to as the *Criminal Code of Ukraine*) is increasing of the appointment and conducting of forensic psychological examinations regarding the victims in criminal proceedings established under the Art. 126[1] of the Criminal Code of Ukraine (hereinafter referred to as the Criminal Code of Ukraine)[3] is increasing. Since the second half of last year, resolutions on an appointment of forensic psychological examination of victim in criminal proceedings, entered into the Unified Register of pre-trial investigations on the grounds of a criminal offense, under Art. 126[1] of the Criminal Code of Ukraine, were sent to Sumy Branch of Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations (currently, *National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"*) of the Ministry of Justice of Ukraine. At the time of writing this article, forensic psychological examinations of this type consist of almost 35 % out of the total quantity of appointed and conducted forensic psychological examinations at Sumy Branch [4].

Analysis of Recent Researches and Publications. Issues of violent behavior take a significant place in the scientific research of such domestic and foreign scientists, as: O. Bandurka [5], V. Golina [6], O. Dzhuzha [7], A. Zakaliuk [8] and many

[1] Про запобігання та протидію домашньому насильству: Закон України від 07.12.2017 р. № 2229-VIII (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/2229-19 (date accessed: 20.06.2020).

[2] Національна стратегія у сфері прав людини: затв. Указом Президента України від 25.08.2015 р. № 501/2015. URL: https://zakon.rada.gov.ua/laws/show/501/2015 (date accessed: 20.06.2020).

[3] Кримінальний кодекс України: Закон України від 05.04.2001 р. № 2341-III (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 20.06.2020).

[4] Архів Сумського відділення Харківського НДІСЕ ім. Засл. проф. М. С. Бокаріуса Мін'юсту України.

[5] Бандурка О. М., Литвинов О. М. Протидія злочинності та профілактика злочинів: монографія. Харків, 2011. 308 р.

[6] Голіна В. В. Попередження тяжких насильницьких злочинів проти життя й здоров'я особи: навч. посіб. Харків, 1997. 52 р.

[7] Правові та кримінологічні засади запобігання насильству в сім'ї: навч. посіб./ за заг. ред. О. М. Джужі, І. В. Опришка, О. Г. Кулика. Київ, 2005. 124 р.

[8] Закалюк А. П. Курс сучасної української кримінології: теорія і практика: у 3 кн. Київ, 2007. Кн. 2: Кримінологічна характеристика та запобігання вчиненню окремих видів злочинів. 712 р.

others. A significant contribution to research on the problem of domestic violence and the prevention of such violence were made by: A. Blaha [1], A. Voloshchuk [2], T. Zhuravel [3], L. Kryzhna [4], Yu. Lysiuk [5] and others. Domestic violence against women has been studied mainly by forensic scientists, investigating crimes committed in the domestic sphere. Thus, the risk factors for domestic violence were considered by *E. Aldarondo* and *F. Mederos* (2002) [6]; D. A. O'Leary devoted his works to the influence of alcohol on the occurrence of aggression against the marital partner (2003); L. E. Walker investigated the impact of abuse on woman [7]; *G. L. Stuart* (1994) proposed a typology of male rapists. To date, a significant number of theoretical positions have been formulated that could explain the main causes of domestic violence [8]. There are various explanatory models of marital violence: M. Kaufman developed his research within the theory of social learning, the theory of violence was considered by M. S. Kimmel, J. Gottman and N. Jacobson, the victimological approach is partially presented in the works of G. J. Schneider [9].

At the same time, absolutely insufficient attention was paid to the study of psychological characteristics of women suffering from various types of marital (partner) violence. In domestic science, the issue of marital violence is relatively uncovered, there are only some studies on this topic: I. Hrabska (1998) studied the consequences of marital violence, under her leadership O. Shynkarenko (2000) considered the "beaten woman syndrome" in terms of the theory of family systems, as well as the mechanism of victimization of psycho-traumatic factors of parental and child relationships on the woman and her role as a victim

---

[1] Блага А. Б. Насильство в сім'ї (кримінологічний аналіз і запобігання): монографія. Харків, 2014. 360 р.

[2] Волощук А. М., Ярмакі Х. П., Ковальова О. В. Діяльність служби дільничних інспекторів міліції щодо попередження насильства в сім'ї: монографія. Одеса, 2013. 218 р.

[3] Журавель Т. В. Соціально-педагогічна робота з профілактики насильства щодо дітей//*Соціальна педагогіка:* навч. посіб./за заг. ред. О. В. Безпалько; авт. кол. О. В. Безпалько, І. Д. Звєрєва, Т. Г. Веретенко та ін. Київ, 2013. Р. 197—209.

[4] Крижна Л. В. Злочини у сфері сімейно-побутових відносин (кримінологічний аспект): монографія. Київ, 2003. 105 р.

[5] Лисюк Ю. В. Протидія насильству в сім'ї. Одеса, 2007. 162 р.

[6] Aldarondo E., Mederos F. Programs for Men Who Batter: Intervention And Prevention Strategies In A Diverse Society. New York, 2002. 518 p.

[7] E.g., Савчук О. М. Наслідки подружнього насильства: індивідуально-психологічна перспектива//*Наукові записки НаУКМА*. Київ, 2002. Т. 20. Спецвипуск: у 2 ч. Ч. 2. Р. 384—388.

[8] Захожа В. А. Фізичне насильство щодо жінок у сім'ї//*Наукові записки НаУКМА. Соціологічні науки*. Київ, 2000. Т. 18. Р. 49—54.

[9] Горшкова И. Д., Шурыгина И. И. Насилие против жен как проблема социологического анализа//*Общество и гендер:* летняя шк. Рязань, 2003. URL: http://www.gender-cent.ryazan.ru/gorshkova.htm (date accessed: 20.06.2020).

and cross-cultural differences in the perception, experience and application of abusive behavior in the families of Ukraine and Poland; N. Opukhova and O. Malolietniaia (2000) examined types of women victims of marital violence, studying their life myths; D. Shestakov considered in detail social and psychological characteristics of men and women who were serving sentences for crimes committed in the family sphere [1]; I. Malkina-Pykh (2006) paid special attention to the analysis of psychological theories that explain the formation of the "phenomenon of violence". Within the framework of gender researches, this problem was considered by N. Shvedova (2002). Some other authors also studied this problem: N. Platonova and Y. Platonov, V. Polubinsky and others. The essence, forms and legal definition of mental violence were studied in the works by S. Kudriavtsev, M. Panov, O. Protasevych, V. Khrystenko, A. Sheremet and other scientists. The analysis of the scientific literature shows the debatable nature of the definition of mental violence.

The Article Purpose. As the raised problem is not singled out among expert tasks in Scientific and methodical recommendations on preparation and appointment of forensic examinations and expert researches [2], now forensic experts of the state specialized expert establishments carry out similar examinations without reliance on special techniques concerning carrying out this subject type of forensic psychological examination that have not yet been developed. This article is compiled in the development of theses and conclusions that can be useful for theoretical and practical research of this issue.

Main Content Presentation. In accordance with the Law of Ukraine № 2227-VIII dated on 06.12.2017 *On Amendments to the Criminal and Criminal Procedure Codes of Ukraine in order to implement the provisions of the Council of Europe Convention on Preventing and Combating these actions*, adopted 06.12.2017 (hereinafter referred to as the *Law № 2227-VIII*) [3], significant amendments were made to the Criminal Code of Ukraine and to the Criminal Procedure Code of Ukraine (hereinafter referred to as *Criminal Procedural*

[1] Бова А. А. Кримінологія гендера: Дослідження подружнього насильства// *Український соціум:* наук. журн. 2004. № 2 (4). С. 13—20. URL: https://ukr-socium.org.ua/uk/archive/no-2-4-2004/kriminologija-gendera-doslidzhennja-podruzhnogo-nasilstva (date accessed: 20.06.2020).

[2] Науково-методичні рекомендації з питань підготовки та призначення судових експертиз та експертних досліджень: затв. наказом Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented; у ред. наказу Мін'юсту України від 26.12.2012 р. № 1950/5). URL: https://zakon.rada.gov.ua/laws/show/z0001-13#n6 (date accessed: 20.06.2020).

[3] Про внесення змін до Кримінального та Кримінального процесуального кодексів України з метою реалізації положень Конвенції Ради Європи про запобігання насильству стосовно жінок і домашньому насильству та боротьбу з цими явищами: Закон України від 06.12.2017 р. № 2227-VIII. URL: https://zakon.rada.gov.ua/laws/show/2227-19 (date accessed: 20.06.2020).

Code of Ukraine) regarding cases of domestic violence [1]. The Law № 2227-VIII entered into force on January 11, 2019 (except amendments to Article 67 of the Criminal Code of Ukraine, which entered into force in January 2018). One of the key novelties was the criminalization of domestic violence: the Criminal Code of Ukraine amended Art. 1261 "Domestic violence", which provides for criminal liability for domestic violence, i.e. intentional systematic physical, psychological or economic violence against a spouse or ex-spouse or another person with whom the perpetrator is (was) in a family or close relationship, which leads to physical or psychological suffering, health problems, loss of ability to work, emotional dependence or deterioration of the victim's quality of life [2].

If earlier incidents of a married couple were considered domestic violence, now the legislator has expanded the circle of such persons. It currently includes ex-husband (ex-wife) and spouses who are in a civil marriage (living together without registration). The range of persons recognized as perpetrators has been also expanded: foster parents, persons living together in the same family now or used to live, siblings, guardians and other relatives, namely, uncle, aunt, nieces, cousins, grandparents. The Law defines a person, who has suffered from domestic violence as a victim (a victim of domestic violence is a family member who has suffered physical, sexual, psychological or economic violence from another family member).

The main direct object of the crime under Art. 126^1 of the Criminal Code of Ukraine is a person's health. An additional optional object may be the will, honor and dignity of the person, his mental integrity.

Legal signs of a person's vulnerable state are similar to the psychological parameters of a person's mental activity, which limit his ability to fully understand the nature of his actions, to anticipate their consequences and manage them, to make independent decisions. That is, in the psychological sense, the vulnerability of a person implies his dependence on someone (others) or something (life circumstances), which, from a legal point of view, allows another person to manipulate the victim, psychologically influencing him.

In modern psychology, violence is any behavior (simple or complex, verbal or nonverbal) that is used to control another person's thoughts, feelings, and actions against their desires, wills, and attitudes, but with psychological (and often psychological) material) benefit to the abuser. In addition, violence can be considered a manifestation of inaction [3]. For example, in the case of failure

[1] Про внесення змін до деяких законодавчих актів України у зв'язку з прийняттям Кримінального процесуального кодексу України: Закон України від 13.04.2012 р. № 4652-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/4652-17#n75 (date accessed: 20.06.2020).

[2] Кримінальний кодекс України: … . URL: https://zakon.rada.gov.ua/laws/show/2341-14 (date accessed: 20.06.2020).

[3] Малкина-Пых И. Г. Психология поведения жертвы: справочник практического психолога. Москва, 2006. P. 46.

to provide assistance to a person who needs it. Such activity or inaction is characterized by certain features:

1) premeditation — violence, always aimed at achieving a certain goal, it is the result of deliberate action, i.e. it is not accidental;
2) violation of the rights and freedoms of another person — violence is always associated with the violation of some rights of an individual or group of persons;
3) low level of self-defense — there are various advantages between the participants in the violence: physical force (husband against wife, adults against children or the elderly), while the victim can create the conditions for the damage caused by the perpetrator;
4) causing harm (physical, moral) [1].

It is fundamental to identify the relationship between the term *violence* and other related terms – *aggression* and *coercion*. Today, most social scientists agree with such definition: *"**aggression** is any form of behavior aimed at insulting or harming another living being that does not want to behave in this way. This definition suggests that aggression should be viewed as a pattern of behavior, not as an emotion, motive, or instruction. Violence is the most acute and dangerous aggressive behavior, besides not any violence, but only non-normative*"[2]. [Here and then translation from Russian is ours. — *Author's notes*]. At the same time, coercion exerts such influence, the purpose of which is to force another person to act in a certain way against his own will as a result of force or under the threat of adverse consequences for him. According to G. Lanova, the fact that coercion is always an act of force, and violence can be considered coercion only when it is instrumental, allows us to conclude that *coercion* and *violence* are related as generic and species. Coercion is always a means to achieve a certain goal, violence is not always; coercion takes place only where there is a conflict of interest and violence can take place in a conflict-free situation; coercion always occurs against the will of the individual (or group of individuals) [3].

In deviant behavior of individuals or marginalized social groups, such types of violence mostly are uncovered:

- moral — showing contempt of people, humiliation of their dignity, unethical behavior;
- psychological — long-term or permanent mental influence of the aggressive subject on the victim, which leads to psychological disruptions, the formation of pathological conditions in victims;

[1] Опухова Н. Г., Малолетняя Е. В. Женщины — жертвы семейного насилья: особенности образа мира//*Психология зрелости и старения*. 2000. № 4. P. 31—59.

[2] Бандурка А. М., Зелинский А. Ф. Вандализм: монография. Харьков, 1996. P. 6—7.

[3] Лановая Г. М. Принуждение в системе форм правоприменения: автореф. дис. … канд. юрид. наук. Москва, 2006. URL: http://lawtheses.com/prinuzhdenie-v-sisteme-form-pravoprimeneniya (date accessed: 20.06.2020).

- material — vandalism, intentional damage or spoiling of the value of material and spiritual culture, including mockery of historical and religious prices or traditions;
- emotional — is used closely with mental violence, which leads to unmotivated sincere feeling;
- aesthetic — promotion through film, theater, television and press of violent patters and stereotypes of actions;
- physical — intentional infliction of physical damages to the victim (manifested in threats and causes direct physical damage);
- sexual — coercion of the victim to sexual acts (without her consent) in order to obtain physiological pleasure or benefit from the rapist [1].

Scientists distinguish two forms of violence during committing violent crimes: physical (energy) and mental (information) [2]. The nature of violence is divided into overt (open manifestation of violence) and protection (veiling in various senses, which must be achieved through financial influence for example, deprivation of material assistance, etc.) [3].

V. I. Rolinskyi gave the following structure of the act of violence:

- the subject who commits violence (its important characteristics: the state and reasons that contain the violent behavior of the subject, current needs);
- the object to which the violence is directed (in particular: the state and reasons that contain victim behavior, current needs);
- the source of the conflict as an object belonging to the object of violence, to which the "needs" of the object of violence are directed;
- a situation that reflects the objective and subjective conditions of violence;
- direct act of violence;
- consequences of violence [4].

Difficulties arise while proving the fact of mental violence, especially when it is not supported by physical violence and had the hidden nature. It should be noted that in the Resolution of the Plenum of the Supreme Court of Ukraine (hereinafter referred to as the *Resolution of the Plenum of the Supreme Court of Ukraine*) dated on 30.05.2008 № 5 *On judicial practice with rights to crimes*

[1] Герасина Л. Н. Сущность общего понятия «насилие» в социолого-правовой, политологической и конфликтологической интерпретации//*Проблеми боротьби з насильницькою злочинністю в Україні:* зб. мат-в наук.-практ. конф. Харків, 2001. P. 120.

[2] E.g., Протасевич А. А. Проблемы предмета и средств раскрытия серийных преступлений, сопряженных с насилием: автореф. дис. … докт. юрид. наук. Воронеж, 1999. P. 12 ; Христенко В. Е. Психология жертвы: учеб. пособ. Харьков, 2001. P. 56.

[3] Ibid. P. 47.

[4] Ролінський В. І. Соціально-педагогічні умови профілактики насильства щодо підлітків: дис. … канд. пед. наук. Київ, 2005. P. 24—25.

against state freedom and personal integrity [1], the term *mental violence* is absent. In the para. 4 of this document deals with the threat of physical violence. This method of overcoming or preventing the victim's resistance involves intimidation by physical violence against him and / or another person whose fate, the victim is not indifferent to (relative, close person), using statements, gestures, demonstrations of weapons or objects that can be used to inflict bodily harm, and objects that imitate weapons and that the victim perceives as real weapons or other actions [2]. Thus, legislation strengthen the secondary definition of mental violence. Instead, some researchers view physical violence as a continuation of mental violence (fear of suffering even more severe damage than already exists) [3]. Violence in the emotional sphere is difficult to assess unambiguously, its composition in the interpretation of different authors differs significantly.

Scholars usually consider psychological violence to be the following: coercion and threats to cause physical harm, end a relationship, commit suicide; coercion to commit illegal acts; economic action, which consists of obstacles in disposal of their own money and property, obtaining or maintaining employment, deprivation of access to the family budget and information about it; exclusion from the decision-making process; the use of children to exert psychological pressure; denying the presence of the problem of violence, shifting responsibility for it to the partner and ignoring his concern by abuse; control, isolation of the partner, prohibition of contacts which are justified by jealousies; humiliation, name-calling, formation of guilt and self-inadequacy; intimidation by gestures, actions, property damage and weapons demonstration, etc. There is no domestic abuser who limits his victim at one thing [4].

Domestic violence is a problem that affects more than one person, couple or family. Its causes are related to the economic situation, social norms and attitudes towards violence. Domestic violence can affect all members of the family, but most often it affects weak, lacking self-defense and dependent family members: children, the elderly, people with disabilities, and women who are usually physically weaker than men and may be economically dependent on a partner. According to statistics, more than 100,000 complaints of domestic violence are recorded in Ukraine every year, 90% of which come from women. Particularly vulnerable to violence are the families who find themselves in difficult life circumstances due to a number of problems: unemployment, use of psychoactive drugs, the HIV and other socially dangerous diseases, etc.

Violence against women is a form of aggressive behavior and the use of force to cause harm: from verbal abuse and threats of beatings and death. Women are

[1] Про судову практику у справах про злочини проти статевої свободи та статевої недоторканості особи: Постанова Пленуму ВСУ від 30.05.2008 р. № 5. URL: https://zakon.rada.gov.ua/laws/show/v0005700-08 (date accessed: 20.06.2020).

[2] Ibid.

[3] Ibid.

[4] Малкина-Пых И. Г. Op.cit.

much more likely than men to be victims of physical, psychological, economic and especially sexual violence [1].

According to the expert practice of the Sumy branch of NSC "Hon. Prof. M. S. Bokarius FSI", such a subject type of forensic psychological examination as forensic psychological examination of domestic violence victim is appointed by forensic investigators with regard to spousal abuse (60%) and violence of sons against mothers (40%). For all the variety of types of violence, such violence is characterized by the fact that it acquires a general, widespread nature.

According to the definition suggested by T. Egorova and V. Egorov, the object of forensic psychological examination is a person (examinee) and a set of sources of information reflecting information about the mental activity of the examinee in legally significant circumstances [2].

Forensic psychological examination of a victim of domestic violence should reveal the structure of individual characteristics of the examinee, his mental state and peculiarities of their manifestation in a legally significant situation.

Thus, the object of psychological examination of the victim in criminal proceedings under Art. 126 of the Criminal Code of Ukraine is a person as personality (victim), a set of materialized sources of information (materials of criminal proceedings, other documents, results of experimental psychological examination) reflecting characteristics of the examinee, his emotional state and their manifestation in the time period corresponding to delict, during pre-trial investigation and trial.

The research subject is the individual characteristics of the victim, emotional state of the victim, peculiarities of the victim mental activity, psychological situation peculiarities in which the victim was and is and which relate to the actions of the offender.

From the materialized sources of information provided for the research, it is known that the victims who had a medical history of upbringing in an incomplete, dysfunctional, ersatz family, later were in toxic destructive interaction with the offender for a long time, in this case with the suspect (accused). The victims were once found guilty of committing an administrative offense stipulated in Part 2 of Art. 173 of the Code of Ukraine on Administrative Offenses [3], repeatedly held administratively liable, often — criminal, sometimes they are under dynamic supervision of a doctor — narcologist and psychiatrist — due to behavioral

[1] Словарь гендерных терминов/под ред. А. А. Денисовой. Москва, 2002. 256 р.

[2] Єгорова Т. М., Єгоров В. В. Дискусійні питання щодо об'єкта та предмета судової психологічної експертизи//*Актуальні питання судової експертизи і криміналістики:* зб. мат-в Міжнар. наук.-практ. конф., присвяч. 150-річ. з дня народж. Засл. проф. М. С. Бокаріуса (Харків, 18—19.04.2019). Харків, 2019. Р. 428—430.

[3] Кодекс України про адміністративні правопорушення: Закон України від 07.12.1984 р. № 8073-X (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/80731-10 (date accessed: 20.06.2020).

and personality disorders as a result of drug addiction. The subject mentally influences the victims through his consciousness and will, i.e. through the use of his mental powers (in this case — the criminal). The nature of the perception of this influence (i.e. peculiarities of mental violence reflection) depends on the psyche of the victim, its psychological properties and psychological evaluation of its negative impact is a determining factor for emotional stress of the body [1], which can continue even after the stressor ceases [2].

It should be noted that, except for ideal traces, the use of mental violence also causes the emergence of physical traces, since it always affects the psychological state of the victim (changes the attitude of man to himself, other people, society, life (loses its meaning)), and this leads to stress, physiological and mental trauma, nervous or mental illness, a sharp deterioration in physical health or even death (for example, due to suicide) [3], there are disorders of the mental state of women: symptoms of depression, anxiety, post-traumatic stress disorder (hereinafter referred to as PTSD) [4], alcohol and drug abuse are more common against this background.

Violence often leads to delay or decrease in the level of physical and mental functioning and development, neurotic reactions, various somatic disorders (obesity, sudden weight loss, peptic ulcer disease, skin diseases, allergies). Victims' behavior is characterized by anxiety, worry, typical sleep disturbances, chronic depression, aggression, loneliness, excessive compliance, preventative compliant behavior, threats or attempts to commit suicide, inability to communicate, establish relationships with others and low self-esteem, etc.

At the same time, investigators are not always able to properly assess the mental state of the interviewees and its impact on the perception, thinking, memory, behavior, and other vital functions of the victim.

In view of the above, to record such traces there is a need to appoint a psychological examination, which solution raises the following questions:

1. "Does the victim undergo changes in emotional state, individual psychological manifestations impeding his active social functioning as a person and arose as a result of the actions of the suspect (accused)?";
2. "Is the situation under investigation psycho-traumatic for the victim? If so, has the victim undergone moral and physical suffering?" [5].

[1] Психические состояния: хрестоматия/сост. Л. В. Куликов. Санкт-Петербург, 2001. P. 450—454.

[2] Ibid. P. 429.

[3] E.g., Матюшкова Т. П. Тактика допиту потерпілих-жінок від насильницьких злочинів: дис. … канд. юрид. наук. Харків, 2006. P. 17—18 ; Селье Г. Некоторые аспекты учения о стрессе//*Природа*. 1970. № 1. P. 36—37 ; Малярова В. О. Слідова картина злочинів проти моральності//*Проблеми теорії та практики судової експертизи:* матер. Міжнар. круглого столу (Луганськ, 18.05.2012). Луганськ, 2012. P. 117.

[4] Савчук О. М. Op.cit.

[5] Архів Сумського відділення Харківського НДІСЕ ім. Засл. проф. М. С. Бокаріуса Міністерства юстиції України.

The legal meaning of this type of psychological examination is to establish the occurrence of negative consequences for the victim as a result of violence by the abuser in a family. The examination is preceded by questions on changes in individual psychological manifestations and emotional state of the victim which impede his active social functioning as a person and arose as a result of the actions of the suspect (accused).

Appointment of forensic psychological examination by the pre-trial investigation body and / or court on the fact of domestic violence is motivated by the fact that victims of violence should undergo analysis on such psychological factors as individual psychological peculiarities of personality and motivational sphere, specifics of intellectual and emotionally volitional sphere, peculiarities of activities in case of this offense and other psychological factors. This will help determine the mechanisms and nature of the degree of vulnerability, obedience, suggestibility, gullibility, carelessness and frivolity, inability to protect themselves, as well as the degree of self-esteem, insecurity, dependence on the offender.

Verbal investigative (search) actions enable to record such traces: interrogation of victims, witnesses, suspects. However, during the investigation of crimes stipulated by Art. 1261 of the Criminal Code of Ukraine, investigators usually restrict themselves to a verbal description of the fact of mental violence, recording it in the corresponding interview record. In this case, the description may be formal, fragmentary, incomplete in nature, sometimes duplication of information recorded in the first interview record takes place in all subsequent ones. In addition, in practice there are cases when interview of these persons is aimed only at identifying the facts of the event. Compiling the record (in particular, of the victim) in legal terms may distort the event reliability, which circumstances are being clarified. In this case, while a psychological examination, the expert comes across a situation where the materials of the pre-trial investigation do not allow to answer the questions faced by a forensic psychological examination. From the above, it may be concluded that the main problem during this type of examination is the quality of materialized sources of information provided for research.

Meanwhile, the Register on methods of conducting forensic examinations [1] contains a long list of tools for experimental research of individual psychological characteristics of a person and his emotional state. The choice of psychodiagnostic techniques is the prerogative of the expert [2]. In the practice of

[1] Про затвердження порядку ведення Реєстру методик проведення судових експертиз: наказ Мін'юсту України від 02.10.2008 р. № 1666/5 (as amended and supplemented). URL: https://zakon3.rada.gov.ua/laws/show/z0924-08 (date accessed: 20.06.2020).

