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Problematic Issues Of Forensic Ballistics And Forensic Explosives Science During Pre-Trial Investigation Of Crimes In Peacetime, Wartime And Post-War Perspectives

The article retrospectively examines the basics of forensic ballistics and forensic explosives science, trends and reasons for trafficking in firearms, weapons, ammunition and explosives in the peaceful pre-war period, as well as since the beginning of military operations in the area of Anti-Terrorist Operation and Joint Forces Operation, and in the current martial law period, and identifies trends with a forecast for the post-war perspective. At the same time, the author analyzes the current national criminal and criminal procedure legislation, including its amendments in terms of qualification and peculiarities of investigating these crimes during various periods. This research also considers its application and the ratio of its implementation in law application activities by investigators, inquiring officers, prosecutors at the stages under study, in particular, when comparing peaceful pre-war times and martial law. The study revealed that during martial law, the number of illicit trafficking cases in firearms, ammunition and explosives remains significant due to their large leakage from de-occupied settlements, from the sites of military operations, during the logistics