[2] Про затвердження Інструкції про призначення та проведення судових експертиз та експертних досліджень та Науково-методичних рекомендацій з питань підготовки і призначення судових експертиз та експертних досліджень: наказ Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 20.06.2020).

forensic psychological examination, each examination is conducted according to a unique procedure of experimental psychological research, due to a set of factors: expert task, his level and specifics of professional experience, individual characteristics of the examinee, previous expert versions, personal attitude of the examinee to experimental tasks, conditions of conducting research, etc.

Given the classification of research methods according to the degree of commonality and subordination (A. Vinberg, O. Shlyakhov), the following methods should be implemented in the process of forensic psychological examination:

- general scientific (dialectical, method of system analysis, formal-logical methods, observation, description, experiment);
- scientific psychological (direct observation, direct conversation, analysis of activity products, content analysis of textual information, experimental-psychological);
- special (methods in compliance with their registration codes in Register on methods of conducting forensic examinations) [1].

As a basis for an integrated study of the identity of women — victims of domestic violence — during the psychological examination, we used worded by N. Alikina methodological regulations for forensic psychological research (should use a general methodological algorithm of psychological research which is structured and reflects the logic and methodology of research; research results are outlined in detail corresponding to the classics of psychological research, research conclusions are based on generalization of the entire volume of material analyzed in the study) [2] and the concept by L. Sobchyk (who perceives a man as a unique unity of biological and social, consisting of multilevel properties and follows systemic principles of subordination).

The analysis of expert practice helped to identify general leading tendencies inherent in women (regardless of whether it is a wife who is in a destructive relationship with her husband (60%) or a mother suffering from domestic violence on the part of her son (40%)): it is an extreme sensitivity to environmental influence, high anxiety and emotional instability. The personality of a woman suffering from violence is characterized by internal conflict and contradiction, desire to apply diametrically opposed behavioral strategies: they try to combine power, high activity, egocentrism and self-centeredness with excessive friendliness, emotional inclusion, compliance with generally accepted social norms. This testifies in favor of establishing the explicit internal conflict, inadequate self-love and unrealized authoritarianism: the desire for self-realization is faced with the fear of being rejected. In

[1] Реєстр методик проведення судових експертиз/Міністерство юстиції України. URL: http://rmpse.minjust.gov.ua (date accessed: 26.08.2020).

[2] Алікіна Н. В. Про розвиток судово-психологічної експертизи//*Теорія та практика судової експертизи і криміналістики:* зб. наук.-практ. мат-в. Харків, 2005. Вип. 5. P. 481—484.

addition, the examinees are quite wary and distrustful. They accept this fact and seek to get rid of it, so they often try to hide their own mistrust and hostility behind excessive affability and friendliness. Having compared the actual and ideal "I" of women's images, we can state that they are ready to address conflict to get rid of the pressure put on them, but their inherent pessimism, insecurity, emotional dependence on others, guilt, sacrifice suppress selfish behavior. Women are burdened by their dependent and humiliated position, but conformism, focusing on generally accepted norms forces them to maintain destructive relationships. Guilt transcends the authoritarian manifestations of women inherent on a declarative level, and boosts self-blame and belief in the myth of the causes of violence against them, as if justifying the perpetrator. In attempt to try to compensate for the lack of warmth and mutual understanding with the inner circle of people, such women seek recognition from others, showing increased affection and obedience. Women differ in motivational orientation and activity, but use similar destructive behavioral strategies. Since the environment perceives a person according to his declarative image, it can be argued that women — victims of violence — use styles of interpersonal interaction contributing to the emergence and reinforcement of violent behavior of the offender (accused / suspect).

Thus, it can be concluded that factors of occurrence and reinforcement of violence related to the characteristics of a woman's personality can be considered the experience of childhood violence, economic dependence on a partner and psychological characteristics of women (passivity, subordination, insecurity, low self-esteem, feeling of guilt), the presence of intrapersonal conflict and the use of destructive behavioral strategies by her. These qualities on the one hand, are the conditions for domestic violence arising, on the other, deepen over time and lead to the development of violence.

Special attention should be drawn to old age victims: they are usually mothers who suffer from abusive sons. Current mental state of the examinee is characterized by decreased cognitive functions, emotional instability, depressed mood, chronic stress, regressive behavior, maladaptation, persistent anxiety. Anxiety of the victim may be determined, in particular, by destructive relationships with the suspect (accused), under the influence of involutional (age) changes in his personality and painful manifestations that are not the subject of forensic psychological research. In this case, it is advisable to appoint a multidisciplinary forensic psychiatric examination.

Conclusions. Some theoretical approaches and practical results are outlined, in particular, challenging ones arising in the process of forensic psychological examination of a victim of domestic violence, which will help optimize the expert activity, accumulate empirical experience in performing examinations of this subject, advance the process of expert examination of the victim in criminal proceedings under Article 1261 of the Criminal Code of Ukraine in accordance with regulations on conducting forensic examination.

References

Aldarondo, E., Mederos F. (2002). *Programs for Men Who Batter: Intervention And Prevention Strategies In A Diverse Society.* New York.

Alikina, N. V. (2005). Pro rozvytok sudovo-psykholohichnoi ekspertyzyю. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky:* zb. nauk.-prakt. mat-liv. Kharkiv. № 5. [in Ukrainian].

Arkhiv Sumskoho viddilennia Kharkivskoho naukovo-doslidnoho instytutu sudovykh ekspertyz im. Zasl. prof. M. S. Bokariusa Ministerstva yustytsii Ukrainy. [in Ukrainian].

Bandurka, A. M., Zelinskii, A. F. (1996). *Vandalizm:* monografiia. Kharkiv [in Russian].

Bova, A. A. (2004). Kryminolohiia hendera: Doslidzhennia podruzhnoho nasylstva. *Ukrainskyi sotsium*: nauk. zh. № 2 (4). URL: https://ukr-socium.org.ua/uk/archive/no-2-4-2004/kriminologija-gendera-doslidzhennja-podruzhnogo-nasilstva (data zvernennia: 20.06.2020). [in Ukrainian].

Gerasina, L. N. (2001). Sushchnost obshchego poniatiia «nasilie» v sotciologo-pravovoi, politologicheskoi i konfliktologicheskoi interpretatcii. *Problemy borotby z nasylnytskoiu zlochynnistiu v Ukraini*: zb. mat-liv nauk.-prakt. konf. Kharkiv [in Ukrainian].

Gorshkova, I. D., Shurygina, I. I. (2003). Nasilie protiv zhen kak problema sotciologicheskogo analiza. *Obshchestvo i gender*: letniaia shk. Riazan. URL: http://www.gender-cent.ryazan.ru/gorshkova.htm (data zvernennia: 20.06.2020). [in Russian].

Matiushkova, T. P. (2006). *Taktyka dopytu poterpilykh-zhinok vid nasylnytskykh zlochyniv*. (Abstract of candidates thesis: 12.00.09). Kharkiv [in Ukrainian].

Sele, G. (1970). Nekotorye aspekty ucheniia o stresse. *Priroda*. № 1 [in Russian].

Maliarova, V. O. (2012). Slidova kartyna zlochyniv proty moralnosti. *Problemy teorii ta praktyky sudovoi ekspertyzy:* mater. Mizhnar. kruhloho stolu (Luhansk, 18.05.2012). Luhansk [in Ukrainian].

Protasevich, A. A. (1999). *Problemy predmeta i sredstv raskrytiia seriinykh prestuplenii, sopriazhennykh s nasiliem.* (Abstract of doctor's thesis: 12.00.09). Voronezh. [in Russian].

Khristenko, V. E. (2001). *Psikhologiia zhertvy:* ucheb. posob. Kharkiv. [in Russian].

Yehorova, T. M., Yehorov, V. V. (2019). Dyskusiini pytannia shchodo obiekta ta predmeta sudovoi psykholohichnoi ekspertyzy. *Aktualni pytannia sudovoi ekspertyzy i kryminalistyky*: zb. mat-v Mizhnarod. nauk.-prakt. konf., prysviach. 150-rich. z dnia narodzh. Zasl. prof. M. S. Bokariusa (Kharkiv, 18—19.04.2019). Kharkiv. [in Ukrainian].

Zakhozha, V. A. (2000). Fizychne nasylstvo shchodo zhinok u simi. *Naukovi zapysky NaUKMA.* Sotsiolohichni nauky. Kyiv. T. 18 [in Ukrainian].

Kodeks Ukrainy pro administratyvni pravoporushennia: Zakon Ukrainy vid 07.12.1984 r. № 8073-Kh (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/80731-10 (data zvernennia: 20.06.2020). [in Ukrainian].

Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 r. № 2341-III (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/2341-14 (data zvernennia: 20.06.2020). [in Ukrainian].

Lanovaia, G. M. (2006). *Prinuzhdenie v sisteme form pravoprimeneniia.* (Abstract of candidates thesis: 12.00.01). Moscow. URL: http://lawtheses.com/prinuzhdenie-v-sisteme-form-pravoprimeneniya (data zvernennia: 20.06.2020). [in Russian].

Naukovo-metodychni rekomendatsii z pytan pidhotovky ta pryznachennia sudovykh ekspertyz ta ekspertnykh doslidzhen: zatv. nakazom Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.; u red. nakazu Miniustu Ukrainy vid 26.12.2012 r. № 1950/5). URL: https://zakon.rada.gov.ua/laws/show/z0001-13#n6 (data zvernennia: 20.06.2020). [in Ukrainian].

Natsionalna stratehiia u sferi prav liudyny: zatv. Ukazom Prezydenta Ukrainy vid 25.08.2015 r. № 501/2015. URL: https://zakon.rada.gov.ua/laws/show/501/2015 (data zvernennia: 20.06.2020) [in Ukrainian].

Opukhova, N. G., Maloletniaia, E. V., Zhenshchiny (2000). Zhertvy semeinogo nasilia: osobennosti obraza mira. *Psikhologiia zrelosti i stareniia.* № 4 [in Russian].

Pro vnesennia zmin do deiakykh zakonodavchykh aktiv Ukrainy u zviazku z pryiniattiam Kryminalnoho protsesualnoho kodeksu Ukrainy: Zakon Ukrainy vid 13.04.2012 r. № 4652-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/4652-17#n75 (data zvernennia: 20.06.2020) [in Ukrainian].

Pro vnesennia zmin do Kryminalnoho ta Kryminalnoho protsesualnoho kodeksiv Ukrainy z metoiu realizatsii polozhen Konventsii Rady Yevropy pro zapobihannia nasylstvu stosovno zhinok i domashnomu nasylstvu ta borotbu z tsymy yavyshchamy: Zakon Ukrainy vid 06.12.2017 r. № 2227-VIII. URL: https://zakon.rada.gov.ua/laws/show/2227-19 (data zvernennia: 20.06.2020) [in Ukrainian].

І. О. Савченко, С. Л. Бабич, Р. Ускіла

ДЕЯКІ ПИТАННЯ СУДОВОЇ ПСИХОЛОГІЧНОЇ ЕКСПЕРТИЗИ ПОТЕРПІЛИХ ВІД ДОМАШНЬОГО НАСИЛЬСТВА

(оглядова стаття)

Розглянуто основні аспекти проведення судової психологічної експертизи потерпілої особи у кримінальних провадженнях, внесених до Єдиного реєстру досудових розслідувань за ознаками кримінального правопорушення,

передбаченого ст. 126[1] Кримінального кодексу України. Приділено увагу юридичним і теоретично-методологічним підставам призначення та проведення цього виду судової психологічної експертизи. Визначено співвідношення понять «насильство», «агресія» і «примушування», розкрито зміст та основні форми насильства. Зроблено спробу узагальнити результати емпіричного досвіду проведення експертиз цього виду. Акцентовано увагу на дослідженні питання психології жінки, яка потерпає від домашнього насильства. Обґрунтовано необхідність розроблення методичних рекомендацій щодо психологічного дослідження потерпілих під час розслідування кримінальних проваджень, пов'язаних із домашнім насильством.

Ключові слова: судова психологічна експертиза, агресія, примушування, насильство, домашнє насильство, фізичне насильство, моральне насильство, психологічне насильство, емоційне насильство, сексуальне насильство, естетичне насильство, індивідуально-психологічні особливості, актуальний емоційний стан, вразливий стан, внутрішньоособистісний конфлікт, деструктивні стратегії поведінки, деструктивна токсична взаємодія.

И. О. Савченко, С. Л. Бабич, Р. Ускила

НЕКОТОРЫЕ ВОПРОСЫ СУДЕБНОЙ ПСИХОЛОГИЧЕСКОЙ ЭКСПЕРТИЗЫ ПОТЕРПЕВШИХ ОТ ДОМАШНЕГО НАСИЛИЯ

(обзорная статья)

Рассмотрены основные аспекты проведения судебной психологической экспертизы пострадавшего (пострадавшей) в криминальных производствах, внесённых в Единый реестр досудебных расследований по квалификационным признакам, предусмотренным ст. 126[1] Уголовного кодекса Украины. Уделено внимание юридическим и теоретико-методологическим основаниям назначения и проведения этого предметного вида судебной психологической экспертизы. Определено соотношение понятий «насилие», «агрессия», «принуждение», раскрыты содержание и основные формы насилия. Сделана попытка обобщить результаты эмпирического опыта проведения экспертиз этого вида. Основной акцент сделан на исследовании психологии женщины — жертвы домашнего насилия. Аргументирована необходимость в разработке методических рекомендаций относительно психологических исследований пострадавших в ходе расследований правонарушений, связанных с домашним насилием.

Ключевые слова: судебная психологическая экспертиза, агрессия, принуждение, насилие, домашнее насилие, физическое насилие, моральное насилие, психологическое насилие, эмоциональное насилие, сексуальное

насилие, эстетическое насилие, индивидуально-психологические особенности, актуальное эмоциональное состояние, уязвимое состояние, внутриличностный конфликт, деструктивные стратегии поведения, деструктивное токсичное взаимодействие.

Received by Editorial Board: 22.06.2020

Savchenko I. O., Babych S. L., Uscila R. Some issues on forensic psychological examination of victims enduring domestic violence (Review Article)//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 538—554. DOI: https://doi.org/10.32353/khrife.2.2020.43.

DOI: https://doi.org/10.32353/khrife.2.2020.44
UDC 343.98:549.091:342.951

P. M. Baranov,
Doctor of Geological Sciences, Professor, Forensic Expert at Dnipropetrovsk Research Expert Criminal Center of the Ministry of Internal Affairs of Ukraine, Dnipro, Ukraine,
ORCID: https://orcid.org/0000-0001-5335-4281,
e-mail: pn2dsbaranov@gmail.com
R. S. Kirin,
Doctor in Law, Docent, forensic expert at Dnipropetrovsk Research Expert Criminal Center of the Ministry of Internal Affairs of Ukraine, Dnipro, Ukraine,
ORCID: https://orcid.org/0000-0003-0089-4086,
e-mail: kirinrs62@gmail.com
S. V. Shevchenko,
PhD in Geological Sciences, Docent, Head of the Department of National Technical University "Dnipro Polytechnic", Dnipro, Ukraine,
ORCID: https://orcid.org/0000-0003-3994-1927,
e-mail: shevchenko.s.v@nmu.one

Legal nature of the term of *precious stones* in forensic examination: problems and ways for their resolution

The article addresses general issues of applying the regulatory adopted term "precious stones" regarding forensic examination practice in Ukraine, including in the field of subsurface resources management and gemological evaluation of jewelery. It is shown that domestic legal framework requires to introduce a separate law on gemstones circulation taking into account general principles of property valuation and consumer rights protection.

The Article Purpose is to formulate an author's contribution to the analysis of problems connected with disclosure of gemstones legal nature in the field of forensic science and the development of proposals for their possible overcoming.

The necessity in special legal regulation of activity on mining, production, use, storage of gemstones and manufactures thereof, forensic examination and control over operations with it, is defined by intensity of its circulation as well as by the character of legal objects: their rarity in nature, high cost, easy falsification, and, consequently, by increased attention from fraudsters and criminals. The current situation demands to adopt corresponding regulatory measures aimed at ensuring valuables economic use, protecting gemstone consumers from fraud, preventing the use of valuables while legalizing acquired illegally funds.

According to the authors, the article outlines three components of which legal nature of a stone is formed in forensic science: 1) the meaning content in which the term "precious stones" is used in gemological legislation; 2) criteria

© P. M. Baranov, R. S. Kirin, S. V. Shevchenko, 2020

which are the basis of gemstones classification; 3) unambiguity and clarity of definitions associated with gemstones in forensic legislation.

The term "gemstones" in forensic science has subsidiary meaning, since in this case the stone cost should possess a dominant meaning as an object of forensic gemological analysis.

Existing gemological classifications are not of modern scientific and practical interest, as the lack of a gemstone cost indicator makes them declarative in terms of forensic science.

Forensic gemological analysis should be guided by the requirements of gemological, forensic and procedural branches of legislation, and precious stones acting as its object should be considered as property (goods) which is characterized by specific signs of a physical, economic and legal nature as well as an identifier.

Keywords: gemstones, gemology, classification, forensic science, regulatory document.

Formulation of Research Problem. Natural colored stones (gemstones, semi-precious stones) in market conditions may be one of the most profitable budget-filled minerals. Some types and deposits of this stone can give a significant profit for a fairly small amount of time and money for their exploration and development [1].

Science of gemstones (hereinafter referred to as — *GS*), a set of data on gemstones and industrial stones, mostly its physical properties, chemical composition, decorative and artistic advantages of minerals and mineral aggregates used in jewelry and stone production, are now considered as gemology. The latter is closely related to mineralogy, crystal physics and mineral geology [2].

At the same time, the need for special legal regulation of extraction, production, use, storage of GS and products from it; examination and control of transactions with it due to the intensity of this trade, as well as the nature of these objects of law — their rarity in nature, high cost, ease of forgery, which requires the adoption of rule-making measures to ensure economic use of values, protection of consumers from valuables deception, prevention of the use of values in the legalization of criminally obtained funds.

Indeed, deep social changes, have been happening in Ukraine over the last few years, have led to rapid lawmaking activities, however, quantitative changes in this area do not always mean qualitative, because many laws and bylaws do not meet the requirements of legal techniques. At the same time, the presence of proper normative legal acts (hereinafter referred to as — *NLA*) is one of the

[1] Про затвердження Загальнодержавної програми розвитку мінерально-сировинної бази України на період до 2030 року: Закон України від 21.04.2011 р. № 3268-VI (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/3268-17?find=1&text (date accessed: 06.06.2020).

[2] Баранов П. Н. Геммология: диагностика, дизайн, обработка, оценка самоцветов: учеб. для студент. вузов. Днепропетровск, 2002. 208 р.

leading conditions of orderliness and stability public relations, which helps to prevent a significant number of mistakes in the implementation of the law. Problems of improving terminology are characterized to some extent by the legal sphere in general and forensic examination in particular, and their solution is an urgent issue of forensic expert activity (hereinafter referred to as — *FEA*).

Analysis of Essential Researches and Publications. Researches of various aspects of gemological legal relations by domestic scientists are quite representative. Thus, K. V. Efremova, a representative from the economic and legal industry suggested: a) to implement a passport system of precious metal products and GS, for legal implementation of which to adopt Law of Ukraine: *On the quality of products made of precious metals and gemstones;* b) to amend to the Resolution of the Cabinet of Ministers of Ukraine (hereinafter referred to as — *CMU*) *On Rules of retail trade in jewelry and other products made of precious metals, gemstones, gemstones of organogenic formation and semi-precious stones;* c) to enshrine in Law of Ukraine: *On the quality of products made of precious metals and gemstones* provisions on the labeling of products made precious metals GS: instead of a product label (tag) to implement a product passport with detailed information about the product, which indicates not only total weight but also the content of the alloy, the presence of harmful impurities, the presence of rhodium coating and other details [1].

O. M. Malichenko in Sec. 3 *Ways of improvement of administrative and legal regulation of the circulation of precious metals and gemstones in Ukraine with foreign experience* of her thesis paper [2] turned her mind (and as K. Yu. Dikhtiarenko) [3] mostly to the circulation of precious metals and test control.

Studying the same direction of administrative and legal principles of the circulation of precious metals and GS in Ukraine, V. P. Romanov, uses the term: *precious minerals* in his work [4], without disclosing it, and word combination *rational use of natural resources of precious minerals* [5] is generally wrong, because, firstly, in fact, minerals are one of the types of natural resources of national importance [6]. Secondly, the resources of

[1] Єфремова К. В. Особливості правового регулювання господарської діяльності на ринку виробів із дорогоцінних металів і дорогоцінного каміння: автореф. дис. … канд. юрид. наук. Харків, 2009. P. 7.

[2] Маліченко О. М. Адміністративно-правове регулювання сфери обігу дорогоцінних металів і дорогоцінного каміння в Україні: автореф. дис. … канд. юрид. наук. Київ, 2012. P. 14.

[3] Діхтяренко К. Ю. Фінансово-правове регулювання обігу дорогоцінних металів в Україні: автореф. дис. … канд. юрид. наук. Київ, 2019. 21 p.

[4] Романов В. П. Адміністративно-правові засади обігу дорогоцінних металів та дорогоцінного каміння в Україні: автореф. дис. … канд. юрид. наук. Київ, 2017. P. 1—4.

[5] Романов В. П. Op.cit. P. 15.

[6] Про охорону навколишнього природного середовища: Закон України від 25.06.1991 р. № 1264-XII (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/1264-12 (date accessed: 06.06.2020).

minerals and components are the volumes of minerals and components of undiscovered deposits, estimated as possible for extraction and processing at the current technical and economic level of development of deposits of this type of mineral raw materials [1]. And thirdly, neither legal lists of minerals [2], nor a national classifier [3] use such terms.

It should also be noted the role in the regulation of gemological legal relations of the State Service of Geology and Subsoil of Ukraine, which, in accordance with its tasks [4], forms a state reserve of deposits of precious metals and GS. Its legal status was analyzed in detail by the authors of this work in a previous study [5].

Finally, let us pay attention to the position of I. R Shynkarenko and O. S. Obolentseva-Krasyvska, who supporting the idea that we do not need to focus attention on the differentiation of stones by value and focus simply on their essential importance among stone materials, believe appropriate term "precious stones", as stated in the requirements of the World Confederation of precious stones, silverware, diamonds and pearls (*CIBJO*) [6].

However, the mentioned term is already used in the National legislation [7]: it means "precious stones" (precious, semi-precious, industrial and collection) — minerals and rocks of inorganic and organic origin, qualitative measures of which is due to crystal structure and physical-mechanical properties, quality of which meets the requirements on jewelry an which in quality meet the requirements of

[1] Про затвердження Класифікації запасів і ресурсів корисних копалин державного фонду надр: Постанова КМУ від 05.05.1997 р. № 432 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/432-97-%D0%BF (date accessed: 06.06.2020).

[2] Про затвердження переліків корисних копалин загальнодержавного та місцевого значення: Постанова КМУ від 12.12.1994 р. № 827 (as amended and supplemented; у ред. Постанови КМУ від 28.12.2011 р. № 1370). URL: https://zakon.rada.gov.ua/laws/show/827-94-%D0%BF (date accessed: 06.06.2020).

[3] ДК 008:2007. Національний класифікатор України. Класифікатор корисних копалин (ККК): затв. наказом Держспоживстандарту України від 12.12.2007 р. № 357 (as amended and supplemented). URL: https://zakon.rada.gov.ua/rada/show/va357609-07/sp:max100 (date accessed: 06.06.2020).

[4] Про затвердження Положення про Державну службу геології та надр України: Постанова КМУ від 30.12.2015 р. № 1174 (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/1174-2015-%D0%BF?find=1&text (date accessed: 06.06.2020).

[5] Kirin R. S., Baranov P. M., Khomenko V. L. The State Service of Geology and Subsoil of Ukraine (Geonadra) as a legal subject exercising the right of geological control//*Journal of Geology, Geography and Geoecology*. 2020. Vol. 29. № 1. P. 69—81.

[6] Шинкаренко І. Р., Оболенцева-Красивська О. С., М'ясоєдов В. В. До питання сутності гемологічної судової експертизи//*Актуальні питання судової експертизи і криміналістики:* зб. мат-в Міжнар. наук.-практ. конф., присвяч. 150-річ. з дня народж. Заслуж. проф. М. С. Бокаріуса (Харків, 18—19.04.2019). Харків, 2019. Р. 98.

[7] ДК 008:2007.

the jewelry and stone industry and which are used for the production of jewelry and artistic products for applied purposes.

Thus, despite the sufficient interest of scientists in the issues on legal support of both the circulation of GS, and its forensic examination, certain issues retain their research potential.

The Article Purpose is the formation of an author's contribution to the analysis of issues related to the disclosure of the legal nature of gemstones in forensic science and the development of proposals for their possible overcoming.

Main Content Presentation. By Law of Ukraine in force: *On forensic Examination* [1] was proposes a list of principles according to which FEA is conducted, legality, independence, objectivity and completeness of the study. In addition, it should be considered that the conduct of forensic examination is also regulated by the provisions of procedural law and numerous departmental NLA in the field of FEA.

Thus, in accordance with the Instruction of the Ministry of Internal Affairs (hereinafter referred to as — *Instruction of MIA*) [2] under the result of forensic expert proceedings consider duly executed results of the conducted researches in the form of the forensic expert conclusion, the conclusion of the forensic expert, the conclusion of expert research or the message on impossibility of conducting judicial examination (an expert research). Instead, in the conclusion the forensic expert should provide a full description of the researches, conclusions and substantiated responses. In regards to the latter, they usually correspond to an indicative list of issues to be resolved, defined by the Instruction of the Ministry of Justice of Ukraine (hereinafter referred to as — *Instruction of the MJ*) [3], namely: "Are the stones, samples of which are provided for research, precious, decorative, natural, synthetic or imitation. If yes, which exactly?": "What are the quality indicators of stone samples, provided for the research?"; "What is the origin of stone samples, given for the research?"; "From which deposit was the decorative stone, provided for the research?"; "What is the country of the amber origin, provided for the research?"; "Are the samples of stones, provided for research, subjected to refinement?; "What is the cost of the stone, provided for the

[1] Про судову експертизу: Закон України від 25.02.1994 р. № 4038-XII (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/4038-12?find=1&text (date accessed: 06.06.2020).

[2] Про затвердження Інструкції з організації проведення та оформлення експертних проваджень у підрозділах Експертної служби Міністерства внутрішніх справ України: наказ МВС України від 17.07.2017 р. № 591. URL: https://zakon.rada.gov.ua/laws/show/z1024-17 (date accessed: 06.06.2020).

[3] 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 Мін'юсту України від 08.10.1998 р. № 53/5 (as amended and supplemented; у ред. наказу Мін'юсту України від 26.12.2012 р. № 1950/5). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (date accessed: 06.06.2020).

research?"; "Do the marking data correspond to the actual product characteristics of the stone?"; "Does the quality of the stone product meet the requirements of standards, technical conditions in accordance with organoleptic parameters?".

The condition for the examination is the provision of research objects: 1) stones; 2) stone products; 3) jewelry with stone inserts. Other tasks can be set before the examination of the GS.

We pay attention that in addition to the above - mentioned term: *object of the research*, there is another concept *object of gemological examination* in the Instruction of the MJ, the meaning of which is much broader: 1) gemstones; 2) diamonds; 3) gemstones of organogenic origin; 4) semi-precious stones; 5) decorative stones; 6) product made of decorative stones; 7) jewelry with stone inserts; 8) raw materials (diamonds, amber, etc.).

Above mentioned issues differ in their purpose and content but it should be understood that only the first of them is dominant, so that provides determination of the legal nature of stones, while the rest of the answers should be considered as a subsidiary, and namely through the prism of interpretation of the legal term "gemstones".

Definitely, the answer to this question given in Art. 1 of Law of Ukraine: *On State Regulation of Extraction, Production and Use of Precious Metals and Gemstones, and Control over their Processing* (hereinafter referred to as — *Law on GS*) [1], at the meantime, the legislative definition of GS and the classification of stones into precious, semi-precious, decorative groups, covered in this Law, causes a lot of criticism and remarks among gemologists.

According to the authors [2], the full range of synthetic stones, which (in accordance with the International practice) is not GS at all, needs to be removed from the list of GS, determined in Art. 1 of Law on GS.

Due to this, we consider three components, from which, in our opinion, the legal nature of stones in forensic examination is formed: 1) the meaning in which the term: *gemstones* is used in gemological legislation; 2) criteria laid down in the classification of GS; 3) unambiguity and clarity of definitions related to GS in forensic legislation.

The meaning of the term: *gemstones*. The term first appeared in antiquity, when it was necessary to show that there are both GS and non-precious, less prestigious stones. This term still demonstrates its "magical" significance in the

[1] Про державне регулювання видобутку, виробництва і використання дорогоцінних металів і дорогоцінного каміння та контроль за операціями з ними: Закон України від 18.11.1997 р. № 637/97-В (as amended and supplemented). URL: https://zakon.rada.gov.ua/laws/show/637/97-%D0%B2%D1%80 (date accessed: 06.06.2020).

[2] Тітарінцев В. І., Вишневська Л. І. Дорогоцінне, коштовне каміння: історичні та нормативні аспекти термінології, які впливають на формування Державного фонду дорогоцінних металів і дорогоцінного каміння України//*Коштовне та декоративне каміння:* наук.-практ. журн. 2019. № 1. Р. 15—18.

world market, engaging and attracting connoisseurs and buyers. In addition, it is also a powerful element of advertising in all spheres of society: jewelry, education, medicine, and more.

At the same time, attempts by scientists, amateurs and philosophers to draw the line between precious and non-precious stones have not been successful. A similar situation accompanies the actual definition of GS, because among the latter there are those who have different interpretations, but for the most part they are unconvincing and do not give any holistic view of the stones, which are considered precious. Here are some common examples:

1) *precious stones* — minerals and subsurface rocks, that are used in jewelry and stone ornamentation to produce jewels and production (*Mining encyclopedia. V. 2 p. 254* [Hereinafter the translation from Russian and English is our — Author's notes]);
2) *semi-precious stones, or gemstones* — all this group is distinguished by one feature that unites them — a special beauty (*V. Schumann. The world of stone. V. 2. p. 6*);
3) *gemstones* — high-priced mineral, used for jewelry production (*S. I. Ozhegov. Dictionary of the Russian Language. p. 153*);
4) *precious stones* — minerals with special properties used for jewelry purposes (*Soviet Encyclopedic Dictionary. p. 410*).

In Ukrainian legislation the term: *gemstones* is determined as natural and synthetic minerals in raw materials in raw conditions and in finished state (products) [1].

So, even with a lot of definitions, the term: *gemstones* is not sufficiently definite. Due to this, it raises the question: why there is still no clear understanding of what a gemstone is. In fact, it seems that the understanding could be quite simple, for example: *gemstones are natural minerals, worth more than $ 1,000.* However, the difficulty lies not in the definition itself, but primarily in the approach to the valuation of stones and its relationship with the material capabilities of society and each individual.

Evaluation of stones — it is not only the task, but this is the fixing of their value. The world market of GS is built so that from the place of extraction to the seller of faceted stone there are a number of intermediaries. Therefore, the cost of stones will depend, in particular, on how close or far the buyer is from production, i.e. the cost of stones can be said after the first sale.

In the Code of Federal Regulations of the USA, the term: *precious stones* is used in the following meaning: it is a substance that has the qualities of precious, market-recognized beauty, rarity and value, and contains diamond, corundum (including rubies and sapphires), beryl (including emeralds and aquamarines), chrysoberyl, spinel, topaz, zircon, tourmaline, garnet, crystalline

[1] Про державне регулювання видобутку ... . URL: https://zakon.rada.gov.ua/laws/show/637/97-%D0%B2%D1%80 (date accessed: 06.06.2020).

and cryptocrystalline quartz, olivine peridot, tanzanite, jadeite, jade, spodumene, feldspar, turquoise, lazurite and opal [1].

The terms: *gem* and *precious* are related, connected to the trade and money, and the term: *precious* most consistent with the term: *gem*, which refers to jewelry and means high quality jewelry. High quality jewelry stones are expensive, so the terms: *precious* and *gem* can be considered synonymous, from the perspective of market but etymologically they are not synonymous, because the first relates to value, the second — quality [2].

So, world civilization, financially dividing countries into those that have a high level of economic development and low, projects this differentiation on individual consumers — for someone $ 1,000 is big money, and for others is a trifle.

The second question: How is the definition of the term: *gemstones* useful for forensic examination and court procedure? Consider the situation on the example of simple chains: *the subject of the offense → its value → liability*.

In the current Ukrainian legislation, theft is considered a crime, i.e., encroachment on the right not only of individual but on the interests of society as a whole. In addition, the theft is a medium-gravity crime, punishment for which is up to 3 years of imprisonment. At the same time, there is the term: *petty theft of another's property*, the penalty for which is much milder. The theft is not so much different from petty theft — limit UAH 210, 20 which is calculated as 1/10 of a living wage for working people. There is no intermediate stage between an administrative offense and the medium-gravity crime. For theft of property in the amount of 0.1 to 50 living wages — from UAH 210,20 to 105,10 thousand data data 30.06.2020.

Thus, stones, determined as precious and worth up to UAH 210 may only be the subject of an administrative offense. At the same time, if the stones are not precious, but costs more than UAH 211, it may appear as the subject of a criminal offense or crime.

So, the term: *gemstones* has a subsidiary value in forensic examination, so far as, dominant meaning in this concept should belong to the cost of stones the object of gemological examination.

Classification of gemstones. Today there are a few classifications of precious and semi-precious stones, notable for their purpose.

Technological classification, the key factor of which is the division of all set of natural, jewelry, and industrial materials into types, subtypes, groups according to leading technological processing, unique for each taxonometric unit. So far as the technology is due to the physical and mechanical, and decorative qualities of stones, so these are the qualities and properties that are defined in the meaning.

[1] CFR. Electronic Code of Federal Regulations (e-CFR). § 1027.100 Definitions. (e) Preciousstone. URL: https://www.law.cornell.edu/cfr/text/31/1027.100#e (date accessed: 06.06.2020).

[2] Тіатарінцев В. І., Вишневська Л. І. Op.cit.

It is natural that for the various productions and ways of processing, different physical and artistically decorative material properties: hardness, transparency, color, cleavage, pattern, etc., will be paramount.

Genetic classification of gemstones and industrial stones, which is based on their origin. This classification has lots of controversial points. Thus, for example, it is generally believed that diamond has a magnetic origin, however, in accordance with thermodynamic calculation and synthesis of the diamond, it is formed at the stress pressure of free carbon and relatively low temperatures of 800—900 °C.

Gemological classification — the first classification of GS, made in 1896 by M. Bower (later, O. E. Fersman, a Russian Academician expanded and completed it). It takes into account the ranking of GS by decreasing value; it had been used in the USSR for many years.

The classification by V. I. Sobolevskyi distinguishes 3 groups of stones (precious and coloured). However, this variant of classification has some disadvantages, as many commonly-accepted GS are neglected, in such a case, while others cited in detail the varieties. In addition, one class includes stones, which differ significantly in value (amethyst and noble opal, euclase and diamond, runite and jade).

The classification by E. Ya. Kievlenko, in 1973 proposed as an authorial, as well as the one that is based on the classification by Fersman. This one takes into account the market value of coloured stones. There are three groups of stones: jewelry (gemstones), jewelry and manufacturing.

Common (simple) classification — stones divided into precious, semi-precious and gems.

Attempts to classify GS were particularly important in Soviet times. The main task is to make the first group's stones inviolable to citizens, i.e. to consider them the property of the state. Continuing this tradition, many countries of the former USSR still use this approach.

In accordance with Law on GS, the gemstones include 56 stones, the semi-precious stones — 34 stones:

1) *gemstones* — natural and synthetic minerals in raw materials, in a raw and in the processed state (products):
    a) the first row — diamond, ruby, blue sapphire, emerald, alexandrite;
    b) the second row — demantoid, euclas, jadeite (imperial), pink and yellow sapphires, noble black opal, noble spinel;
    c) the third order — aquamarine, beryl, cordierite, noble white and fiery opal, tanzanite, pink topaz, tourmaline, chrysoberyl, chrysolite, tsavorite, zircon, spinel;
    d) the fourth order — adularia, axinite, almandine, amethyst, hessonite, grossular, danburite, dioptase, smoky quartz, pink quartz, clinohumite, rock crystal, kunzite, morion, pyrope, rhodolite, scapolite, spessartine,

spodumene, blue topaz, phenakite, ferro orthoclase, chrysoprase, chromium diopside, citrine;

2) *gemstones of organogenic formation* — pearls and amber in raw, in a raw and in the processed state;
3) *semi-precious stones* — natural and synthetic minerals, organogenic formation, rocks in raw materials, in a raw and in the processed state (products):
   a) the first row — turquoise, jadeite, lazurite, malachite, moldavite, nephrite, tiger eye and eye cat, gaulite, chrysocolla, zoisite, charoite;
   b) the second row — agate, amazonite, jet, hematite, petrified wood, jaspilite, aegirine, epidote, cacholong, colored quartzite, colored flint, marble onyx, opal, pegmatite, pyrophyllite, rhodonite, carnelian, serpentinite, colored scarns, sodalite, chalcedony, feldspars, jasper.

The above-given classifications, the basis of which consists of relative cost, actually are the list of decorative minerals and rocks. Experts know that stones from the semi-precious group of high quality can cost much more than representatives from the GS group. Thus, such conditional classifications of division into value groups raise more questions than answers.

Most current gemologists believe that these classifications are incompleted, so far as the same mineral is included in various groups of stones at the same time: opal (noble and ordinary), chalcedony (chrysoprase), zoisite (tanzanite). It is thought that the issue on the formation of a new stone classification (precious and decorative), according to the global experience, has already formed and is a sufficiently topical [1].

Pay attention to the example again. If our goal is to make GS classification by value, then in the first column of the table should be the main criterion — cost, and in the second — object (stone). When we create the price schedule, and put stones to the second column, it will include variety stones: diamond, hairy quartz, spinel, moss agate, and others, i.e. this classification will bring more harm than benefits. There is an option to make such a table for each stone and distinguish gemstones, semi-precious varieties, but it will be not classification but a price list.

Definitely, it was proved, that in many countries such classifications do not exist. The market itself has divided stones into two groups: 1) rough and polished (monopolized and control the market); 2) colored stones, i.e. the rest (chaotic and unmanageable market). They themselves create a market with prices and requirements. This became a model for the separate training of gemologists on colored stones and diamonds (in particular, in the Gemological Institute of America — GIA).

[1] Гелета О. Л., Горобчишин О. В., Кічняєв А. М., Сурова В. М., Нестеровський В. А., Вижва С. А. Основні підходи до запровадження класифікації коштовного і декоративного каміння, гармонізованої відповідно до світового досвіду//*Коштовне та декоративне каміння:* наук.-практ. журн. 2017. № 4. P. 17.

Therefore, the considered gemological classifications have no modern scientific and practical interest, as the lack of an indicator of the value of stones makes them faceless, declarative and useless, i.e. classifications for the sake of classification.

GS legislation from the forensic examination point of view. The term: *gemstones* and their classification in the Ukrainian legislation, which are above mentioned, do not have clear quantitative characteristics (meanings) and definitions. Thus, it is no wonder that in the Law on GS the latter given in the form of mineralogical names and they should be determined by the mineralogical properties.

The mentioned Law also does not contain provisions on state standards, according to which stones could be defined in a certain category of GS. Instead, for precious metals (gold, platinum, silver) such standards (samples) were developed and given.

At the same time for GS by the Resolution of the Cabinet of the Ministers of Ukraine (CMU) dated on 16.05.2001, № 505 was amended to the Resolution of CMU dated on 06.09.2000, № 1396: *On approval of the rules of accreditation of gemstones, precious stones of organogenic formation, semi-precious stones,* according to which their accreditation was redirected to business entities.

After all, the State removed itself from the development of standards, price schedules, and almost deregulated economic activity with the GS. In this regard, not only the of the Law remains unclear, but also the only state policy of extraction, production, use and storage of GS, the development and implementation of which belongs to the management functions of the executive authorities of Ukraine in this area. This puts both the mining industry and the law enforcement and judicial systems at a dead end.

An Example. A subsoil user, developing a deposit of minerals, extracts one precious or semi-precious stone. He can use it according to its intended purpose (distribute it, make products from it), or store it in dumps (most often stones are used as construction ballast stone). Both, in the first and in the second cases, the subsoil user breaks Law. In the first case, he extracts and uses precious or semi-precious stone illegally, in the second one, he degrades the quality of minerals in the process of their extraction, violates the requirement for rational extraction and use of mineral reserves and their components. However, it is known from experience that further proceedings in the case before the trial or trial in the court of first instance will not go, because there are no criteria (state standards) to determine whether this stone belongs to the precious or semi-precious stone.

The Ministry of Finance of Ukraine and subordinate to it structures in the gemological sphere are satisfied with the current exists legal and regulatory framework. So, in particular, the Ukrainian decorative stones with the national trade marks (granite, labradorite, etc.) are successfully sold on the world market. At the same time, the similar legal regime is not totally approved with the

principles of the forensic examination, which are followed by entities of FEA, consequently the issues on harmonization of gemological, forensic expert and procedural fields of legislation are become more topical.

For this one, there is a common sense and, among other things, the relevant Resolution of the CMU dated on 10.09.2003, № 1440: *On approvement of the National standard № 1 "General principles of an estimation of property and property rights",* and the most important is the object (stones) with its name and market cost. Such logic and such result will completely satisfy the court, the parties and other participants of the corresponding proceedings.

Simultaneously, the main task of the EU Standards in the field of gemology and jewelry is to protect the rights of consumers regarding obtaining complete and truthful information about the jewelry they buy. This is a priority of both the International Standard *ISO* 18323:2015 *(E) Jewellery — Consumer confidence in the diamond industry*, and the standards *CIBJO, IDC, SCAN. D. N.* and EU policy in this area. That policy was chosen as a way of being closer to the EU in Law of Ukraine: *On Technical Regulations and Conformity Assessment* dated on 15.01.2015, № 124-VIII, in Art. 9 which defines the objectives of technical regulations — protection of life and health of human, animals and plants, environmental and natural resources protection, ensuring energy efficiency, property protection, ensuring national security and preventing business practices that mislead the consumer (user) [1].

Numerous materials of the Internet show that all supporters of consumer protection are inclined to one thing it is that the real threat to the market is not in the presence of synthetic, noble stones, imitations of artificial substitutes for GS, but in failure to provide consumers with truthful information about jewelry. Thus, the issue on adaptation of the National standards to EU standards is precisely in the implementation of requirements for consumer protection [2].

Taking into account the policy of use of the EU standards in the field of gemology and jewelry exclusively on a voluntary basis, by creating a zero level of tolerance for fraudsters, can be introduced the course of action set by *CIBJO* — nonviolent coercion, i.e. creating conditions for fraudsters unprofitable or creating significant obstacles for them in doing business. Moreover, implementation of the National Standard *ISO* 18323:2015 *(E) Jewellery — Consumer confidence in the diamond industry* in the status of the National Standard will promote the protection rights of consumers according to the EU Standards [3].

---

[1] Татарінцев В. І., Вишневська Л. І., Ємельянов І. О., Зубарев С. М. Щодо перегляду державних стандартів України у сфері гемології та ювелірної справи// *Коштовне та декоративне каміння:* наук.-практ. журн. 2016. № 4. P. 35.

[2] Татарінцев В. І., Вишневська Л. І., Ємельянов І. О., Зубарев С. М. Op.cit. P. 36.

[3] Ibid. P. 37.

It is natural for gemological legislation necessary to have the following main objectives, such as [1]: 1) state support of the internal market, state assistance in the process of integration into the world market; 2) protection against the export of cultural values, which are GS; 3) implementation of state control and supervision over the use and protection of subsoil areas containing GS; 4) creating a favorable tax and credit climate for the activities of GS market participants.

Conclusions. The term: *gemstones* and its classification in the Ukrainian legislation have no clear, specific characteristics (values, indicators) and definitions, which do not allow to develop standards, and so, legally to define compliance criteria of stones from the category "precious".

Based on the current situation, in the forensic gemological examination it is necessary to: make appropriate changes to the basic gemological law on the classification of gemstones; adopt NLA at the level of and/or subjects of FEA, specifying the legal regime of gemstones in forensic expert relations.

Forensic gemological examination should be guided by the requirements of the gemological, forensic and procedural branches of legislation, and gemstones, that are its object, should be considered as property (good), which are characterized by specific features of physical, economic and legal nature, as well as identification name.

References

CFR. Electronic Code of Federal Regulations (e-CFR). § 1027.100 Definitions. (e) Preciousstone. URL: https://www.law.cornell.edu/cfr/text/31/1027.100#e (data zvernennia: 06.06.2020).

Kirin, R. S., Baranov, P. M., Khomenko, V. L. (2020). The State Service of Geology and Subsoil of Ukraine (Geonadra) as a legal subject exercising the right of geological control. *Journal of Geology, Geography and Geoecology*. Vol. 29. № 1.

Baranov, P. N. (2002). *Gemmologiia: diagnostika, dizain, obrabotka, otcenka samotcvetov:* ucheb. dlia stud. vuzov. Dnepr [in Russian].

Baranov, P. N., Shevchenko, S. V., Goncharenko, V. A. (2002). Pravovoi rezhim dragotcennykh kamnei i iuvelirnykh izdelii v Ukraine. *Sbornik nauchnykh trudov NGU.* T. 1. № 15 [in Russian].

Heleta, O. L., Horobchyshyn, O. V., Kichniaiev, A. M., Surova, V. M., Nesterovskyi, V. A., Vyzhva, S. A. (2017). Osnovni pidkhody do zaprovadzhennia klasyfikatsii koshtovnoho i dekoratyvnoho kaminnia, harmonizovanoi vidpovidno do svitovoho dosvidu. Koshtovne ta dekoratyvne kaminnia: nauk.-prakt. zhurn. № 4 [in Ukrainian].

Dikhtiarenko, K. Yu. (2019). *Finansovo-pravove rehuliuvannia obihu dorohotsinnykh metaliv v Ukraini*. (Abstract of candidates thesis). Kyiv [in Ukrainian].

DK 008:2007. *Natsionalnyi klasyfikator Ukrainy. Klasyfikator korysnykh kopalyn (KKK):* zatv. nakazom Derzhspozhyvstandartu Ukrainy vid 12.12.2007 r. № 357 (zi zmin.

[1] Баранов П. Н., Шевченко С. В., Гончаренко В. А. Правовой режим драгоценных камней и ювелирных изделий в Украине//*Сборник научных трудов НГУ*. 2002. Т. 1. № 15. P. 220—225.

ta dopov.). URL: https://zakon.rada.gov.ua/rada/show/va357609-07/sp:max100 (data zvernennia: 06.06.2020) [in Ukrainian].

Yefremova, K. V. (2009). *Osoblyvosti pravovoho rehuliuvannia hospodarskoi diialnosti na rynku vyrobiv iz dorohotsinnykh metaliv i dorohotsinnoho kaminnia.* (Abstract of candidates thesis). Kharkiv [in Ukrainian].

Malichenko, O. M. (2012). *Administratyvno-pravove rehuliuvannia sfery obihu dorohotsinnykh metaliv i dorohotsinnoho kaminnia v Ukraini.* (Abstract of candidates thesis). Kyiv [in Ukrainian].

Pro derzhavne rehuliuvannia vydobutku, vyrobnytstva i vykorystannia dorohotsinnykh metaliv i dorohotsinnoho kaminnia ta kontrol za operatsiiamy z nymy: Zakon Ukrainy vid 18.11.1997 r. № 637/97-VR (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/637/97-%D0%B2%D1%80 (data zvernennia: 06.06.2020) [in Ukrainian].

Pro zatverdzhennia Zahalnoderzhavnoi prohramy rozvytku mineralno-syrovynnoi bazy Ukrainy na period do 2030 roku: Zakon Ukrainy vid 21.04.2011 r. № 3268-VI (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/3268-17?find=1&text (data zvernennia: 06.06.2020) [in Ukrainian].

Pro zatverdzhennia Instruktsii z orhanizatsii provedennia ta oformlennia ekspertnykh provadzhen u pidrozdilakh Ekspertnoi sluzhby Ministerstva vnutrishnikh sprav Ukrainy: nakaz MVS Ukrainy vid 17.07.2017 r. № 591. URL: https://zakon.rada.gov.ua/laws/show/z1024-17 (data zvernennia: 06.06.2020) [in Ukrainian].

Pro zatverdzhennia Instruktsii pro pryznachennia ta provedennia sudovykh ekspertyz ta ekspertnykh doslidzhen ta Naukovo-metodychnykh rekomendatsii z pytan pidhotovky ta pryznachennia sudovykh ekspertyz ta ekspertnykh doslidzhen: nakaz Miniustu Ukrainy vid 08.10.1998 r. № 53/5 (zi zmin. ta dopov.; u red. nakazu Miniustu Ukrainy vid 26.12.2012 r. № 1950/5). URL: https://zakon.rada.gov.ua/laws/show/z0705-98 (data zvernennia: 06.06.2020) [in Ukrainian].

Pro zatverdzhennia Klasyfikatsii zapasiv i resursiv korysnykh kopalyn derzhavnoho fondu nadr: Postanova KMU vid 05.05.1997 r. № 432 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/432-97-%D0%BF (data zvernennia: 06.06.2020) [in Ukrainian].

Pro zatverdzhennia perelikiv korysnykh kopalyn zahalnoderzhavnoho ta mistsevoho znachennia: Postanova KMU vid 12.12.1994 r. № 827 (zi zmin. ta dopov.; u red. Postanovy KMU vid 28.12.2011 r. № 1370). URL: https://zakon.rada.gov.ua/laws/show/827-94-%D0%BF (data zvernennia: 06.06.2020) [in Ukrainian].

Pro zatverdzhennia Polozhennia pro Derzhavnu sluzhbu heolohii ta nadr Ukrainy: Postanova KMU vid 30.12.2015 r. № 1174 (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1174-2015-%D0%BF?find=1&text (data zvernennia: 06.06.2020) [in Ukrainian].

Pro okhoronu navkolyshnoho pryrodnoho seredovyshcha: Zakon Ukrainy vid 25.06.1991 r. № 1264-XII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/1264-12 (data zvernennia: 06.06.2020) [in Ukrainian].

Pro sudovu ekspertyzu: Zakon Ukrainy vid 25.02.1994 r. № 4038-XII (zi zmin. ta dopov.). URL: https://zakon.rada.gov.ua/laws/show/4038-12?find=1&text (data zvernennia: 06.06.2020) [in Ukrainian].

Romanov, V. P. (2017). *Administratyvno-pravovi zasady obihu dorohotsinnykh metaliv ta dorohotsinnoho kaminnia v Ukraini*. (Abstract of candidates thesis). Kyiv [in Ukrainian].

Tatarintsev, V. I., Vyshnevska, L. I. (2019). Dorohotsinne, koshtovne kaminnia: istorychni ta normatyvni aspekty terminolohii, yaki vplyvaiut na formuvannia Derzhavnoho fondu dorohotsinnykh metaliv i dorohotsinnoho kaminnia Ukrainy. *Koshtovne ta dekoratyvne kaminnia*: nauk.-prakt. zhurn. № 1 [in Ukrainian].

Tatarintsev, V. I., Vyshnevska, L. I., Yemelianov, I. O., Zubarev, S. M. (2016). Shchodo perehliadu derzhavnykh standartiv Ukrainy u sferi hemolohii ta yuvelirnoi spravy. *Koshtovne ta dekoratyvne kaminnia:* nauk.-prakt. zhurn. № 4 [in Ukrainian].

Shynkarenko, I. R., Obolentseva-Krasyvska, O. S., Miasoiedov, V. V. (2019). Do pytannia sutnosti hemolohichnoi sudovoi ekspertyzy. *Aktualni pytannia sudovoi ekspertyzy i kryminalistyky:* zb. mat-v Mizhnar. nauk.-prakt. konf., prysviach. 150-rich. z dnia narodzh. Zasluzh. prof. M. S. Bokariusa (Kharkiv, 18—19.04.2019). Kharkiv [in Ukrainian].

П. М. Баранов, Р. С. Кірін, С. В. Шевченко

ЮРИДИЧНА ПРИРОДА ТЕРМІНА «ДОРОГОЦІННЕ КАМІННЯ» У СУДОВІЙ ЕКСПЕРТИЗІ: ПРОБЛЕМИ ТА ШЛЯХИ ЇХ ВИРІШЕННЯ

Розглянуто загальні питання застосування нормативно визначеного терміна «дорогоцінне каміння» стосовно практики судової експертизи в Україні (зокрема, у сфері надрокористування та гемологічного оцінювання ювелірних виробів). Показано, що вітчизняне правове поле потребує окремого закону щодо обігу дорогоцінного каміння з урахуванням загальних засад оцінювання майна й захисту прав споживачів.

Метою цієї роботи є формування авторського внеску в аналіз проблем, пов'язаних із розкриттям юридичної природи дорогоцінного каміння у судовій експертизі, та розроблення пропозицій з їх можливого подолання.

Потребу в спеціальному правовому регламентуванні діяльності з видобутку, виробництва, використання, зберігання дорогоцінного каміння і виробів із нього, експертизи й контролю за операціями з ним зумовлено інтенсивністю цього обігу, а також характером цих об'єктів права — їх рідкістю в природі, високою вартістю, легкістю підроблення, а отже, підвищеною увагою з боку різного роду шахраїв і злочинців. Ситуація, що нині склалася, вимагає прийняття нормотворчих заходів, спрямованих на забезпечення господарського використання цінностей, захист споживачів дорогоцінних виробів від обману, запобігання використанню цінностей у легалізації нажитих злочинним шляхом коштів.

Досліджено три складові, з яких, на думку авторів, формується юридична природа каміння в судовій експертизі: 1) значення, у якому в гемологічному законодавстві вживають термін «дорогоцінне каміння»; 2) критерії, покладені в основу класифікацій дорогоцінного каміння; 3) однозначність і чіткість визначень, пов'язаних із дорогоцінним камінням у судово-експертному законодавстві.

Термін «дорогоцінне каміння» у судовій експертизі має субсидіарне значення, оскільки домінантне значення у цьому разі має належати вартості каміння як об'єкта гемологічної експертизи.

Гемологічні класифікації, що нині існують, не мають сучасного наукового та практичного інтересу, оскільки відсутність показника вартості каміння робить їх декларативними з точки зору судової експертизи.

Судова гемологічна експертиза має керуватися приписами гемологічної, судово-експертної та процесуальної галузей законодавства, а дорогоцінне каміння, що є його об'єктом, слід розглядати як майно (товар), для якого характерні специфічні ознаки фізичного, економічного та юридичного характеру, а також ідентифікаційна назва.

Ключові слова: дорогоцінне каміння, гемологія, класифікація, судова експертиза, нормативний документ.

П. Н. Баранов, Р. С. Кирин, С. В. Шевченко

ЮРИДИЧЕСКАЯ ПРИРОДА ТЕРМИНА «ДРАГОЦЕННЫЕ КАМНИ» В СУДЕБНОЙ ЭКСПЕРТИЗЕ: ПРОБЛЕМЫ И ПУТИ ИХ РЕШЕНИЯ

Рассмотрены общие вопросы применения нормативно закреплённого термина «драгоценные камни» относительно практики судебной экспертизы в Украине, в том числе в сфере недропользования и геммологической оценки ювелирных изделий. Показано, что отечественное правовое поле требует отдельного закона об обороте драгоценных камней с учётом общих принципов оценивания имущества и защиты прав потребителей.

Целью данной работы является формирование авторского вклада в анализ проблем, связанных с раскрытием юридической природы драгоценных камней в судебной экспертизе, и разработка предложений для их возможного преодоления.

Потребность в специальном правовом регламентировании деятельности по добыче, производству, использованию, хранению драгоценных камней и изделий из них, экспертизы и контроля за операциями с ними определяется интенсивностью этого оборота, а также характером этих объектов права — их редкостью в природе, высокой стоимостью, лёгкостью подделывания, а следовательно, повышенным вниманием со стороны разного рода мошенников и преступников. Сложившаяся в настоящее время ситуация требует принятия нормативных мер, направленных на обеспечение хозяйственного использования ценностей, защиту потребителей драгоценных изделий от обмана, предотвращение использования ценностей в легализации нажитых преступным путём средств.

Исследованы три составляющие, из которых, по мнению авторов, формируется юридическая природа камней в судебной экспертизе: 1) значение, в котором термин «драгоценные камни» употреблён в геммологическом законодательстве; 2) критерии, положенные в основу классификаций драгоценных камней; 3) однозначность и чёткость определений, связанных с драгоценными камнями в судебно-экспертном законодательстве.

Термин «драгоценные камни» в судебной экспертизе имеет субсидиарное значение, поскольку доминирующее значение в данном случае должно принадлежать стоимости камня как объекта геммологической экспертизы.

Существующие геммологические классификации не имеют современного научного и практического интереса, поскольку отсутствие показателя стоимости камня делает их декларативными с точки зрения судебной экспертизы.

Судебная геммологическая экспертиза должна руководствоваться предписаниями геммологической, судебно-экспертной и процессуальной отраслей законодательства, а драгоценные камни, выступающие его объектом, следует рассматривать как имущество (товар), которому присущи специфические признаки физического, экономического и юридического характера, а также идентификационное название.

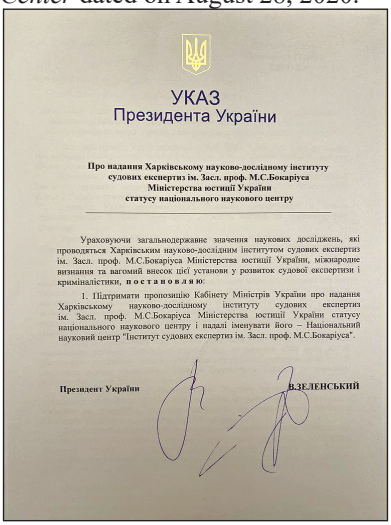
Ключевые слова: драгоценные камни, геммология, классификация, судебная экспертиза, нормативный документ.

Received by Editorial Board: 20.08.2020

Baranov P. M., Kirin R. S., Shevchenko S. V. Legal nature of the term of precious stones in forensic examination: problems and ways for their resolution//*Theory and Practice of Forensic Science and Criminalis*tics: Collection of Scientific Papers/Editorial Board: O. M. Kliuiev, V. Yu. Shepitko and others. Kharkiv: *Pravo* Publishing House, 2020. 22nd Issue, p. 555—571. DOI: https://doi.org/10.32353/khrife.2.2020.44.

KhRIFE has obtained the status of National Scientific Center

According to the application of the Ministry of Justice of Ukraine and proposal of the Cabinet of Ministers of Ukraine, the President of Ukraine signed the Decree № 366/200: *On granting Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations of the Ministry of Justice of Ukraine the status of National Scientific Center* dated on August 28, 2020.



УКАЗ
Президента України

Про надання Харківському науково-дослідному інституту судових експертиз ім. Засл. проф. М.С.Бокаріуса Міністерства юстиції України статусу національного наукового центру

Ураховуючи загальнодержавне значення наукових досліджень, які проводяться Харківським науково-дослідним інститутом судових експертиз ім. Засл. проф. М.С.Бокаріуса Міністерства юстиції України, міжнародне визнання та вагомий внесок цієї установи у розвиток судової експертизи і криміналістики, **п о с т а н о в л я ю**:

1. Підтримати пропозицію Кабінету Міністрів України про надання Харківському науково-дослідному інституту судових експертиз ім. Засл. проф. М.С.Бокаріуса Міністерства юстиції України статусу національного наукового центру і надалі іменувати його – Національний науковий центр "Інститут судових експертиз ім. Засл. проф. М.С.Бокаріуса".

Президент України **В.ЗЕЛЕНСЬКИЙ**

National Scientific Center “Hon. Prof. M. S. Bokarius Forensic Science Institute” is one of the oldest specialized forensic science institutions of Ukraine where multidisciplinary researches of national interest are conducted being recognized worldwide.

The result of researches are fundamental developments in the field of forensic expertology and methodology of forensic researches that are particularly relevant for Ukraine and worldwide.

Over the period of its operation, National Scientific Center “Hon. Prof. M. S. Bokarius Forensic Science Institute” has become a leading forensic science institution of the state. Its scientific potential from the time of its establishment and up to the present day has been proved by the ability of the Center to tackle the most challenging issues relating to forensic support in Ukraine.

Thanks to its continuous development, intensive research work, qualitative forensic activity and fruitful international cooperation, the Institute reaches new

heights annually. The Decree of the President of Ukraine on acquiring new status is one more step in the development of the Institution, it has inspired the Institute staff to promote quality and impartiality support of forensic justice in Ukraine. Management and staff of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" are proud to have this status, grateful for recognition, support, and will continue to hold this title with honor!

Information was prepared by ***Kateryna Sylenok****,*
Researcher at NSC "Hon. Prof. M. S. Bokarius FSI"

Meeting of the Regional Academic Coordination Council

On July 20, 2020, the first meeting of the Regional Academic Coordination Council was held, chaired by ***Oleksiy Kucher***, the Head of Kharkiv Regional State Administration.

Regional Academic Coordination Council is established with the purpose to broaden scientific potential of Kharkiv region to address relevant problems of scientific and technological development of the country.

The meeting was opened by ***Oleksiy Kucher***, the Chairman of Kharkiv Regional State Administration.

Heads of leading institutions of academic and applied science, universities and high-tech industrial enterprises participated in the meeting, including ***Volodymyr Semynozhenko***, Chairman of the North-East Scientific Center of National Academy of Science of Ukraine and Ministry of Education and Science of Ukraine, Academician of NAS of Ukraine; ***Mykola Shulha***, General Director of National Science Center Kharkov Institute of Physics and Technology, Academician of NAS of Ukraine; ***Vil Bakirov***, Dean of V. N. Karazin Kharkiv National University, Academician of the NAS of Ukraine; ***Sviatoslav Baliuk***, Director of National Scientific Center "Institute for Soil Science and Agrochemistry Research named after O.N. Sokolovsky", Academician of NAS of Ukraine, ***Mykola Kyzym***, Director of Research Center for Industrial Problems of Development of NAS of Ukraine, a corresponding member of NAS of Ukraine.

While operation of the Regional Academic Coordination Council, priority directions of its activity as to implementation of scientific, scientific and technology policy in Kharkiv region for 2020-2022 have been discussed.

The staff of Regional Academic Coordination Council comprises of noted scientists and higher education institutions of Kharkiv region working at the following departments: development of information and communication technologies, problems of environmental security, energy security and energy efficiency, food security, instrument engineering, mechanical engineering, general challenges in sustainable development, advancement of educational capacity, development of pharmaceutical and related industries, medical and biological problems.

Oleksandr Kliuiev, Director of NSC "Hon. Prof. M. S. Bokarius FSI" who works at the Department of Legal Support for Innovative Development of the Regional Academic Coordination Council, represented Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations (currently, National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute").

Volodymyr Semynozhenko, Chairman of the North-East Scientific Center of National Academy of Science of Ukraine, Deputy Chairman of the Regional Academic Coordination Council delivered a report on the main directions of work at Regional Academic Coordination Council.

Anzhelika Krutova, secretary of the Regional Academic Coordination Council, informed about the rules of operation and organizational structure of the council. During the meeting, the audience listened to reports and speeches of other participants of the meeting.

In accordance with the results of Regional Academic Coordination Council meeting, the following has been approved:

1. Priority directions of the Organization activity as to implementation of scientific, scientific and technology policy in Kharkiv region for 2020—2022.
2. Organizational structure (departments and their heads).
3. Regulations on the meeting work.

The activities of Regional Academic Coordination Council will help to address urgent tasks in priority avenues: formation of an effective regulatory framework in the field of scientific, technological and educational activities; initiation of a network of technology transfer institutions; creation of programs to support scientific, technological and industrial parks in the Kharkiv region, etc.

Information was prepared by ***Ella Simakova-Yefremian****,*
Deputy Director for Academic Affairs, Doctor of Law, Senior Researcher
at NSC "Hon. Prof. M. S. Bokarius FSI"

Webinar: *Modern forensic veterinary examination of animals affected by abuse*

Forensic veterinary examination is a new area of forensic activity that should undergo an intense development. It is highly important for modern society to highlight possibilities of forensic veterinary examination of animals affected by abuse.

With this purpose, the State Institution: *Scientific and Methodological Center for Higher and Professional Higher Education* of the Ministry of Education and Science of Ukraine held a webinar: *Modern forensic veterinary examination of animals affected by abuse*.

Ivan Yatsenko: a moderator of the event (Doctor of Veterinary Medicine, Professor, Academician of the National Academy of Higher Education Sciences

of Ukraine, Leading Researcher of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Master of Laws, Head of the Bureau of Forensic Veterinary Examinations, Head of the Department of Forensic Veterinary Examinations and Forensic Veterinary Medicine at Kharkiv State Zooveterinary Academy).

In the course of the webinar, the following points were considered: possibilities of forensic veterinary examination as a new type of forensic examinations; significance of achievements of forensic veterinary examination of animals affected by abuse for modern society; predictions for improving the structure and content of Art. 299 of the Criminal Code of Ukraine and Art. 89 of the Code of Ukraine on Administrative Offenses in terms of the latest legal and veterinary researches.

The necessity in conducting forensic veterinary examination is conditioned by the growing number of criminal proceedings and legal cases related to animal cruelty, violation of quarantine conditions, purchase and sale of animals, their misuse for breeding and other purposes, poaching, etc. Organization of such events affects positively the development of forensic science in Ukraine and enriches research opportunities.

The information was prepared by ***Ivan Yatsenko****,*
Doctor of Veterinary Medicine, Professor, Leading Researcher
at NSC "Hon. Prof. M. S. Bokarius FSI"

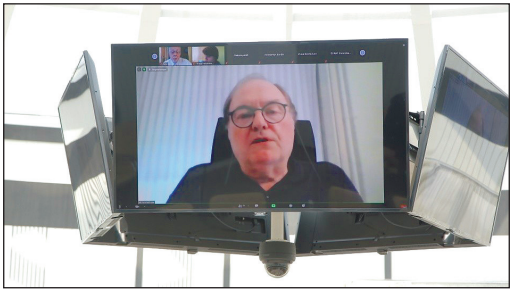
Rome Statute of the International Criminal Court: Problems of Implementation into the National Legislation of Ukraine

On September 25, 2020, the panel discussion: *Rome Statute of the International Criminal Court: Problems of Implementation and Harmonization with National Legislation of Ukraine* was held at the educational and library campus of Yaroslav Mudryi National Law University in the framework of the IV Kharkiv International Legal Forum. The Panel Discussion brought together almost 100 experts in the field of international criminal law.

The meeting was organized by Yaroslav Mudryi National Law University, National Academy of Legal Sciences of Ukraine, Ukrainian Criminal Law Association, International Association of Penal Law and European Union Advisory Mission in Ukraine.

The staff of the Prosecutor General's Office of Ukraine, the Verkhovna Rada of Ukraine, Mission of the President of Ukraine in the Autonomous Republic of Crimea, the Commission on Legal Reform and Universities of Ukraine, as well as representatives of other countries: Italy, Lithuania, Germany, Poland and Portugal actively participated in the event.

The program of the Panel Discussion included four sessions dedicated to jurisdiction of the International Criminal Court and problems of its recognition in Ukraine, implementation of the Rome Statute of the International Criminal Court to the Special Part of the Criminal Code of Ukraine, the influence of the Rome Statute of the International Criminal Court on the *General Part* of the Criminal Code of Ukraine as well as ensuring the activity of the International Criminal Court by using procedural and forensic means in Ukraine.



The following speakers delivered speech at the event: ***Kuno Tarfusser*** (Italy), a judge of the International Criminal Court; ***Piter Vilkittski*** (Germany), Honored Professor at the University of Cologne; Honory Vice President of the International Association of Penal Law; ***Daria Svyrydova***, Director for Scientific Development of the public organization: *Center of Political and Legal Reforms*, Principal Deputy of the Permanent President's Representative of Ukraine in the Autonomous Republic of Crimea, a member of the Working Group on Reintegration of Temporarily Occupied Territories of the Commission on Legal Reform under the President of Ukraine; ***Mykola Khavroniuk***, Deputy Chairman of the Working Group on the Issues of Criminal Law Development of the Commission on Legal Reform under the President of Ukraine; ***Mykhailo Shepitko***, Professor of the Department of Criminal Law № 1 at Yaroslav Mudryi National Law University; ***Oksana Senatorova***, Associate Professor at the Department of International Law of Yaroslav Mudryi National Law University; ***Viktoriia Mozghova***, a forensic expert at Ukrainian Institute for the Future; ***Zera Kozlyieva***, Deputy Head at the Directorate for the Supervision in Criminal Proceedings Regarding the Crimes Committed in the Conditions of the Armed Conflict, Prosecutor General's Office; ***Kostiantyn Zadoia***, Associate Professor of the Department of Criminal Law and Criminology at Taras Shevchenko National University of Kyiv, and others.

As a result of the panel discussion, participants unanimously adopted resolution in which, in particular, they declared their intention to harmonize the national legislation of Ukraine with provisions of international humanitarian and international criminal law, to ratify the Rome Statute of the International Criminal

Court and to gain a status of the International Criminal Court State-participant for Ukraine, to ensure corpus delicti in the Criminal Code of Ukraine of crimes against humanity, war crimes, genocide and aggression crimes, as well as fulfillment of international obligations to prevent legal and actual impunity for committing such crimes, etc.

The information was prepared by ***Marianna Ivanina***

The Resolution of the International Legal Forum based on the Panel Discussion: *Rome Statute of the International Criminal Court: problems of implementation into national legislation of Ukraine*

- *Realizing responsibility to the Ukrainian people as the only source of power,*
- *reaffirming Ukraine European integration aspirations as a sovereign and independent, democratic, social and legal state,*
- *considering historical, cultural, moral and legal traditions, relations of Ukraine with Ukrainian European partners,*
- *taking into account recognition by international community of Ukraine within its territories as indivisible and inviolable.*
- *stimulating the accomplishment of the core responsibility of Ukraine: ensuring rights and freedoms of a person,*
- *attaching great importance to enforcing provisions of the Constitution of Ukraine and realizing the necessity in fulfilling obligations towards international partners within the framework of international agreements that the Verkhovna Rada has recognized as binding,*
- *willing to restore territorial integrity of Ukraine by returning Ukrainian land within the boundaries defined by International Community of Borders,*
- *being courageous to stop impunity for perpetrators committing international crimes in Ukraine, thus preventing their commission and restoring justice [right to a fair trial], stimulating the de-occupation process of the Autonomous Republic of Crimea, the city of Sevastopol and certain districts of Donetsk and Luhansk regions,*
- *formation of stable jurisdiction in Ukrainian national forensic science institutions that would play a crucial role in justice establishment and de-occupation of the Autonomous Republic of Crimea, the city of Sevastopol and certain districts of Donetsk and Luhansk regions,*
- *supporting the efforts of all advanced experts in international criminal law to ratify the Rome Statute of the International Criminal Court as soon as possible, which does not face legal barriers,*
- *advancing legal regulation for the procedure of international cooperation between Ukraine and the International Criminal Court and accomplishment by Ukraine of its obligations in accordance with two declarations submitted to the International Criminal Court as to*

acceptance of ad hoc jurisdiction in conformity with Art. 12(3) of the Rome Statute,

- *considering the significance of applying real mechanisms for continuous implementation into practice of the Rome Statute principles and provisions of the International Criminal Court,*

the following has been agreed:

1. To harmonize the national legislation of Ukraine with the provisions of international humanitarian and international criminal law, including the provisions of the Rome Statute of the International Criminal Court.
2. To ratify the Rome Statute of the International Criminal Court and acquire the status of a state-participant of the International Criminal Court, as well as accept its jurisdiction on genocide crime, crimes against humanity, war crimes and aggression crimes,
3. To ensure the integrity of outline of corpus delicti against humanity, war crimes, and aggression and genocide crimes in the Criminal Code of Ukraine, along with accomplishment of international obligations regarding prevention of legal and actual impunity for commission of such crimes.
4. To implement the principles: *ne bis in idem, nullum crimen sine lege, nulla točka sine lege*, individual criminal responsibility, the absence of retroactive effect: *ratione personae*, and to ensure realization of other principles presented in the Rome Statute of the International Criminal Court, in the Criminal Code of Ukraine for crimes falling within the jurisdiction of the International Criminal Court.
5. To regulate types of punishment and boundaries of sanctions that may be implemented for commission of genocide crimes, crimes against humanity, war crimes, aggression crimes as well as crimes against justice directed against activities of the International Criminal Court and realization of justice according to its jurisdiction.
6. To facilitate the procedural implementation of the provisions of the Rome Statute of the International Criminal Court concerning Ukraine cooperation with Court within its jurisdiction recognized under two Declarations submitted by Ukraine under Article 12 (3) of the Statute and organization of crimes investigation within the jurisdiction of the International Criminal Court.
7. To enshrine the right of Ukraine to secede from the Rome Statute of the International Criminal Court in the presence of certain legal or political circumstances.

The participants of the International Legal Forum have accepted this Resolution in the course of the discussion panel: *The Rome Statute of the International Criminal Court: problems of implementation into the national legislation of Ukraine.*

Kharkiv, Yaroslav Mudryi National Law University,
September 25, 2020

V Meeting of the Ukrainian Working Group on Research on Psychoactive Substances within the framework of the international project: *ACTION — EU*

On October 1—2, 2020, the 5th Meeting of the Working Group on Research on Psychoactive Substances took place via videoconference. The meeting was held on the basis of State Research Forensic Centre. ***Nataliia Tkachenko***, Head of the Working Group, and management of State Research Forensic Centre delivered a welcome word.

The following scientists represented National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute": ***Ella Simakova-Yefremian***, Deputy Director for Academic Affairs, Doctor of Law, Senior Researcher, Honored Worker of Science and Technology of Ukraine; ***Maryna Zarubina***, Department Head; ***Ihor Sych***, Department Head, PhD in Pharmacy.

The meeting was also attended by the staff of Kyiv Scientific Research Institute of Forensic Expertise, Ukrainian Research Institute of Special Equipment and Forensic Science of the Security Service of Ukraine, State Fiscal Service of Ukraine, the Ministry of Health and the National Police of Ukraine.

In the course of the event, problems of implementation were considered:

- the Order of the Ministry of Health of Ukraine № 715: *On some issues as to attribution of drugs and substances to analogues of narcotics and psychotropic drugs* (in terms of organizing a special commission to evaluate certain substances and provide corresponding conclusions) dated on 03.04.2019;
- the developed project: *Procedure for activities provision related to circulation of standard samples of narcotics, psychotropic drugs, their analogues and precursors by state specialized institutions: entities of forensic activity*.

The analysis of the results of the second inter-laboratory discussion was considered and a manual on inter-laboratory discussions was also presented.

Information was prepared by ***Maryna Zarubina****,*
Department Head at NSC "Hon. Prof. M. S. Bokarius FSI"

Kharkiv Forum:
Science: Dialogue of Generations

On October 13, 2020, on the basis of V. N. Karazin Kharkiv National University, the Kharkiv Forum: *Science: Dialogue of Generations* was held.

The purpose of the event is to consolidate the efforts of authorities, scientific community, representatives of the real economic sector and business environment in Kharkiv region to ensure further development of Ukraine intellectual potential.

Moderators of the discussion:

- ***Eduard Simson***, Deputy General Director of the Industrial Group of the Ukrainian Industrial Energy Company;
- ***Kateryna Sehida***, Doctor of Geography, Associate Professor of the Department of Human Geography and Regional Studies at V.N. Karazin Kharkiv National University.

Directors of higher education institutions, leading research institutions and enterprises, scientists of the region attended this meeting. The forum was held in the format of a discussion in three thematic areas: science and society, science and state, science and economics.

All stages of the event started with interviews and continued in the format of confrontations between two teams of scientists: representatives of the older and younger generations.

Oleksiy Kucher, Head of the Kharkiv Regional State Administration; ***Mykola Kyzym***, First Deputy Minister of Education and Science of Ukraine, were speakers at the event. The forum was held by videoconnection and the following representatives joined: ***Anatoliy Zavgorodniy***, the President of the National Academy of Sciences of Ukraine, Chairman of the Supervisory Board at V. N. Karazin Kharkiv National University, Academician; ***Charles Whitehead***, Professor, Banker from the United States of America.

Besides, the importance of academic knowledge in the modern world, the need to transform Ukrainian science and consolidate the efforts of authorities, scientific community and the business environment have been confirmed, as well as measures to retain young scientists in Ukraine have been agreed on, etc.

Ella Simakova-Yefremian, Deputy Director for Academic Affairs, Doctor of Law, Senior Researcher, Honored Worker of Science and Technology of Ukraine, participated in the forum as a representative of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute".

Referring to the results of the discussion, participants emphasized the need to expand cooperation between scientists and business and maintain the work of a Regional Scientific Coordination Council established on the basis of Kharkiv Regional State Administration, in particular, to address issues related to further development of science in Kharkiv region and enhance increase in prestige of the profession of scientist, and also to stress the need to form a government strategy for the development of Ukrainian science.

Such discussions strengthen the development of science and promote it within the circle of young scientists. The results of the work of the Kharkiv Forum: *Science: Dialogue of Generations* undoubtedly will be one more step forward in the scientific and technological development of the state.

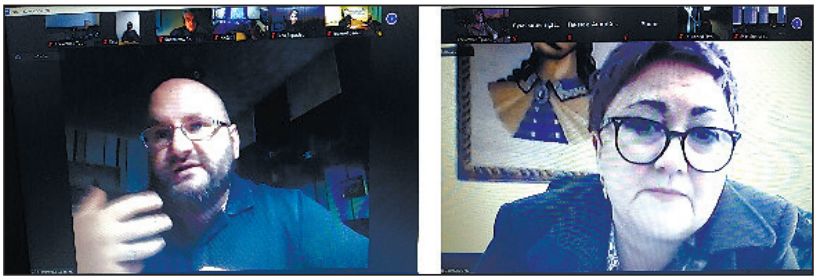
Information was prepared by ***Kateryna Sylenok****,*
Researcher at NSC "Hon. Prof. M. S. Bokarius FSI"

The international scientific and practical conference: *Problems and prospects of development of forensic examination and criminalistics* dedicated to the memory of Mykola Prokopovych Makarenko

The international scientific and practical conference: *Problems and prospects of development of forensic examination and criminalistics* dedicated to the memory of Mykola Prokopovych Makarenko: one of the founders and First Head of Odessa Cabinet of Forensic Science was held remotely at Odessa Research Institute of Forensic Science on October 16, 2020.

The Conference Purpose was to cover problems in the field of forensic science and criminalistics, exchange theoretical and practical results in scientific papers, integrate efforts as to implementation of research results into forensic practice, etc.

Representatives of the Ministry of Justice of Ukraine, Heads, researchers, forensic experts from forensic science institutions, judicial and law enforcement agencies both of Ukraine and foreign countries (Belarus, Armenia and Moldova) attended the event.

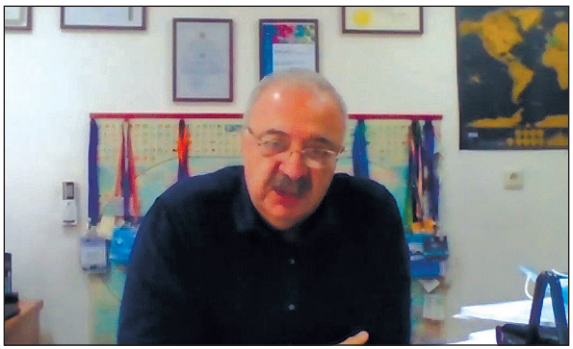


Over 137 theses of reports from the staff of forensic science institutions of the Ministry of Justice of Ukraine, State Scientific Research Forensic Centers (SSRFC) of the Ministry of Internal Affairs of Ukraine, higher education institutions, the staff of Scientific and Practical Center of the State Forensic Examination Committee of The Republic of Belarus, National Bureau of Expertises of the Republic of Armenia and the National Center of Forensic Expertise of the Republic of Moldova, were sent to the address of the conference organizing committee. 82 scientific, scientific and pedagogical staff and professional forensic experts of Ukraine and the mentioned friendly countries participated in the conference.

A welcoming word was delivered by ***Yuryi Cherdyntsev***, Director of Odessa Research Institute of Forensic Science; ***Oleksandr Oliinyk***, Director of Directorate-General of Justice and Criminal Justice of Ukraine; ***Olga Cataraga***, Director of the National Center of Forensic Expertise at the Ministry of Justice of the Republic of Moldova; ***Patvakan Voskanyan***, Deputy Director for Academic Affairs at National Bureau of Expertises of the Republic of Armenia; ***Oleksandr Ruvin***, Director of KFI; ***Ella Simakova-Yefremian***, Deputy Director for Academic Affairs of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"; ***Vladislav Fedorenko***, Director of Research Center for Forensic Examination on Intellectual Property and ***Olena Kovalenko***, Director of Dnipropetrovsk Scientific Research Institute of Forensic Expertise.

Reports were submitted for consideration at the conference which outlined relevant issues of forensic science and criminalistics development in the following directions: organization of forensic activity and its regulatory and legal support; problems of carrying out forensic types of research; peculiarities of conducting new types of forensic examinations.

Presentation of the suggested scientific papers started from a brilliant report by ***Ella Simakova-Yefremian***, Deputy Director for Academic Affairs at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", who emphasized once more the necessity in amending the Law of Ukraine: *On Judicial Examination* and proposed main directions for improving provisions of this basic law. ***Olga Cataraga***, Director of the National Center of Forensic Expertise at the Ministry of Justice of the Republic of Moldova, presented a report on the topic: *Forensic practice and objects of forensic examination* in which she considered challenging issues as to the concept of forensic research object. ***Mykhailo Poliennikov***, Leading Forensic Expert at KFI, made a report on the topic: *Electronic documents as a source of evidence in a criminal proceeding*, ***Yuliia Yarotskaia***, Head of the Laboratory of Forensic Psychology and Linguistics of Science Department of Linguistic and Economic Researches at State Institution Scientific and Practical Center of the State Forensic Examination Committee of the Republic of Belarus, presented a report on the topic: *To the issue as to the possibility of applying cultural knowledge while conducting research on creolized texts*, ***Denys Bochkarov***, private forensic expert, tax advisor, auditor assistant, made a report on the topic: *Peculiarities of conducting forensic economic analyses on declarations of a person authorized to fulfill functions of state or local government*, ***Volodymyr Meshcheriakov***, Senior Forensic Expert at Odessa Research Institute of Forensic Science, presented a report on the topic: *Algorithm for determining damage caused to immovable cultural heritage*, ***Vladyslav Fedorenko***, Director of the Research Center for Forensic Examination on Intellectual Property, delivered a report on the topic: *Issues of copyright forensics recognition from "Johannes Gutenberg Publishing Revolution" to the beginning of 20th century*, ***Marharyta Zhuravlova***, Head of the Department of Forensic Psychology and other Researches at Odessa Research Institute of Forensic Science, made a report on the topic: *Authenticity of the child's testimony while identification of his place of birth by court*. Other participants also took part.



We believe that such scientific events are an important source and opportunity for discussion in the circle of colleagues, experts and like-minded

people. Such meetings, though conducted remotely, provide an excellent chance to communicate and collectively reflect on courses for further development of forensic science institutes, develop common strategic directions for subsequent development of forensic science, exchange best practices on technologies and innovative equipment while conducting forensic examinations.

Ideas and suggestions expressed by participants of the conference in reports, speeches and during the discussion became the basis for resolution read out at the end of the conference to its participants. An electronic collection of theses of reports was compiled based on the results of the conference.

*Information was prepared by **Antonina Cheremnova**,*
Academic Secretary at Odessa RIFE, PhD in Law, Docent

The Council of Young Scientists

The Council of Young Scientists has been established at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute": a permanent collegiate, advisory and representative body that unites young scientists and specialists.

The Purpose of the Council of Young Scientists is to promote realization of the rights of young scientists regarding their participation in the formation and implementation of promising directions of development at NSC "Hon. Prof. M. S. Bokarius FSI" (in particular, its scientific, forensic, educational activities), as well as integration into the national and global scientific space.

The Council of Young Scientists of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" has the authority to maintain professional contacts with young scientists of science institutes, higher education institutions as well as with foreign institutions and European organizations, public authorities for strengthening cooperation within the scope of science and joint organization of events aimed at advancing scientific and educational activities.

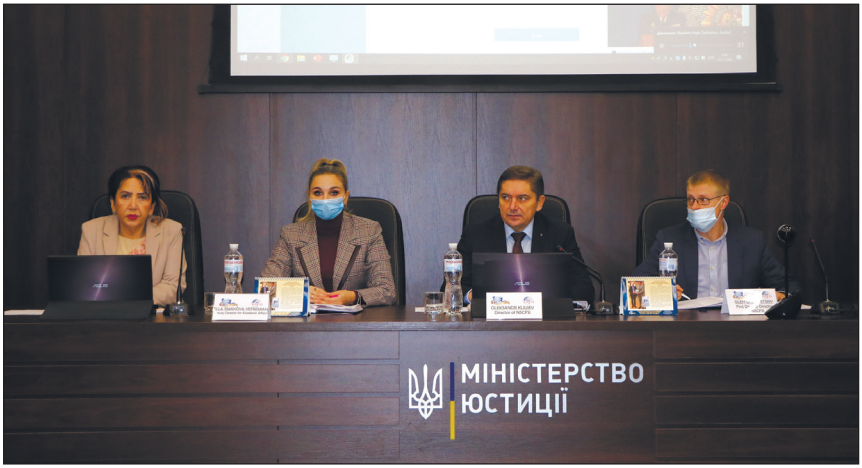
The significant component of activities of the Council of Young Scientists is organization of scientific events: All-Ukrainian and/or International scientific conferences, round tables, seminars, discussions, etc.

The work of the Council of Young Scientists is a new impetus for realization of international youth research projects and an opportunity for young scientists to demonstrate their professional abilities.

Information was prepared by ***Kateryna Sylenok****,*
Researcher at NSC "Hon. Prof. M. S. Bokarius FSI"

The Annual Meeting of members of the European Network of Forensic Science Institutes

On November 18, 2020, the annual meeting of members of the European Network of Forensic Science Institutes (hereinafter as ENFSI) was held online, in which National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" participated. ***Oleksandr Kliuiev***, Director of the Center, Doctor of Law, Professor, Honored Lawyer of Ukraine is a permanent representative of the institution at ENFSI.



The following representatives attended the meeting from National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute": ***Oleh Uhrovetskyi***, First Deputy Director, Doctor of Law, Professor, Honored Lawyer of Ukraine; ***Ella Simakova-Yefremian***, Deputy Director for Academic Affairs, Doctor of Law, Senior Researcher, Honored Worker of Science and Technology of Ukraine, ***Anton Polianskyi***, Department Head, PhD in Law, Docent; ***Olena Agapova***, Department Head, PhD in Law, and others.

Pedro Luis Melida Lledo, Director of the Main Directorate of Forensic Science Department at National Police Corps and ***Michael Boven***, Chairperson of ENFSI delivered a welcome word at ENFSI working meeting.

During the meeting, participants considered the issue of joining the Forensic Science Center (Sarajevo, Bosnia and Herzegovina) to membership in ENFSI.

The focus is drawn to important aspects of ENFSI activity, its documents are presented, strategies and concepts as well as trends in forensic science.

At the end of the meeting, ***Pinelopi Miniati***, Director of the Forensic Science Division of the Hellenic Police, provided a brief overview on organizational details for the next annual ENFSI meeting to be held in 2021 in Athens, Greece.

Membership in ENFSI provides an opportunity to exchange experience in the field of forensic science and research at the international level with the purpose to introduce best world achievements into practice of forensic science institutions in Ukraine.

Information was prepared by ***Kateryna Sylenok****,*
Researcher at NSC "Hon. Prof. M. S. Bokarius FSI"

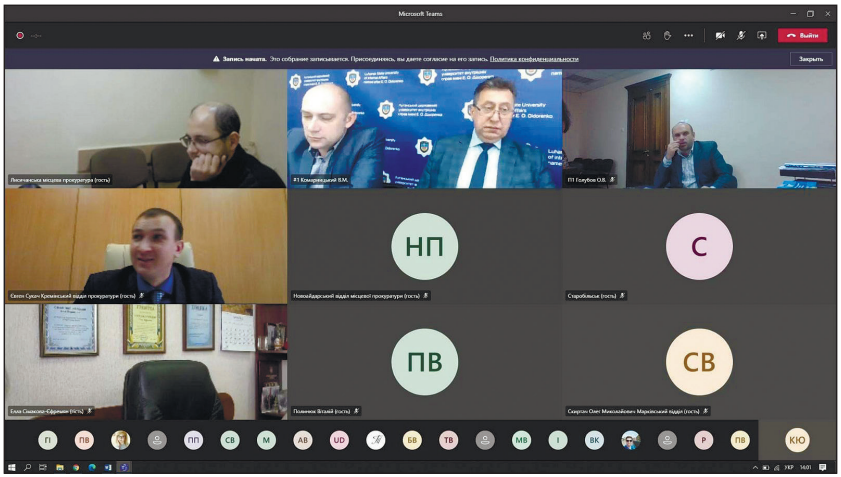
Participation in the Round Table Meeting: *Urgent problems of the practice of pre-trial investigation of criminal offenses*

On November 18, 2020, the Round Table Meeting: *Urgent problems of the practice of pre-trial investigation of criminal offenses* took place at Luhansk State University of Internal Affairs named after Eduard Didorenko.

Vitalii Komarnytskyi, Dean of the Luhansk State University of Internal Affairs named after Eduard Didorenko, Doctor of Law, Professor, delivered a welcome word. Participants of the meeting were also welcomed by ***Oleh Chyzh***, Deputy Chairperson of Luhansk Region Prosecutor Department. ***Viktor Fomenko***, Lecturer at the Department of Criminal Law Disciplines was a moderator of the event.

Ella Simakova-Yefremian, Deputy Director for Academic Affairs, Doctor of Law, Senior Researcher, Honored Worker of Science and Technology of Ukraine represented National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" with the report on the topic: *The use of specific expertise in criminal proceedings with regard to criminal offenses*.

Mykhailo Shcherbakovskyi, Head of the Department of Criminal Procedure, Criminalistics and Expertology (Faculty № 6) at Kharkiv National University of Internal Affairs, Doctor of Law, Professor, presented a report on the topic: *Ratio between conclusions of a forensic expert and an expert*. ***Artem Kovalenko***, Associate Professor at the Department of Criminal Law Disciplines of the Luhansk State University of Internal Affairs named after Eduard Didorenko, PhD in Law, prepared a report on the topic: *The expert conclusion as a new procedural source of evidence*.



The representatives of the Public Prosecutor's Office and the National Police of Ukraine, courts and higher education institutions also participated in the round table meeting: ***Vitalii Kostrytskyi***, judge at the Court of Appeal of Luhansk region, PhD in Law, presented a report on the topic: *The system of components of criminal offenses against justice in the field of implementing and ensuring stable activity of investigating authorities, pre-trial investigation, prosecutor's office and court*, ***Valentyn Brazhnyk***, Department Head at Luhansk Region Prosecutor's Office, delivered the report: *Application of measures for ensuring*

a criminal proceeding in criminal proceedings on criminal offenses; ***Ruslan Usenko***, Head of the Department of Investigation at Severodonetsk Police Department Main Branch, prepared a report on the topic: *Challenging issues arising while investigation of criminal offenses*; ***Mykola Yakovenko***, Associate Professor of the Department of Organization of Law Enforcement and Judicial Bodies at the Luhansk State University of Internal Affairs named after Eduard Didorenko, PhD in Law, Docent, presented a report on the topic: *Formation and development of investigation as a form of pre-trial investigation in Ukraine (18th—19th centuries)*.

Thanks to such events the exchange of scientific developments takes place and scientific knowledge is actively disseminated.

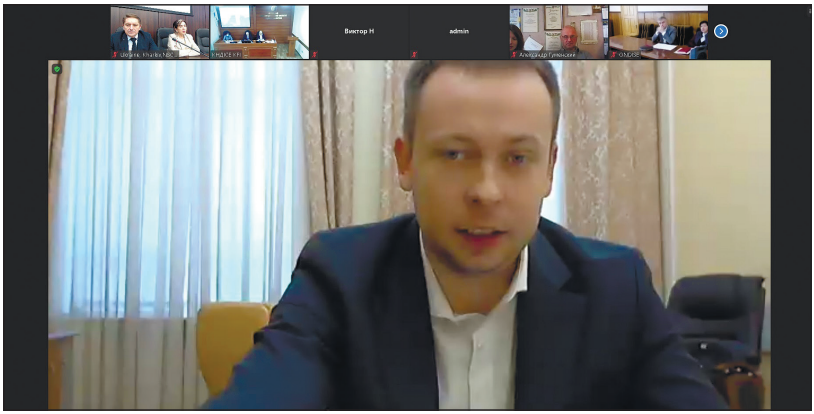
Information was prepared by ***Kateryna Sylenok****,*
Researcher at NSC "Hon. Prof. M. S. Bokarius FSI"

The II International Scientific and Practical Conference: *Current Problems of Forensic Expertology, Criminalistics and Criminal Procedure*

On November 19, 2020, the II International Scientific and Practical Conference: *Current Problems of Forensic Expertology, Criminalistics and Criminal Procedure* was held in the online mode at Kyiv Scientific Research Institute of Forensic Expertise.

The following representatives delivered a welcome word to conference participants: ***Andrii Haichenko***, Deputy Minister of Justice on Executive Service, ***Nataliia Tkachenko***, Director of the Department of Forensic Expert Support of Justice of the Ministry of Justice of Ukraine, ***Oleksandr Oliinyk***, Director of the Department of Justice and Criminal Justice of the Ministry of Justice of Ukraine; ***Olesia Otradnova***, Director of Prosecutor's Training Center in Ukraine, ***Andrii Svintsytskyi***, Director of Ukrainian Research Institute of Special Equipment and Forensic Science of the Security Service of Ukraine, ***Olga Cataraga***, Director

of the National Center for Forensic Expertise of the Ministry of Justice of the Republic of Moldova, ***Argam Hovsepyan***, Director of the National Bureau of Expertises of the National Academy of Sciences of the Republic of Armenia, as well as directors of specialized forensic science institutions of the Ministry of Justice of Ukraine and others.



Oleh Uhrovetskyi, First Deputy Director of the Center, Doctor of Law, Professor, Honored Lawyer of Ukraine, represented National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute".

During the conference, ***Ella Simakova-Yefremian***, Deputy Director for Academic Affairs at NSC " Hon. Prof. M. S. Bokarius FSI", Doctor of Law, Senior Researcher, Honored Worker of Science and Technology of Ukraine, presented a report on the topic: *Certain issues of advancement of norms of regulatory acts in the field of forensic expert support in Ukraine*.

The following international experts participated, such as ***Dariush Zuba***, Interim Director of the Institute of Forensic Research (Krakow, Poland), presented a report on the topic: *The influence of COVID-19 on the activity of forensic science institutions*; ***Dzhon R. Vanderkolk***, consultant in comparative criminalistics at Indiana State Police Laboratory (the USA), prepared a report on the topic: *Comparative criminalistics: generalization between disciplines*; ***Jose Manuel Kolodras***, coordinator of the project: ACTION-EU and chief inspector at Madrid Police (Spain), presented reports on the topics: *ACTION-EU Project. Support for operation of forensic laboratories in Ukraine*; ***Ozge Genç***, Researcher at Institute of Forensic Sciences and Legal Medicine at Istanbul University-Cerrahpaşa (Turkey), prepared a report on the topic: *Similarities and differences between abbreviated signatures and original signatures*; ***Dariush Vilk***, Researcher at the Department of Criminalistics of Law and Administration Faculty at Jagiellonian University in Krakow (Krakow, Poland) made a report on the topic: *Judicial databases in Poland. Legal problems with data protection*; ***Olga Cataraga***, Director of the National Center of Forensic Expertise at the Ministry of Justice of the Republic of Moldova, prepared a report on the topic: *Certain aspects of scientific and methodological support of forensic science in conditions of forensic activity standardization*; ***Mario Rika***, Head of Quality Department, Chief Inspector of the Central Unit for Technical and Scientific Researches at General Commissary of Scientific Police (Spain), made a report on the topic: *The system of quality and certification of forensic police laboratories of the National Police Corps of Spain*; ***Shalna Bernardas***, Head of the Department of Forensic Speech and Audio Analysis, Forensic Science Centre of Lithuania of the Ministry of Justice of the Republic of Lithuania, prepared a report on the topic: *Assessment and comparison of accuracy in two forensic automatic speech and voice recognition systems: (FASR) BATVOX and voice*, and others.

The report: *Introduction to forensic analysis of walking* by ***Ivon Birch***, Professor of the University of West London (the UK), and the presentation: *Forensic analysis of walking* by ***Bert Otten***, Professor of Neuromechanics, and ***Mickey Wiedemeart***, Researcher at the Faculty of Human Movement Sciences of the University of Groningen (Netherlands), sparked lively debates.

The reports by Ukrainian scientists cannot be ignored: ***Oleh Parfylo***, Head of the Department of the Ukrainian Research Institute of Special Equipment and Forensic Science of the Security Service of Ukraine, presented a report on the topic: *Main trends in the development of international cooperation in the field of forensic justice support*; ***Oleksandr Sadchenko***, Head of the Laboratory

for Organization of Scientific, Methodical Activities, Regulatory Support and International Cooperation of the Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine, made a report on the topic: *Formation of the system of mutual trust before conformity results evaluation*; ***Oleksandr Kravchenko***, Associate Professor at the Department of Criminal Law, Procedure and Criminalistics, Institute of Law named after Volodymyr Stashys of the Classic Private University, presented a report on the topic: *Current problems of modern forensic handwriting analysis*; ***Mykhailo Polennikov***, Leading Forensic Expert of the Laboratory of Economic Examinations at the Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine, delivered a report on the topic: *Analysis and admissibility of conditional conclusions drawn by a forensic expert in a criminal proceeding*, and others.

The conference was attended by 212 scientists from higher education institutions, specialized forensic science institutions of Ukraine and abroad. The topics of participants' reports were distinguished by variety, clarity and profound content.

As a result of the conference productive activity, scientists exchanged experiences and developments, discussed topical issues and gained new knowledge.

Information was prepared by ***Kateryna Sylenok****,*
Researcher at NSC "Hon. Prof. M. S. Bokarius FSI"

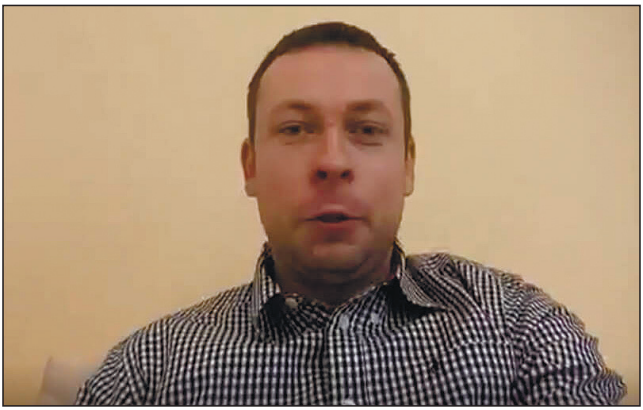
The International Scientific and Practical Conference: *Current issues of criminalistics, forensic science and criminal procedure*

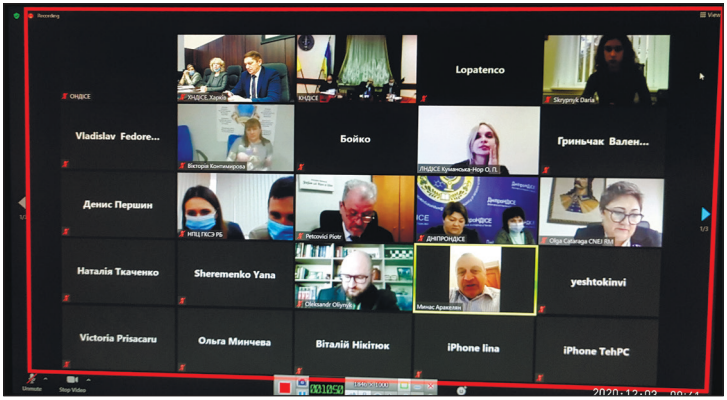
On December 3, 2020, within the framework of activities aimed at improving the theory and methodology of such subject area as Criminalistics and forensic science, the international scientific and practical conference: *Current issues of criminalistics, forensic science and criminal procedure* was held remotely at Odessa Research Institute of Forensic Expertise with co-organization of the Department of Criminalistics of the National University Odessa Law Academy.

The main purpose of the conference was to outline and discuss the latest researches on topical issues of criminalistics, forensic science and criminal procedure.

At the beginning of the conference, participants were greeted by ***Yurii Cherdyntsev***, Director of the Odessa Research Institute of Forensic Expertise, ***Minas Arakelyan***, First Deputy Rector of the National University Odessa Law Academy, ***Andrii Haichenko***, Deputy Minister of Justice of Ukraine for

Executive Service, ***Natalia Tkachenko***, Director of the Department of Forensic Support of Justice of the Ministry of Justice of Ukraine, ***Olga Cataraga***, Director of the National Center of Forensic Expertise of the Ministry of Justice of the Republic of Moldova, ***Kateryna Tolkacheva***, Deputy Head of the State Institution Scientific and Practical Center of the State Forensic Examination Committee of the Republic of Belarus, ***Patvakan Voskanyan***, Deputy Director for Academic Affairs at National Bureau of Expertises of the Republic of Armenia, ***Oleksandr Ruvin***, Director of the Kyiv Scientific Research Institute of Forensic Expertise, ***Oleksandr Kliuiev***, Director of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", ***Vladyslav Fedorenko***, Director of the Forensic Research Center for Intellectual Property, ***Nadiia Kushakova***, Deputy Director of Dnipropetrovsk Research Institute of Forensic Expertise, ***Viktoriia Kontymyrova***, Director of Donetsk Research Institute of Forensic Expertise and ***Oksana Kumanska-Nor***, Director of Lviv Research Institute of Forensic Expertise.





Yuri Cherdyntsev, Director of Odessa Research Institute of Forensic Expertise, expressed his thank you to everyone for taking part and stressed that modern forensic science is a complex dynamic process that requires well-established communication and exchange of experience between professionals, development of new methods and approaches for further professional activity and study of innovations in the field of criminalistics.

Minas Arakelyan, the first Vice-Rector of the National University Odessa Law Academy noted that the need to improve scientific support of the activity of state forensic institutions and other state bodies for crime prevention necessitated the need to unite efforts of scientists and forensic experts from different countries. Such measures enable to focus on complex issues of application of special knowledge, appointment and conduct of certain types of forensic examinations based on the facts of crimes, increase the efficiency of criminal investigations, develop certain recommendations for improving legislative criminal procedural rules and practice of their application.

During the plenary session, ***Yurii Cherdyntsev***, Director of the Odessa RIFE, addressed the issues of promising directions of forensic activity development on the example of Odessa Research Institute of Forensic Expertise: he formulated the main tasks of the Institute administration in forensic activity, identified new types of forensic examinations that have already been implemented and planned for being implemented as well as plans for the future are considered.

Valery Tishchenko, Head of the Department of Criminalistics at the National University *Odessa Law Academy*, Doctor of Law, Professor, Corresponding Member of the National Academy of Legal Sciences of Ukraine outlined the issue of an expert conclusion as an innovation of the criminal procedure legislation in Ukraine, drew attention to the purpose of the above innovations in criminal procedural legislation and noted that provisions aimed at simplifying investigation of criminal offenses provoke a legal discrepancy with other regulations of the Criminal Procedural Code of Ukraine and ambiguity in interpretation of certain regulations, which will negatively affect the quality of pre-trial investigation and its results.

Olga Cataraga, Director of the National Center of Forensic Expertise at the Ministry of Justice of the Republic of Moldova, addressed certain aspects of evaluation of an expert conclusion, summarized main problems of the current procedure of an expert conclusion evaluation and formulated important practical recommendations for investigators (prosecutors, judges) regarding increase in the efficiency of an expert conclusion.

Olesia Vashchuk, Professor of the Department of Criminalistics at the National University Odessa Law Academy, Doctor of Law, Docent, Chairman of the Council of Young Scientists at the Ministry of Education and Science of Ukraine, made a report in which she revealed specifics of innovative methods of research on nonverbal information and stressed the need of its use in criminal proceedings, though the choice of a particular method and means of research of nonverbal information depends on its type taking into account other subjective and objective factors.

Emil Avanesov, Head of Cultural Expertises Department at the National Bureau of Expertises of the Republic of Armenia, outlined some aspects of forensic examination formation of movable cultural properties in the Republic of Armenia.

Larysa Derecha, Academic Secretary, PhD in Biology, Senior Researcher at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", explicitly considered the issues of professional deformation in individual employees of forensic science institutions of Ukraine, touched upon specific peculiarities in the activity of a forensic expert, discovered the types of professional deformations and shared experience of combating this challenging phenomenon at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute".

Olena Samoilenko, Doctor of Law, Associate Professor at the Department of Criminalistics of National University *Odessa Law Academy*, made a report in which she revealed some issues of special knowledge use while investigation of cybercrimes.

Anatolii Hordieiev, Specialist of the 1st category of the Khmelnytskyi Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Doctor of Technology, Professor, reported on peculiarities of the use of video surveillance in forensic practice and forensic science.

Dmytro Yanov, PhD in History, an employee of the Department of Forensic Psychology and other Researches of the Odessa Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine, described in his report in detail peculiarities of research on antique Islamic seals while forensic authentications and appraisal.

Marharyta Zhuravlova, PhD in Psychology, Head of the Department of Forensic Psychology and other Researches of the Odessa Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine, covered in her report requirements for formation of psychologists' conclusions.

Oleksandr Babuk, PhD in Psychology, Leading Researcher of the Laboratory of Forensic Psychology and Linguistics of State Institution Scientific and Practical Center of the State Forensic Examination Committee of the Republic of Belarus, dedicated his report to comparative aspects of forensic linguistic analysis in Great Britain and the Republic of Belarus.

Mykhailo Polennikov, PhD in Economics, Leading forensic expert of the Laboratory of Economic Examinations of Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine, considered the issue of providing conditional expert conclusions in criminal proceedings.

Anna Teteryatnyk, PhD in Law, Docent, the Head of the Department of Criminal Procedure of Odessa State University of Internal Affairs, studied certain issues of proof during investigation of criminal offenses committed at temporarily occupied territories.

Conference participants also discussed other topical issues related to criminalistics, forensic science and criminal procedure.

At the end of the conference, organizers and participants of the conference stressed the need to conduct such scientific events in the future, since it is exactly the kind of meetings format that boosts the most active exchange of experience and enrichment in theoretical and practical knowledge.

*The information was prepared by **Antonina Cheremnova**,*
Academic Secretary at Odessa RIFE, PhD in Law, Docent

On the occasion of the 16th anniversary, the IV Annual International Scientific and Practical Conference: *Problems of the theory and practice of intellectual property analysis (Krainevski Readings)* was held at the Scientific-Research Institute of Intellectual Property of the Ministry of Justice of Ukraine

On December 24, 2020, on the occasion of the 16th anniversary from the day of foundation of the Scientific-Research Institute of Intellectual Property of the Ministry of Justice of Ukraine (hereinafter as the *Center*) and with the purpose to study and promote scientific heritage of Peter Pavlovich Krainev (1952—2014), first Director of the Center, the IV Annual International Scientific and Practical Conference: *Problems of the theory and practice of intellectual property analysis: Krainevski Readings* (with participation of representatives of the Ministry of Justice of Ukraine and other public authorities, forensic science institutes (hereinafter as *FSI*), pre-trial investigation bodies, legal agencies,

institutions, enterprises and organizations, as well as judges, lawyers, patent attorneys, colleagues and partners of the Center) was held.

Ruslan Stefanchuk, first Deputy Chairman of the Verkhovna Rada of Ukraine, Doctor of Law, Professor, Academician of the National Academy of Legal Sciences of Ukraine, greeted the participants of the IV *Krainevski Readings* and stressed the importance of the Center in modernization of the system rights protection on intellectual property in Ukraine, wished the Institute staff further efficiency and effectiveness in forensic, scientific and methodological areas.

In his welcoming speech, ***Andrii Haichenko***, Deputy Minister of Justice of Ukraine, noted that the Center is an independent and influential forensic science institute for society and state, and wished the management, forensic experts and scientists of the Center new professional victories and achievements.

Yan Bernaziuk, Professor, Doctor of Law, judge of the Supreme Court, congratulated the Center on another anniversary and noted that the quality and objectivity of forensic examinations conducted in this institution depend on the results of court proceedings on intellectual property rights; and scientific achievements of the Center in the field of forensic intellectual property embodied in new methods and guidelines, as well as publications published in Ukraine and abroad, are important for recognizing Ukraine as a state that appreciates, respects and protects intellectual property.

On behalf of the National Bureau of Expertises of the Republic of Armenia, ***Patvakan Voskanyan*** (who underwent training along with colleagues Arthur Harutyunyan and Sh. Movsysian at the Center last year), Deputy Director of the National Bureau for Academic Affairs, congratulated the Center on its anniversary stressing that for such forensic science institutions "every year of work is an anniversary": in order for the newly established institution to gain prestige, its staff must work daily for obtaining high results, prove its significance for society and the country, prudently establish relationships with the state and private sector, as well as with other forensic science institutions, in particular, foreign. Currently, from year after year, forensic, scientific and methodological potential of the Center is growing and its international relations keep strengthening. A good example of this is the cooperation in the field of intellectual property analysis of the Center with the National Bureau of Expertises of the Republic of Armenia.

Nataliia Tkachenko, Director of the Department of Forensic Expert Support of Justice (Ministry of Justice), congratulated the conference participants having stressed the importance of the annual *Krainevski Readings* initiated by the Center for scientists and forensic experts working in the field of intellectual property analysis.

Oleksandr Oliinyk, Director of the Directorate of Justice and Criminal Justice, when welcoming the Center on its 16th anniversary, stated that new priorities of the Center strategic development demonstrate not only that it has taken a worthy place among Ukrainian RIFE but also emphasize its potential. It is noteworthy that the Center has become one of the most active participants in the reform of forensic activity initiated by the Ministry of Justice of Ukraine and implemented in the Draft Law of Ukraine: *On Judicial Examination*. ***Oleksandr Oliinyk*** also advised organizers of the event to compile a resolution of *Krainevski Readings* and send it to the Ministry of Justice of Ukraine for further processing.

Heads of Ukrainian forensic science institutions also delivered opening remarks: ***Oleksandr Kliuiev***, Director of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", ***Oleksandr Ruvin***, Director of Kyiv Scientific Research Institute of Forensic Expertise, ***Olena Kovalenko***, Director of Dnipropetrovsk Research Institute of Forensic Expertise and others.

Thus, ***Oleksandr Kliuiev***, Director of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Doctor of Law, Professor, Honored Lawyer of Ukraine, noted that initiation of *Krainevski Readings* by the Center in 2017 was a responsible and important step in honoring the memory of the founder of this specialized research institution

and developing its scientific heritage in forensic intellectual property analysis. Over a couple of years, *Krainevski Readings* has established itself as a representative forum for forensic experts, appraisers, patent attorneys, judges, and pre-trial investigation bodies. The achievements of *Krainevski Readings* embodied in the content of reports and speeches of its participants became a guide for the development of the theory and practice of forensic science on Ukrainian intellectual property issues not only in our country but also abroad. Professor ***Oleksandr Kliuiev*** wished all participants of the IV *Krainevski Readings* persistence and constructive decisions in solving traditional and new relevant problems regarding forensic intellectual property analysis.

The main part of the IV *Krainevski readings* is dedicated to the theory, history, methodology and practice of forensic intellectual property:

- theory, history and methodology of forensic examination on intellectual property issues in Ukraine and abroad;
- scientific legacy of Peter Krainev, the founder of RIFE on intellectual property, forensic expert and scientist;
- forensic examination in the field of copyright and related rights;
- forensic examination in the field of technical creativity and identification means: commercial (brand) names and trademarks, etc.;
- economic researches and examinations in the field of intellectual property;

- forensic examination of computer programs, databases and telecommunications while solving expert tasks in the field of intellectual property;
- prospects and ways of development and improvement of science and education in the field of intellectual property protection.

Leonid Cherep, patent attorney, and ***Oleksandr Butnik-Siverskyi***, a Leading Researcher of the Center, Doctor of Economics, Professor, forensic expert, spoke about Petro Krainev achievements, as well as the establishment and development of the Center. The experience and holding of the annual *Krainevski Readings* by the management of the Center were commended, as well as the institutional memory about the Center origins. The memoirs also emphasize the extraordinary talent of Peter Krainev as a forensic expert, scientist and promoter of the initial success and victories of the Center.

Participants of the IV *Krainevski Readings* also presented the following thematic reports:

- *Strategic priorities for the development of the Research Center for Forensic Examination on Intellectual Property of the Ministry of Justice* (***Vladyslav Fedorenko***, Director of the Research Center for Forensic Examination on Intellectual Property of the Ministry of Justice of Ukraine, Doctor of Law, Professor, Honored Lawyer of Ukraine);
- *Current issues of trademark rights protection* (***Anton Koval***, partner of the Patent and Law Agency: *Doubinsky & Osharova*, lawyer, patent attorney);
- *Medications registered as trademarks* (***Alla Kopytko***, Senior Researcher at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute");
- *Forensic expert against a consumer: who wins?* (***Viktoriia Sopilniak***, partner of the Patent and Law Agency: *Doubinsky & Osharova*, lawyer, patent attorney);
- *Main aspects of solving tasks while forensic examinations (expert researches) of labor costs calculation of software development based on the COCOMO II model* (***Halyna Kryvonozhko***, Head of Information Technology Department of the Laboratory of Copyright and Information Technologies of the Center, PhD in Technology, Senior Researcher, forensic expert);
- *Forensic experts training: modern approaches and opportunities to efficiency increase* (***Nataliia Kisil***, Head of the Expert & Technology Bureau, PhD in Agriculture, Senior Researcher, forensic expert in the field of intellectual property).

In the report-presentation by Vladyslav Fedorenko, the Center Director, Professor, on the basis of a systematic analysis of indicators of the Center 3-year activity, strategic priorities for further development of this forensic science institution for 2021—2023 have been identified in such areas as:

- scientific, methodical and scientific-organizational activity;
- forensic activity;
- organizational and managerial activities;
- work with personnel and staff advanced training;
- activities in the field of fiscal and logistic support;
- documentary, archival, information and security support.

Vladyslav Fedorenko paid particular attention to problems of the development of intellectual property analysis.

At the end of the IV *Krainevski Readings* the following was presented:

- updated official website of the Center;
- Collection of research papers of the IV International Scientific and Practical Conference: *Problems of the Theory and Practice of Intellectual Property Analysis (Krainevski Readings)*;
- electronic scientific publication *Expert: Paradigms of Legal Sciences and Public Administration* № 6 (12) for 2020: a special issue on the occasion of the 16th anniversary of RCFA on intellectual property;
- scientific and methodological publication: *Forensic analysis of intellectual property* of RCFA on intellectual property (2nd edition).

Summing up the IV *Krainevski Readings*, ***Vladyslav Fedorenko***, Director of the Center and the event moderator, thanked all participants and suggested the following basic provisions for the conference results:

- consider the experience of conducting annual International Scientific and Practical Conference: *Problems of the Theory and Practice of Intellectual Property Analysis (Krainevski Readings)* positive by further increasing the number of participants (in particular, foreign), as well as the range of issues for discussion;
- promote forensic activity on intellectual property issues in Ukraine and abroad;
- enhance methodological and scientific support with regard to forensic analysis on intellectual property (multidisciplinary and those that are conducted on related types of forensic examination: forensic commodity, linguistic, art, etc.), some of which are new to the Center;
- actively participate in the reform on forensic activity in Ukraine, enhance further convergence of state and non-state components of the system of intellectual property analysis in Ukraine.

It is proposed to supplement and clarify these provisions on results of the IV *Krainevski Readings* within a week and send them to the Ministry of Justice of Ukraine: for consideration while reforming forensic activities.

The information was prepared by ***Vladyslav Fedorenko****,*
the Director of Research Center for Forensic Examination
on Intellectual Property of the Ministry of Justice of Ukraine,
Doctor of Law, Professor,
Honored Lawyer of Ukraine

Valerii Yuriiovych Shepitko

On December 20, 2020, will be 60 years from the birthday date of Valerii Yuriiovych Shepitko, a famous criminalist, forensic psychologist and forensic expert, Doctor of Law, Professor, Head of the Department of Criminalistics at Yaroslav Mudryi National Law University, Academician of the National Academy of Legal Sciences of Ukraine, Honored Worker of Science and Technology of Ukraine.

Valerii Yuriiovych Shepitko was born on December 20, 1960, in the city of Romny, Sumy Oblast. In 1979, he graduated from Kharkiv Radio Engineering College. Since 1982, he has worked as a craftsman, production supervisor, engineering technologist of the second category at the *RadioElement* plant in Kharkiv. In 1986, he graduated from the Kharkiv Law Institute (currently, *Yaroslav Mudryi National Law University*). Valerii Yuriiovych participated in hostilities in the Republic of Afghanistan, served at border guards of the USSR Committee for State Security (1979—1982).

Between 1986—1988, he held the position of trainee researcher at Kharkiv Law Institute. While 1988—1991, he was a graduate student of this institution. Since 1991, Valerii Shepitko was an assistant, Associate Professor at the Department of Criminalistics of the Kharkiv Law Institute. During 1991—1994, he was a doctoral student at Criminalistics Department of the National Law Academy of Ukraine (currently, Yaroslav Mudryi National Law University), and he was the Head of Criminalistics Department at the Yaroslav the Wise National Law Academy since 1996. Since 1998, he headed the laboratory: *The use of modern advances in science and technology in crime counteraction* of the Institute for the Study of Crime Problems, National Academy of Legal Sciences of Ukraine. In 1991, Valerii Shepitko defended his dissertation for obtaining the degree of PhD in Law on the topic: *Interrogation of Minors: Psychology and Tactics*. In 1996, Valerii Yuriiovych completed the dissertation for the degree of Doctor of Law on the topic: *Theoretical issues of tactics systematization in criminalistics*. In 1997, he was awarded the academic title of Professor.

In 2000, Valerii Shepitko was elected a corresponding member of the Academy of Legal Sciences of Ukraine (currently, National Academy of Legal Sciences of Ukraine); an acting member (Academician) of the National Academy of Legal Sciences of Ukraine in 2009. Since 1998, he was the Head of the Bureau of Forensic Examinations at Academician Stashis Scientific Research Institute for the Study of

Crime Problems. National Academy of Law Sciences. Chairman of the Coordinating Bureau on Criminalistics, Psychology and Forensic Science of the National Academy of Legal Sciences of Ukraine. He was an Academic Secretary (since 2002) and a member of the Specialized Academic Council of Yaroslav Mudryi National Law University (1998—2004), a member of the expert council of the Higher Attestation Commission of Ukraine on Legal Sciences (1998—2004). Since 2011, he has been a member of the Science Advisory Board of the High Specialized Court of Ukraine for Civil and Criminal Cases.

Valerii Yuriiovych has devoted many years of his life to training of scientific and scientific-pedagogical personnel. Valerii Shepitko has prepared 4 Doctors and 33 PhDs in Law.

Valerii Yuriiovych is a qualified forensic expert in trace evidence analysis, questioned document examination, forensic psychology.

In 2001, since the first issue of the *Theory and Practice of Forensic Science and Criminalistics* scientific papers collection, Valerii Shepitko has been a Co-chair of the editorial board, a regular reviewer of scientific publications of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", his articles are regularly published in this collection.

Valerii Yuriiovych is an active participant and co-organizer of scientific and practical conferences taking place at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" (former: *Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations*).

He has 10 patents for inventions and copyright certificates. Valerii Shepitko participated in preparation and review of Drafts of Criminal Procedure Code and Laws of Ukraine (*On Fingerprinting, On Crime Detection and Investigation, On Weapons, On Forensic Activity,* etc.), conducting forensic examinations, providing scientific and methodological assistance to investigative authorities.

Valerii Yuriiovych is the founder and President of the International Congress of Criminalists, Honorary Member of the Lithuanian Community of Criminalists, a member of the Criminological Association of Ukraine, a member of the International Police Association, Honorary Member of the Ukrainian Lawyers Community.

The scope of research interests of Valerii Shepitko includes: general theoretical problems of criminalistics, criminal investigation technique, innovative technologies in crime counteraction, problems of forensic tactics, forensic methodologies, forensic science and legal psychology; his articles are actively published in international publications belonging to the scientometric databases: Scopus and Web of Science.

The author of more than 500 research papers, including monographs, textbooks, guidelines (in particular, *The legal system of Ukraine Past, Present, and Future* (2013, co-authored), *Investigation of corruption crimes* (2013, co-authored), *Workshop on criminalistics* (2013, co-authored), *Encyclopedia of criminalistics in personalities* (2014, co-authored), *Textbook of criminalistics. Volume l: General Theory* (2016, co-authored), *Criminalistics for children (children of junior high and high school): practical guide* (2016), *Drugs, psychotropic substances and precursors:*

a dictionary-reference book for law enforcement agencies (2016, co-authored), *Innovative principles of technical and forensic support of criminal justice bodies activity* (2017, co-authored), *The Great Ukrainian Legal Encyclopedia. 20 Vols. Vol. 20: Criminalistics, Forensic Science, Legal Psychology* (2018, co-authored), *Legal Psychology: a textbook* (2019, co-authored), monograph: *Department of Criminalistics: history of formation and development: to the 80th anniversary from the moment of its foundation* (2020, co-authored), *Introduction to criminalistics* (2020) etc.).

Valerii Yuriiovych achievements, conscientious work and creative contributions were awarded with medals: *Internationalist soldier* (1988), *70 Years of the Armed Forces of the USSR* (1998), *War veteran: a participant in hostilities, of the Verkhovna Rada of Ukraine: Ten years of independence* (2001), *25 years from Soviet withdrawal from Afghanistan* (2015), with orders ("*Defendens Justitiam* for outstanding services in protection of law and order" (by United Nations (UN) Public Service Award, 2010), *Crown of Europe* of the Ist Class for a significant contribution to the development of European science (by United Nations (UN) Public Service Award and by European Academy of Natural Sciences, 2010)), as well as with a badge dedicated to the 15th anniversary of the Military Law Institute of Yaroslav Mudryi National Law University (2011), with an honory award: *Badge of Honor of the Central Department of the Ministry of Internal Affairs of Ukraine in Kharkiv region of the 2nd Class* (2010), an honory award of the Ukrainian section of the International Police Association *For courage and professionalism* (2011), MARTIS award: Golden Fortune (2015), a diploma of the Kharkiv Regional Council for many years of hard work, high professionalism, significant personal contribution to the development of education and science, training of highly qualified specialists (2016), a diploma of the Prosecutor General's Office of Ukraine (2018), an honory diploma of Kharkiv mayor for many years of conscientious and fruitful work, high professionalism, significant contribution to the development of education and science of Kharkiv and on the occasion of University Day (2019), a medal *Honory Award of National Security and Defense Council of Ukraine* of the 3rd Class for personal contribution to the matter of guaranteeing national security and defense of Ukraine and professionalism (2020), an honorary award (order) of the 2nd Class of Yaroslav Mudryi National Law University (2020); an honory diploma of Yaroslav Mudryi National Law University (2020).

Valerii Shepitko is a laureate of the State Prize of Ukraine in Science and Technology (2018). The editorial board of the collection of scientific papers: *Theory and Practice of Forensic Science and Criminalistics* wishes an honored Valerii Yurievich good health, new creative contributions, family well-being and prosperity!

The information was prepared by ***Viktoriia Yaremchuk****,*
PhD in Law, Docent,
Assistant Professor of the Department of Criminalistics at
Yaroslav Mudryi National Law University

Viktor Mykhailovych Shevchuk

In 2020, it was 50 years since the birth and 25 years of academic activity of Viktor Shevchuk. Viktor Mykhailovych Shevchuk, a noted scientist and criminalist, Doctor of Law, Professor of the Department of Criminalistics at Yaroslav Mudryi National Law University, Academic Secretary of the Coordinating Bureau on Criminalistics, Forensic Science and Legal Psychology of the Department of Criminal Law Sciences of the National Academy of Legal Sciences of Ukraine, Honored Lawyer of Ukraine. He was born on May 3, 1970, in the village of Noskivtsi, Zhmerynka district, Vinnytsia region.

In 1995, he graduated from the Investigative and Prosecutorial Faculty at Yaroslav the Wise National Law Academy (currently, Yaroslav Mudryi National Law University) majoring in *Law*. From 1995 to 1998, he studied at the graduate school of this educational institution. Since 1998, was an Assistant Professor at the Department of Criminalistics at Yaroslav Mudryi National Law University. Since 2002, Viktor Shevchuk has been a Docent; and he has been a Professor at the Department of Criminalistics of this institution since 2014. From 1999 to 2004, was a Deputy Dean of the Investigative and Forensic Faculty of the Ministry of Internal Affairs № 3. While 2004—2014, Viktor Mykhailovych was a Deputy Dean of the Faculty of Military Law № 6. Since October 2014, he has been a Professor of Criminalistics Department at this institution.

In January 1999, at the Specialized Council of the Yaroslav the Wise National Law Academy, Viktor Shevchuk successfully defended his dissertation for the degree of PhD in Law on the topic: *Problems of methodology on smuggling investigation* in the specialization 12.00.09: Criminal procedure and criminalistics; forensic science; crime detection and investigation. In 2013, defended his dissertation for the degree of Doctor of Law on the topic: *Theoretical bases of formation and realization of tactical operations in criminalistics*.

Viktor Mykhailovych paid considerable attention to civil, educational-methodological and educational work, he has an extensive organizational and educational experience: has held administrative and managerial positions at the University for over 15 years. Since March 2017, Viktor Shevchuk has been working at Institute for the Study of Crime Problems. National Academy of Law Sciences of Ukraine in the laboratory: *The use of modern achievements of science and technology in crime counteraction*. At the beginning, he worked as a Senior Researcher; and Viktor Shevchuk has been a Leading Researcher since 2018.

Fruitful efforts of Professor Viktor Shevchuk are recognized by the majority of awards, in particular, an honory award of the Ministry of Defence of Ukraine: *Badge of Honor* (2008), *For Assistance to the Armed Forces of Ukraine* (2011), *Honory Diploma of Defence Minister of Ukraine* (2013), also he is a laureate of

the Yaroslav Mudryi Prize in the nomination: *For preparation and publication of textbooks for law students of higher education institutions* (2017).

Viktor Mykhailovych is a member of the Academic Council at Institute for the Study of Crime Problems. National Academy of Law Sciences of Ukraine and academic council on dissertations defense at National University *Odessa Law Academy*. He is loved and respected by colleagues, students, employees and teachers, as well as by many students who currently successfully work in the legal field in all regions of Ukraine and abroad.

Viktor Shevchuk takes an active part in international scientific and practical conferences: he is a member of the International Congress of Criminalists, editorial board of the international scientific and practical law journal: *A First Printed Criminalist*, editorial boards of the publications: *Journal of the National Academy of Legal Sciences of Ukraine, Problems of Legality, Theory and Practice of Forensic Science and Criminalistics.*

Professor Viktor Mykhailovych is the author and co-author of more than 380 scientific and educational papers dedicated to modern problems of criminalistics and forensic science.

In 2020, a collection of scientific papers: *Criminalistics: traditions, innovations, prospects* (2020) was published by Professor Valerii Shevchuk, which is an actual documentary evidence of the formation and development of his academic views over 25 years of academic activity.

The editorial board of the collection of scientific papers: *Theory and Practice of Forensic Science and Criminalistics* sincerely congratulates Viktor Mykhailovych Shevchuk on his anniversary and wishes him good health, well-being, creative inspiration, warmth and comfort in his family circle, fruitful academic and pedagogical activities, further success, new accomplishments.

The information was prepared by ***Valerii Shepitko****,*
Doctor of Law, Professor,
Head of the Department of Criminalistics at
Yaroslav Mudryi National Law University,
Honored Worker of Science and Technology of Ukraine, Full Member
(Academician) of the National Academy of Legal Sciences of Ukraine

Mykola Ivanovych Panov

This year it has been 80 years since the birthday date and 50 years of scientific and pedagogical activity of Mykola Ivanovych Panov, a famous scientist and legal scholar, a specialist in the field of criminal law and in sciences of criminal scope, Doctor of Law, Professor, Full Member (Academician) of the National Academy of Legal Sciences of Ukraine, Professor of the Department of Criminal Law № 3 at Yaroslav Mudryi National Law University, Honored Worker of Science and Technology of Ukraine, a Laureate of the State Prize of Ukraine in Science and Technology, Honored Professor of Yaroslav Mudryi National Law University.

As a member of the editorial board of the *Theory and Practice of Forensic Science and Criminalistics* collection of scientific papers, Mykola Ivanovych has been actively participating in reviewing articles and in formation of this publication since 2001.

Mykola Panov was born on August 7, 1940, in the village of Bereka, Pervomaiskyi district, Kharkiv region. While 1959—1962, he served at the Soviet Armed Forces. In 1962, Mykola Ivanovych entered the Kharkiv Law Institute (currently, Yaroslav Mudryi National Law University); he graduated with honors from the Kharkiv Law Institute in 1966. From 1965 to 1970, Mykola Panov worked as an investigator at the Prosecutor's Office of Chuhuevskyi district, Kharkiv region. Since 1970, he worked as a graduate student, assistant, Senior Lecturer, Associate Professor, Deputy Dean at the Faculty of Correspondence Education, Senior Researcher, Professor at Yaroslav Mudryi National Law University. He was a Vice Rector for Academic Affairs during 1987—2007. Between 2000—2020, Mykola Panov was the Head of the Department of Criminal Law № 2 of the University.

Mykola Ivanovych defended his PhD dissertation on the topic: *Criminal liability for causing property damage by deception or breach of trust*; in 1987 he defended doctoral dissertation on the topic: *The main problems of the method of committing a crime in Soviet criminal law*. In 1977, Mykola Panov was awarded the title of Docent, and the title of Professor in 1989.

In 1993, Mykola Ivanovych was elected a corresponding member of the National Academy of Legal Sciences of Ukraine, and a full member (Academician) of the National Academy of Legal Sciences of Ukraine in 2000. As of today, he is the Head of the Coordinating Bureau on Criminal Law of the Department of Criminal Law Sciences of the National Academy of Legal Sciences of Ukraine.

Mykola Ivanovych is an author, co-author and scientific editor of almost 400 academic, educational and educational-methodological research papers, which were published in various legal publications (in particular, over

30 monographs, textbooks, teaching aids, lecture texts, comments in criminal legislation of Ukraine), that is a significant contribution not only to the preparation of highly qualified legal personnel but also to the development of all domestic legal science, advancement of criminal legislation and practice of its implementation. Most of publications by Mykola Panov are dedicated to research on the problems of science and practice in criminal law; the issue of philosophy and sociology of law, theory and history of a state and law, criminalistics are considered in some of them.

Mykola Ivanovych actively participates in academic life: he is a member of the editorial board and co-author of *The Legal Encyclopedia* in 6 volumes (printing house: *Ukrainian Encyclopedia*; 1998—2004) and of the 17th volume: *Criminal Law* of the Great Ukrainian Legal Encyclopedia in 20 volumes (Kharkiv, printing house: *Pravo*; 2017), a member of scientific councils and boards of legal publishing houses.

The scientist systematically addresses scientific seminars, international and all-republic scientific-practical conferences. As an experienced lawyer and scientist, he has a number of scientific papers on the problems of law-making and legislative techniques. Mykola Panov is an active participant in law-making activity. Since declaration of Ukraine independence, he has made significant efforts to establish and develop national legislation of the state. As the Vice Rector for Academic Affairs of the University, he organized and coordinated the work of departments and research teams on the development and forensic examination of Drafts of Constitution of Ukraine and the majority of regulatory legal acts. As a member of the Working Group of the Cabinet of Ministers of Ukraine, he took part in the development of the current Criminal Code of Ukraine. Mykola Ivanovych was a member of the Advisory Board on State-Building and Legal Policy Issues under the Chairman of the Verkhovna Rada of Ukraine (1995), a consultant of the Standing Committee of the Verkhovna Rada of Ukraine on legal policy, etc.

The evidence of Mykola Panov fruitful research activity is his work on training and certification of scientific and pedagogical staff: under his supervision and counseling three doctoral and eight PhD dissertations have been defended.

Mykola Ivanovych cooperates with law enforcement and judicial agencies: he was a scientific advisor of the Prosecutor General's Office of Ukraine, a member of the Scientific Advisory Board of the Supreme Court of Ukraine, Deputy Chairman of the Criminal Law Section of the Scientific Advisory Board at the Supreme Court of Ukraine (2003). Mykola Panov is also a co-author of the Scientific and Practical Comments to the Criminal Code of Ukraine (five editions), co-author and academic advisor of the group of authors of the scientific and practical publication: *The Investigator's Desk Book* (three editions), which guide law enforcement agencies in their practical professional activities.

Mykola Panov is a talented lawyer and legal scholar: the lectures and practical classes he conducts are recognized by scientifically sound, clear, logical

sequence of presentation of content, based on an in-depth analysis of current legislation and practice of its application.

Mykola Ivanovych long-term dedicated work, his major contribution to the development of domestic legal science and education, training of highly qualified lawyers, formation and development of the rule of law, have been awarded with numerous prizes of state, departmental, local authorities and local government agencies: in particular, he was granted the honory title: *Honored Worker of Science and Technology of Ukraine* (1995), awarded with the order: *For merits of the 3rd Class* (2002), awarded State Prize of Ukraine in Science and Technology (2006). For significant contribution to training of highly qualified prosecutors, active scientific and advisory cooperation with prosecutors, the Prosecutor General of Ukraine awarded Mykola Ivanovych the rank: senior Adviser of Justice (1997) and the title: *Honorary Employee of the Prosecutor's General Office of Ukraine* (2005). The Constitutional Court of Ukraine, Supreme Court of Ukraine, Prosecutor General's Office of Ukraine, Ministry of Justice of Ukraine, Ministry of Internal Affairs of Ukraine, as well as the Kharkiv Regional Council, Regional State Administration and the City Council have granted Mykola Ivanovych with departmental awards. For his services to Yaroslav Mudryi National Law University, Mykola Panov was awarded the highest awards in this institution: Honorary Badge (Order) of the 3rd Class (2002), 2nd Class (2010), 1st Class (2019), the Academic Council of the University awarded him the honorary title: *Honored Professor of the Yaroslav Mudryi National Law Academy* (2009).

The editorial board of the collection of scientific papers: *Theory and Practice of Forensic Science and Criminalistics* sincerely congratulates Mykola Ivanovych on his double anniversary and wishes him good health, creative inspiration and strength for further scientific and educational activities.

The information was prepared by ***Serhii Kharytonov****,*
Doctor of Law,
Head of the Department of Criminalistics № 2
at Yaroslav Mudryi National Law University

Anatoliy Oleksandrovych Doluda

In 2020, Anatoliy Oleksandrovych Doluda, a famous fine art expert, celebrated his 70th anniversary. Anatoliy Oleksandrovych was born on November 20, 1950, in the village of Lyptsi, Kharkiv Oblast. After graduating from the Kharkiv Polytechnic Institute in 1973, he worked as a researcher. In 1990, he defended his dissertation for PhD degree in Technology majoring in *Materials science*. In 1992, Anatoliy Oleksandrovych was invited to the Kharkiv State Academy of Design and

Arts (currently, *Kharkiv State Academy of Design and Arts*) where he is the Head of the Department of Restoration and Examination of Works of Art.

In 1997, Anatoliy Doluda initiated a new type of forensic examination in the field of art authentification and appraisal at Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations (currently, *National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"*). In 2017, he was elected Chairman of the workshop of forensic art authentication and appraisal at the Scientific Advisory and Methodological Council on Forensic Science at the Ministry of Justice of Ukraine.

At present, Anatoliy Oleksandrovych holds the position of Senior Researcher at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", conducts the most complex forensic art examinations related to attribution of a work (determining authorship, time period of creation, belonging to a particular art school, etc.), defining of the artistic level, historical significance, cultural value and condition, evaluation or insurance value of a work, as well as compliance with the requirements of legislation on the protection of public morals. Under the guidance of Anatoliy Doluda, the following research papers have been created: *Methods of forensic art research on pornographic products* (2011), *Theoretical and methodological aspects of forensic art authentication and appraisal* (2016), *Development of research methods on painting objects* (2019), etc. and others.

During his work at the Center, he performed more than 1,200 forensic examinations and expert researches. Anatoliy Oleksandrovych is deeply informed about the methods of forensic art research, provides practical and methodological assistance to employees who are just beginning their careers as fine art experts, as well as counseling to investigators and judges.

Anatoliy Doluda is actively involved in writing scientific papers. His creative contributions: 60 scientific papers, 5 copyright certificates on inventions and 2 on patents. He introduced guidelines (*Guidelines on conducting forensic art authentication and appraisal on pornographic products* (2009—2010), *Guidelines on art authentication and appraisal on numismatics and phaleristics* (2012—2013)) and methodologies (*Guidelines on forensic art research on pornographic products* (2011), *Guidelines on paintings art examination* (2017—2019), *Development of guidelines for the study of numismatics and phaleristics* (2020—2021)), as well as scientific papers (*Theoretical and methodological provisions of forensic art authentication and appraisal* (2014—2016); co-authored: *Development of the scientific report: "Advancement of forensic examinations classification"* (2016—2018), *Development of methods of art authentication and appraisal on old printed Cyrillic books* (2018—2020), *"Development of glossaries: Glossary on forensic art authentication and appraisal"* (2020)).

The editorial board of the collection of scientific papers: *Theory and Practice of Forensic Science and Criminalistics* sincerely congratulates Anatoliy Oleksandrovych on his 70th anniversary and wishes him good health, creative inspiration and strength for further scientific and educational activities.

The information was prepared by ***Olga Puklich****,*
Senior Researcher of NSC "Hon. Prof. M. S. Bokarius FSI"

Tetyana Vasylivna Savkina

Tatyana Savkina who is the Head of the Department of Forensic Linguistics and Psychology of the Laboratory of Handwriting Analysis, Forensic linguistics, Forensic Psychology and Art Authentication and Appraisal of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" celebrates her 65th birthday this year.

Tetyana Vasylivna has been working at Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations (currently, *National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute"*) since 1998: first, as a researcher, later, as a Senior researcher. Since 2019, she has been a Department Head. Tetyana Vasylivna is a qualified forensic expert in the specialization: *Forensic Psychology* possessing the 1st qualification class of a forensic expert.

Over the period of work in the Institution, Tatyana Savkina has carried out a great number of forensic psychological analyses in various subject areas of forensic psychology. She is well acquainted with the methods of psychological research and extensively uses them while conducting forensic examinations. Tatyana Savkina constantly upgrades her professional skills, provides counseling and methodological support to young professionals, reviews expert conclusions. Tetyana Vasylivna is a member of the section of forensic psychology of the Scientific Advisory Board at the Ministry of Justice of Ukraine and an active participant in its work. She is an academic advisor of the scientific topic: *Guidelines on conducting forensic psychological analyses as to compensation for moral damage to minor victims* (2007), co-executor of topics according to the thematic plans of the Ministry of Justice of Ukraine for 2001—2005 (*Establishing correlation between individual psychological characteristics and written speech of the text author*), for 2006—2008 (*Development of guidelines for forensic psychological analysis of moral injuries*), for 2009—2011 (*Guidelines on forensic psychological analysis of minors*), for 2012—2013 (*Guidelines on forensic psychological analysis of emotional states of stress and frustration*), for 2014—2015 (*Differentiated*

approach to conducting forensic psychological analyses), for 2016—2017 (*Methods of psychological research in cases regarding prevention of moral suffering to a person and compensation for moral injury*), for 2018—2019 (*Development of a methodology of forensic psychological analysis with regard to emotional states of stress and frustration*).

The editorial board of the collection of scientific papers: *Theory and Practice of Forensic Science and Criminalistics* sincerely congratulates Tetyana Vasylivna Savkina on her anniversary and wishes her happiness, strong health, further professional achievements and family well-being.

The information was prepared by ***Kateryna Sylenok****,*
Researcher at NSC "Hon. Prof. M. S. Bokarius FSI"

OUR AUTHORS

V. H. Abrosymova, Department Head of the Laboratory of Handwriting Analysis, Forensic linguistics, Forensic Psychology and Art Authentication and Appraisal of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: abrosymova@gmail.com.

S. L. Babych, Senior Forensic Expert at Sumy Branch of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Sumy, Ukraine; e-mail: svhndise@ukr.net.

P. M. Baranov, Doctor of Geology, Professor, Forensic Expert at Dnipropetrovsk Scientific Research Forensic Center, Dnipro, Ukraine, e-mail: pn2dsbaranov@gmail.com.

I. V. Bohdaniuk, PhD in Law, Senior Researcher, Head of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: bogdanyuk.hniise@gmail.com.

I. I. Bordakova, Senior Forensic Expert at the Department of Forensic Commodity Examinations, Forensic Gemology, Forensic Ecology, Forensic Structural Engineering, Land Forensics and Evaluation Activity of Sumy Scientific Research Forensic Center of the Ministry of Justice of Ukraine, Sumy, Ukraine, e-mail: bordachok.2011@ukr.net.

A. V. Bublikov, Senior Researcher of R&D and Publishing Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: andriy.bublikov7@gmail.com.

O. D. Bui, PhD in Chemistry, Leading Researcher of the Laboratory of Criminalistics of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: b.olga.d.75@gmail.com.

O. Yu. Bululukov, PhD in Law, Associate Professor of the Department of Criminalistics of Yaroslav Mudryi National Law University, Ukraine e-mail: oblehrer@gmail.com.

O. D. Gaidai, Senior Researcher of the Laboratory of Industrial Property Law of Research Center for Forensic Examination on Intellectual Property, Kyiv, Ukraine, e-mail: 0674707733@ukr.net.

O. M. Herman, Department Head at Criminalistics Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: herman30121966@gmail.com.

K. I. Hovorova, Researcher of the Laboratory of Forensic Economic Examinations of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: kg0667241734@gmail.com.

V. O. Homon, Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: gomon1995@gmail.com.

I. M. Gordienko, Leading Forensic Expert at Sumy Branch of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Sumy, Ukraine, e-mail: svhndise@meta.net.

A. O. Hryhorenko, Postgraduate Student of the Department of Criminalistics of Yaroslav Mudryi National Law University, Kharkiv, Ukraine, e-mail: andreigrigorenko96@gmail.com.

E. K. Grygorian, Postgraduate Student at the Department of Forensic Medicine, Medical Law named after honored prof. M.S. Bocarius of Kharkiv National Medical University, Kharkiv, Ukraine, e-mail: 8520148@gmail.com.

O. Yu. Grosheva, Postgraduate Student of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Head of Kharkiv Court of Appeal, Kharkiv, Ukraine, e-mail: E.grosheva63@gmail.com.

V. N. Hubareva, Leading Forensic Expert of the Laboratory of Forensic Economic and Commodity Examinations in High Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: victoriy2006@ukr.net.

R. N. Huseinov, Forensic Expert of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: huseinov_ruslan@ukr.net.

D. O. Davydenko, PhD in Law, Senior Researcher of the Department of Doctoral and Post-graduate Studies of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: davidenko.dasha@ukr.net.

N. Ya. Didushok, Leading Forensic Expert of the Laboratory of Handwriting Analysis, Forensic linguistics, Forensic Psychology and Art Authentication and Appraisal of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: didushok-n@meta.ua.

M. V. Zarchenko, Forensic Expert of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: Zarchenko_m@ukr.net.

M. S. Zelena, Senior Forensic Expert of the Laboratory of Computer and Telecomunication Forensics of Kiev Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine, e-mail: khareta2010@gmail.com.

A. A. Kazarov, Senior Researcher of the Laboratory of Road Accident Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: exp2014@ukr.net.

E. V. Kalashnikov, Researcher of the Laboratory of Road Accident Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail:kalashnikov0911@gmail.com.

O. Yu. Kaniuka, Head of the Department of Forensic Biology and Accounting at Poltava Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Kharkiv, Ukraine; e-mail:olekanyuka@gmail.com.

R. S. Kirin, Doctor of Law, Docent, Forensic Expert of Dnipropetrovsk Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Dnipro, Ukraine; e-mail: kirinrs62@gmail.com.

A. F. Klimchuk, Senior Researcher at the Laboratory of Criminalistics of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: klimchuk.alla1965@gmail.com.

O. M. Kliuiev, Doctor of Law, Professor, Honored Lawyer of Ukraine, Director of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: hniise@hniise.gov.ua.

V. V. Kovalenko, Doctor of Law, Professor, Corresponding member of National Academy of Legal Sciences of Ukraine, Honored Lawyer of Ukraine, Leading Researcher of the Laboratory of Copyright and Information Technology at Research Center for Forensic Examination on Intellectual Property Issues, Kyiv, Ukraine; e-mail: Kovalenko1505@gmail.com.

V. V. Koval, Leading Engineer at Ukrainian State Research Institute for Carbochemistry (UKHIN), Kharkiv, Ukraine, e-mail: kovalen79@gmail.com.

E. V. Kovkina, Senior Researcher at the Laboratory of Handwriting Analysis, Forensic linguistics, Forensic Psychology and Art Authentication and Appraisal at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: kovkina@hniise.gov.ua.

S.A. Kozub, Principal Forensic Expert of the Laboratory of Forensic Economic and Commodity Examinations in High-Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: skozub78@ukr.net.

O. V. Kolomiitsev, PhD in Technology, Leading Researcher of Criminalistics Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: sashagun@ukr.net.

I. M. I. Korotkov, Senior Forensic Expert of the Department of Examination of Materials, Substances and Products of Kirovohrad Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Kropyvnytskyi, Ukraine; e-mail: viddil_svd@ukr.net.

O. Yu. Krykunenko, Senior Forensic Expert of the Department of Weapon Analysis of Cherkasy Scientific Research Forensic Center the Ministry of Internal Affairs, Cherkasy, Ukraine; e-mail: a.krik@ukr.net.

T.V. Marchenko, Senior Forensic Expert of the Laboratory of Forensic Economic and Commodity Examinations in High-Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: tanyamarchenko@ukr.net.

M. S. Myroshnychenko, Doctor of Law, Associate Professor of the Department of Pathological Anatomy at Kharkiv National Medical University, Kharkiv, Ukraine; e-mail: msmyroshnychenko@ukr.net.

M. O. Mozhaiev, PhD in Technology, Department Head of the Laboratory Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: mikhail.mozhayev@hniise.gov.ua.

L. V. Nardid, Senior Researcher at Criminalistics Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: nardidlily@gmail.com.

S. M. Naumenko, PhD in Law, Head of the Sumy Branch of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Sumy, Ukraine, e-mail: svhndise@meta.ua.

O. A. Nedashkivska, Senior Forensic Expert of the Department of Forensic Commodity Examinations, Forensic Gemology, Forensic Economics, Forensic Structural Engineering, Land Forensics and Evaluation Activity at Zhytomyr Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Zhytomyr, Ukraine; e-mail: persik.emir@gmail.com.

O. M. Nedoseka, Senior Forensic Expert of the Department of Handwriting Analysis, Questioned Document Examination and Forensic Accounting at Criminalistics Department of Sumy Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Sumy, Ukraine; e-mail: svksd@ukr.net.

O. P. Necheporenko, PhD in Law, Forensic Expert of the Department of Trace Evidence Analysis of Criminalistics Department at Sumy Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Sumy, Ukraine; e-mail: e-mail: vivat84@ukr.net.

V. H. Nikitiuk, Head of the Department of Forensic Ballistics of Criminalistics Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: nikityuk_sha@ukr.net.

K. V. Nikulin, Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: knikulin87@gmail.com.

V. O. Olkhovsky, Doctor of Medicine, Professor, Honored Professor of Kharkiv National Medical University, Corresponding Member of International Academy of Integrative Anthropology, Kharkiv, Ukraine; e-mail: prof_olkhovsky@ukr.net.

N.I. Panchenko, Department Head at Sumy Branch of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Sumy, Ukraine, e-mail: svhndise@meta.ua.

Yu. V. Panchuk, Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: expert.ryndina31071988@gmail.com.

O. M. Pashkova, Leading Forensic Expert of Criminalistics Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: olgapashkova151001@gmail.com.

Ya. A. Petrenko, Researcher of the Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: yana.petrenko.hndise@gmail.com.

Yu. Yu. Petryshyna, Researcher of the Laboratory of Forensic Structural Engineering of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: lyna.z858585@gmail.com.

I.A. Petrova, Doctor of Law, Professor, Principal Researcher at R&D and Publishing Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine, e-mail: ekobezpeka.ira@gmail.com.

A. O. Polianskyi, PhD in Law, Docent, Head of R&D and Publishing Laboratory at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: anton_polianskyi@ukr.net.

D. V. Puchko, Post-graduate Student at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" of the Ministry of Justice of Ukraine, Prosecutor of Prosecutor's office № 2 of Kharkiv Oblast, Kharkiv, Ukraine; e-mail: puchko06111990@gmail.com.

S. V. Radchenko, Senior Researcher of the Laboratory of Forensic Structural Engineering at National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: svet.radchenko@ukr.net.

S. V. Rohalin, Senior Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: rohalin@i.ua.

R. V. Rudzevych, Forensic Expert at Sumy Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Sumy, Ukraine; e-mail: rudzev.romik@gmail.com.

V. A. Rudniev, PhD in Chemistry, Leading Researcher of Criminalistics Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" Kharkiv, Ukraine, e-mail: vasiliy.rudniev@gmail.com.

I. V. Sabadash, PhD in Law, Head of the Laboratory of Forensic Economic and Commodity Examinations in High-Profile Proceedings of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" Kharkiv, Ukraine; e-mail: sabainna@ukr.net.

I. O. Savchenko, Department Head at Sumy Branch of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute" Sumy, Ukraine; e-mail: svhndise@ukr.net.

L. V. Svyrydova, PhD in Law, Head of the Laboratory of Handwriting Analysis, Forensic linguistics, Forensic Psychology and Art Authentication and Appraisal of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: ludmila.sviridova@hniise.gov.ua.

N. V. Syla, Senior Researcher of the Laboratory of Forensic Structural Engineering of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: nata.syla@ukr.net.

K. P. Sylenok, Researcher of R&D and Publishing Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: sulenokkateruna@gmail.com.

O. V. Synchuk, PhD in Law, Assistant Professor of Criminalistics Department of Yaroslav Mudryi National Law University, Kharkiv, Ukraine; e-mail:o.v.synchuk@nlu.edu.ua.

N.V. Sirotenko, Senior Researcher of the Laboratory of Handwriting Analysis, Forensic linguistics, Forensic Psychology and Art Authentication and Appraisal of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: shunya1964@gmail.com.

A. A. Sych, Researher of the Laboratory of Forensic Commodity Examinations and Intellectual Property Analyses at National Scientific Center "Hon.

Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: anna82017@ukr.net.

O. P. Snigerov, Doctor of Law, Professor, Senior Researcher of R&D and Publishing Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: hniise@hniise.gov.ua.

T. Ye. Sohor, Senior Forensic Expert of the Department of Weapon Analysis of Lviv Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine, Lviv, Ukraine; e-mail: a.krik@ukr.net.

V. S. Suprun, Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: valeriy.suprun@hniise.gov.ua.

L. S. Talianchuk, PhD in Law, Head of the Department of Handwriting Analysis, Questioned Document Examination and Accounting at Vinnytsia Scientific Research Forensic Center of the Ministry of Internal Affairs, Vinnytsia, Ukraine; e-mail: lesichka302015@gmail.com.

R. Tamošiūnaitė, Senior Forensic Expert at Forensic Science Centre of Lithuania of the Ministry of Justice of the Republic of Lithuania, Vilnius, Republic of Lithuania, e-mail: rasele.tam@gmail.com.

I. A. Tararaka, Forensic Expert of the Laboratory Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: malva.km@gmail.com.

R. Uscila, Doctor of Philosophy, Senior Researcher of the Law Institute of the Lithuanian Centre for Social Sciences, Vilnius, Republic of Lithuania; e-mail: rokas.uscila@teise.org.

V. L. Fedorenko, Doctor of Law, Honored Lawyer of Ukraine, Director of Research Center for Forensic Examination on Intellectual Property Issues, Kyiv, Ukraine; e-mail: fedorenko900@gmail.com.

V.I. Fedorchenko, Senior Researcher of the Laboratory of Road-Accident Analyses of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: fedorchenko94@ukr.net.

O. S. Fesenko, Senior Forensic Expert of the Department of Forensic Commodity Examinations, Forensic Gemology, Forensic Ecology, Forensic Structural Engineering, Land Forensics and Evaluation Activity at Zaporizhzhya Research Expert Criminal Center of the Ministry of Internal Affairs of Ukraine, Zaporizhzhya, Ukraine; e-mail: fesenko_o.s.1703@ukr.net.

N. Ie. Filipenko, PhD in Law, Associate Professor at the Department of Law of National Aerospace University "Kharkiv Aviation Institute", Kharkiv, Ukraine, e-mail: filipenko_natalia@ukr.net.

O. Yu. Kholodova, PhD in Technology, Docent, Senior Researcher of the Laboratory of Forensic Economic and Commodity Examinations of Dnipropetrovsk Research Institute of Forensic Expertise, Dnipro, Ukraine; e-mail: kholodova1984@ukr.net.

M. L. Tsymbal, PhD in Law, Honored Lawyer of Ukraine, Learding Researcher of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine.

D. O. Chekin, Researcher at R&D and Publishing Laboratory of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: chekin.hniise@gmail.com.

H. O. Chornyi, PhD in Law, Associate Professor of the Department of Criminalistics of Yaroslav Mudryi National Law University, Kharkiv, Ukraine; e-mail: chernygennadiy@gmail.com.

I. L. Shebalkov, Senior Researcher of the Laboratory of Forensic Engineering, Environmental Forensics, Military Forensics, Forensic Video and Audio Analysis of National Scientific Center "Hon. Prof. M. S. Bokarius Forensic Science Institute", Kharkiv, Ukraine; e-mail: shebalkov@ukr.net.

S. V. Shevchenko, PhD in Geology, Docent, Department Head at Dnipro University of Technology, Dnipro, Ukraine; e-mail: shevchenko.s.v@nmu.one.

V. M. Shevchuk, Professor of the Department of Criminalistics of Yaroslav Mudryi National Law University, Doctor of Law, Professor, Honored Lawyer of Ukraine, Kharkiv, Ukraine; e-mail: Shevchuk_viktor@ukr.net.

V. Yu. Shepitko, Doctor of Law, Professor, Academician of the National Academy of Legal Sciences of Ukraine, Honored Worker of Science and Technology, Head of Criminalistics Department of Yaroslav Mudryi National Law University, Kharkiv, Ukraine; e-mail: shepitko.valery@gmail.com.

G. Juodkaitė-Granskienė, PhD in Philosophy, Doctor of Social Sciences, Professor at Vilnius University, Vilnius, Republic of Lithuania; e-mail: gabriele.juodkaite-granskiene@tf.vu.lt.

TOPICAL INFORMATION FOR AUTHORS AND READERS

Editorial Board informs that Collection of Scientific Papers: *Theory and Practice of Forensic Science and Criminalistics* is included in the Index Copernicus International online database. Journal Passport in the database can be viewed at:

https://journals.indexcopernicus.com/search/details?id=49713.

Collection of Scientific Papers is included in the rating of publications that have bibliometric profiles in Google Scholar, according to the project: *Bibliometrics of Ukrainian science.*

Access to the edition articles at Google Scholar: *https://surl.li/fps.*

An electronic copy of the publication is available for free on website of the publication (*https://khrife-journal.org/index. php/journal/issue/archive*), on Web site of V. I. Vernadskyi National Library of Ukraine of the NAS (National Academy of Science) of Ukraine in the section: *Scientific Periodicals of Ukraine* (*http://surl.li/fpt*), in the repository of the Hon. Prof. M. S. Bokarius Research Institute of Forensic Examinations.

The editorial board of the Collection of Scientific Papers cooperates with *Crossref Agency*; all published content is provided with DOI identifier.

For more information on Collection of Scientific Papers: *Theory and Practice of Forensic Science and Criminalistics*, visit the publication Web site at: *https://khrife-journal.org/index.*

Authors are responsible for scientific content reliability, professional formulation, actual data, quotations, proper names, place names, as well as disclosure of information that is not subject to exposed printing.

The Editorial Board may not share author opinions.

In case of reprinting the reference to the *Theory and Practice of Forensic Science and Criminalistics* Collection of Scientific Papers is obligatory.

REQUIREMENTS FOR RESEARCH PAPER

Requirements for content

Correspondence of an article to subject matter of collection: scientific, theoretical and practical content regarding coverage of criminalistics modern problems, actual issues of performing various types of forensic examinations and special knowledge application in legal proceedings are published on the pages of Scientific Journal.

Scientific style of the material presentation (accuracy, logic, conciseness, clarity, connectivity, integrity, completeness) and its high scientific level.

Structural elements should include:

- **Formulation of Research Problem,** its connection with scientific and practical interests (it is necessary to reveal essence and state of the scientific problem in general terms, theoretical, practical significance of a research in connection with scientific and practical tasks, substantiation of the research relevance);
- **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:
- **Article purpose** (it is necessary to formulate the publication main thesis differing from previously considered research on the chosen topic. The goal should be formed according to problem definition and research analysis in recent years, deepening existing approaches, focusing on the introduced in the scientific circulation terminology, theories, regularities, refinements of earlier known regulations);
- **Main content presentation** with obtained results (important theoretical positions and research results, obtained scientific facts, ideas, thoughts, regularities, concepts, trends of further topic development, personal author contribution should be revealed in this part of the publication);
- **Conclusions** (main results of performed research scientific novelty, theoretical and practical significance is formulated in this part, in the synthesis form of the publication content in a clear, consistent, logically formulated form according to the stated purpose).
- **References** (the list of used sources transliterated according to the Roman alphabet and designed in compliance with APA (American Psychological Association Style) international standard, for example, on the site of V. I. Vernadskyi National Library: *http://nbuv.gov.ua/node/929*.

Scientific novelty of research results should be characterized by the following features: rationality, validity, authenticity, logical non-contradiction, compliance with fundamental scientific principles.

Requirements for scope

Total scope of a scientific article (information about the author, article title, abstract, keywords, article text, subordinate bibliographic references, extended resume, References: list of used sources) should be 10—20 pages.

Requirements for design

Article is submitted for publication in Ukrainian or in English.

Text of the article should be printed using the MS word processor (in the doc or docx format); Font: Times New Roman (Font size: 14 pt); A4 paper size; page orientation: portrait. Text should not contain hyphens and macros.

Article information should be presented according to the following sequence.

Information about the publication author (co-authors) (The author's full name, academic degree, academic rank, information about the election as a member of the National Academy of Sciences of Ukraine, National Academy of Legal Sciences of Ukraine, honorary title, position, place of employment, locality, country, Researcher ID, ORCID ID, e-mail: address). One publication permits no more than three co-authors. Font according to Universal Decimal Classification (UDC) (UDC abbreviations in Ukrainian are available on the UDC website: *http://www.udcsummary.info/php/index.php?lang=uk&pr=Y*).

Article Title should be without abbreviations. Normal abstract text should be equal 600-700 characters (in the article language); Extended abstract texts (summary) of at least 1800 characters (in English and Russian).

Abstract (summary) should include the following: outline of research problem, purpose, used research methods (to be indicated if they contain novelty and are important taking into account the article topic), main research results, conclusions, keywords (keywords should match the content of the article and display the publication topic). Titles of annotation structural parts other except the purpose should not be indicated.

The article text should adhere to requirements for content, general rules of citation and references to used sources.

Quotation should be complete, without arbitrary reduction of the author's text and without distortion of the author's thoughts. Missing words, sentences and paragraphs in quotation is carried out without distortion of the author's text and is indicated by three dots placed in the appropriate place of the quote. Each quotation should be accompanied by a reference to the source which bibliographic description should be completed depending on its type (primary or secondary source) according to the National Standard of Ukraine: ДСТУ 8302: 2015: Information and documentation. Bibliographic reference. General terms and conditions of Compilation;

Footnote bibliography should be used in the article text. Footnote bibliography should be placed as a note at the bottom of the page (type page), distinguishing it from the main text with a horizontal line. Footnote bibliography should be associated with the document text using footnotes, which should be given on the top line of type face after corresponding fragment in the text (for example: Text [1]) and before the Footnote (for example: [1] Reference).

During the numbering of subordinate bibliographic references, it is necessary to use non-continuous numbering within the entire article (Arabic numerals).

Illustrations (tables, diagrams, graphics, schemes, formulas) can be submitted in the text article. Illustrations should correspond to the article text and the text should correspond to illustrations. Captions should be placed after their numbers. If necessary, illustrations can be supplemented by explanatory information (caption).

Illustrations should be delivered in separate files in tiff and jpeg formats. It is not allowed to photograph or scan illustrations from printed sources.

Each table should have a serial number and a subject heading which should be placed symmetrically to the text above. Subject heading and the *Table* word should be capitalized.

Formulas should be performed using the Math Type formula editor compatible with MS Office 2007 or 2010. Diagrams, charts, schemes, formulas should not be placed in a separate frame or above the text. Text should be top and bottom without wrapping.

Streamlining of the list of used sources (References) should be placed after the article text, in an alphabetical oder. After each reference it is necessary to indicate in the parentheses the source language of the source (for example: in [in Ukrainian] or [in Russian]). Transliteration should be made depending on the source language: for Ukrainian language, use the official transliteration, approved by the Cabinet of Ministers of Ukraine № 55 (*https://slovnyk.ua/translit.php or http://ukrlit.org/translite ratsiia#source=0LrQvtC80L9g0Y7RgtC10YDQvdCw*), dated on January 27, 2010; for Russian, use transliteration according to the requirements of the Order of the Federal Migration Service of Russia № 4271 (*https://transliteration.pro/zagranpasport*), dated on March 29, 2016.

Bibliographic description rules for References:

Author, A. A. (Publication year). Research Paper Title: Research Paper Subheading. Publication city: Publisher.

Book chapters

Author, A. A. (Publication year). Chapter Title. Editor. Book Title. Publication city: Publisher.

Book without author

Book Title. (Publication year). Chapter Title. Publication city: Publisher.

Chapters from encyclopedia

Author, A. A. (Publication year). Chapter Title. Editor. Book Title. (Volume, p._-_). Publication city: Publisher.

Reference to Web resource

Resource name. (Publish Date). Publication Name. URL: http://

E-book without DOI

Author, A. A. (Publication year). Research Paper Title: Research Paper Subheading. URL: http://

E-book with DOI

Author, A. A. (Publication year). Research Paper Title: Research Paper Subheading. DOI:

Journal Article

Author, A. A. (Publication year). Article Title. Journal Title, Common number (Current number) line spacing: DOI:

Newspaper Article

Author, A. A. (Publication year). Article Title. Journal Title, Common number (Current number), line spacing: DOI: URL: http://

Sites Web references & social media

Author, A. A. (Publish Date). Article Title. URL: http://

Facebook Page

Author, A. A. [Alias] (Publish Date). Publication Name [Facebook Page]. Received from: http://

Wikipedia

Publication Name (Publish Date). Received from Wikipedia. date accessed, URL: http://

Blog Post

Publication Name (Publish Date). Article Title [Blog Post] URL: http://

Films (DVDs, video files)

Producer, A. A. (Producer) Director, B. B. (Director). (Year). Film title [File format]. Production Country: Studio.

Video, online (video streaming)

Publication Name. [File format]. (Publish Date). URL: http://

Video, Internet (YouTube)

Author, A. A. [Alias] (Publish Date) Publication Name [File format]. URL: http://

Music

Composer A. A. (Copyright year). Composition title [Recorded by B. B. Performer, if he/she is different from Composer]. According to Album Tile [Record: CD, cassette, etc.]. Release city: Studio. (Record date if it is different from song authorship date).

TV serial, episode

Director B. W. (Scriptwriter), & Director, D. D. (Director). (Release Date). Episode Title [TV serial episode]. Producer. Episode Title. Production city, Production country: Studio or Distributor.

Broadcasting

TV presenter name. (Broadcasting date). Program [Television Broadcasting]. Production city, Production country: Studio.

Painting

Painter (canvas date creation). Title [genre]. Production city, Production country: Museum

Map, diagram, drawing, table, chart

Author, A. (Date). Title [Format]. Zoom. Publication city: Publisher.

Requirements for submission

Author (co-authors) should provide reference (the reference of such content file name should consist of the last name (last names) of the author (co-authors) and the sent date with the note:

Reference.

information about author (co-authors) of research paper submitted for publication in the Theory and Practice of Forensic Science and Criminalistics scientific paper collection

Research Paper Title.

Field of science, Area of specialization of the article.

Author full name (co-authors) in Ukrainian and English.

Academic degree (Area of specialization Code).

Academic rank (Department Name or Area of specialization Code).

Information about election as a member of the National Academy of Sciences of Ukraine, National Academy of Legal Sciences of Ukraine.

Honorary title.

Job position.

Institutional affiliation.

Settlement, country.

ORCID (if available) or Researcher ID (if available).
Mailing address.
e-mail.
Phone.
Instant messenger (for communication only): Viber,WhatsApp, Telegram, Skype.

Author (co-authors) should submit a qualitative color photograph (quality color photographs) of 9 × 12 cm with a resolution not less than 300 dpi in the jpg or tiff format. The file name (files) should include author's (co-authors) last name(s).

By submitting a scientific article for publication to the Theory and Practice of Forensic Science and Criminalistics scientific papers collection, the author (co-authors) fully and unconditionally accepts the Licensing Agreement terms.

Please, note that it is not necessary for the author (co-authors) to send a Doctor of Law, PhD in Law review who is a specialist in the field of expertise concerning the article topic and a recommendation for publication in the form of an extract from minutes of the meeting of the of the institution higher education institution department (research institute), since each article submitted for publication operates Double blind peer review.

Analysis and evaluation of scientific articles, comments and suggestions on their updating and improvement are carried out by peer reviewers.

The author (co-authors) bears the responsibility for the accuracy of the provided content, and the affiliation of the latter to him personally and the translation quality of the quotations from foreign sources.

Content submitted in violation of these requirements are not published.

The Editorial Board has the right to review (Double-Blind Peer Review), edit, reduce and reject articles.

Licensing & Copyright

License Terms: Authors preserve the copyright and entitle Editorial Board to publish research papers including results of experimental and theoretical researches and not submitted for publication to another Publishing Houses. All content is distributed according to Creative Commons Attribution License International CC-BY allowing third parties to distribute research content if research paper copyright and first publication in this scientific papers collection are recognized.

CONTENT

EDITORIAL BOARD 3

FROM EDITORIAL BOARD. 6

CURRENT ISSUES OF CRIMINALISTICS

V. Yu. Shepitko
Formation of criminalistics and forensic didactics in Ukraine. 7

V. M. Shevchyuk
Forensic innovation:
concepts, functions, tasks and research prospects 20

O. Yu. Bululukov
Subject of tactical decisions in criminalistics. 41

O. V. Synchuk
Psychological aspects of crimes pre-trial investigation 52

H. O. Chornyi
Microtraces in the system of criminal characteristics
of terrorist nature crimes 60

O. P. Necheporenko
Problematic aspects of shoeprints seizure from the crime scene
(Review Article) 73

L. S. Talyanchuk
Types of identity documents inspection
while crossing the state border of Ukraine (Review Article) 82

A. O. Hryhorenko
Problems of using the method of reconstruction
while legal activity 96

GENERAL PROVISIONS OF FORENSIC SCIENCE

O. M. Kliuiev
Achievements and development prospects
of the National Scientific Center
“Hon. Prof. M. S. Bokarius Forensic Science Institute” 112

V. L. Fedorenko, V. V. Kovalenko, O. D. Gaidai
Prehistory of formation of forensic intellectual property analysis
in the context of forensic activity genesis in Ukraine (from the time
of Kievan principality to the First World War) (Review Article). 126

I. A. Petrova, D. O. Chekin, K. P. Sylenok
Procedural and non-procedural forms of special knowledge application
in civil and economic proceedings 146

N. Ye. Filipenko, O. P. Snigerov, A. V. Bublikov
The use of special knowledge while identification, prevention and investigation of crimes in the field of computer-based information and high technologies (Review Article) 162
A. O. Polianskyi, G. Juodkaite-Granskiene
Regarding relation between classification of forensic science general theory tasks and practical forensic activity (Review Article) 179
O. M. Nedoseka
Topical issues of the concept of forensic expert professional ethics formation 193
O. A. Nedashkivska
The phenomenon of forensic initiative concept and current problems of its implementation in a digital society 201
S. M. Naumenko
The system of law enforcement agencies interacting with forensic science institutes 211
D. V. Puchko
Relevance and reliability of an expert conclusion as a criteria for evaluating forensic examination 226
M. O. Mozhaiev, V. O. Homon, K. V. Nikulin
Peculiarities of computer network functioning to maintain information system of forensic activity. 240
D. O. Davydenko
Prospects for the development of mediation in the administrative process of Ukraine and its influence on forensic activity 250
A. O. Kazarov
Principles of administrative and legal regulation of forensic activity in cases of administrative offenses related to traffic collisions 260

ISSUES OF REGULATORY, LEGAL, SCIENTIFIC AND METHODOLOGICAL SUPPORT OF DIFFERENT CLASSES AND KINDS, SPECIES OF FORENSIC SCIENCE
V. O. Olkhovsky, E. K. Grygorian, R. S. Myroshnychenko
Approaches to determining post-mortem interval 272
Ye. V. Kovkina, L. V. Svyrydova, N. Ia. Didushok
Semantic and textual analysis of calls 280
N. V. Syrotenko, R. Tamošiūnaitė, V. G. Abrosymova
Forensic research on short signatures. 293
A. V. Kolomiytsev, V. H. Nikitiuk, O. M. Herman, O. M. Pashkova
Peculiarities of the lead traces in a bore of smoothbore firearm 304
O. Iu. Krykunenko, T. Ie. Sohor
Suggestions on amending the methodology of establishing the object belonging to firearms ammunition and its suitability for firing 317

O. Iu. Grosheva
Experimental research as the basis for developing
a method for identifying trace formation mechanism 327
O. Yu. Kaniuka
Methodological features of research
on a Domestic dog intermediate hair 340
I. M. Korotkov
Problems of concentration determination of inorganic acids
in a mixture while research on examining objects 348
V. A. Rudniev, A. F. Klimchuk, O. D. Bui, L. V. Nardid, V. V. Koval
Determination of quantitative content of charge stocks
in gasoline and diesel fuel binary mixture 358
M. S. Zelena
Research on computer equipment and software products
in investigation of crimes related to illegal trafficking of drugs,
psychotropic substances or their analogues 373
V. I. Fedorchenko, E. V. Kalashnikov
Forensic examination of the establishment of causes of faults
in the “Active Curve System” stabilization system
of Mercedes-Benz GLS500 4Matic 382
R. V. Rudzevych
Peculiarities of multidisciplinary forensic structural engineering
and economic examinations appointment 393
U. U. Petryshyna, S. V. Radchenko, N. V. Syla
Complex issues arising while conducting research on wheelchair ramps
for access to buildings by persons with reduced mobility
and determination of wheelchair ramps’ compliance with building standards
and regulations 406
I. L. Shebalkov, Yu. V. Panchuk, R. N. Huseinov, V. S. Suprun
Current problems of multidisciplinary forensic examinations
while determination of the course of action of fire departments
of the state emergency service of Ukraine 416
Ya. A. Petrenko, M. V. Zarchenko, I. A. Tararaka, M. L. Tsymbal
Environmental engineering analyses on signs of substantial harm
to the environment as a result of illegal fishing industry 427
I. V. Bohdaniuk, S. V. Rohalin, V. S. Suprun
Research on work of a stepper motor of electricity meters under
the influence of an external permanent magnetic field created
with the purpose of uncounted consumption of electric energy. 442
K. I. Hovorova
Place of forensic economic examination in combating fraud
on the provision of services in banking via the internet. 461

O. S. Fesenko
Problematic issues and ways for their resolution while research on tax credit of value-added tax (Review Article) 473
I. V. Sabadash, S. A. Kozub, T. V. Marchenko
On the issue of tax proceedings on charging rent for subsoil use for the extraction of raw hydrocarbons 488
N. I. Panchenko, I. M. Hordiyenko
Peculiarities of forensic economic examinations on the issues of military equipment accounting. 500
O. Yu. Kholodova, V. N. Hubareva, A. A. Sych
Methodology for determining the value of machines, equipment, raw materials and consumer goods taking into account retrospective of evaluation while forensic commodity examination 513
I. I. Bordakova
The use of trademarks (trade names) and their meaning 527
I. O. Savchenko, S. L. Babych, R. Uscila
Some issues on forensic psychological examination of victims enduring domestic violence (Review Article). 538
P. M. Baranov, R. S. Kirin, S. V. Shevchenko
Legal nature of the term of precious stones in forensic examination: problems and ways for their resolution 555

SCIENTIFIC NEWS 572

OUR HEROES OF ANNIVERSARY 608

OUR AUTHORS. 619

TOPICAL INFORMATION FOR AUTHORS AND READERS. 626

REQUIREMENTS FOR RESEARCH PAPER 627

Scientific Edition

THEORY AND PRACTICE OF FORENSIC SCIENCE AND CRIMINALISTICS

Collection of Scientific Papers
Issue 22

Executive Editor: *Anton Polianskyi*
Proofreader: *Daryna Dukhnenko*
Desktop Publisher: *Ihor Lushchyk*
Translated by *Andriy Bublikov, Tetiana Droshchenko*

Certificate of State Registration of printed mass media
КВ № 23467–13307ПР dated on 06.08.2018

Manuscript approved for print: 11.02.2021. Format: 60 × 90/16.
Wood free uncoated paper (WFU). Typeface: Times New Roman.
Conventional printed sheets: 40,0.
Circulation of 100 copies. Order No
Publishing House "Pravo" of the National Academy of Legal Sciences
of Ukraine and Yaroslav Mudryi National Law University,
80a, Chernyshevska St., Kharkiv, Ukraine, 61002
Phone / Fax: (057) 716-45-53
Website: www.pravo-izdat.com.ua

E-mail for authors: verstka@pravo-izdat.com.ua
E-mail for orders: sales@ pravo-izdat.com.ua

Certificate on the entry of publishing business subject in the State Register
of Publishers, Manufacturers and Distributors of Publishing Products –
series: ДК No 4219 dated on 01.12.2011

Printed by Printing House "PROMART"
12, Vesnina St., Kharkiv, Ukraine, 61023
Phone: +38 (057) 717-28-80
Certificate on the entry of publishing business subject in the State Register
of Publishers, Manufacturers and Distributors of Publishing Products –
Series: ДК No 5748 dated on 06.11.2017

For notes

For notes

For notes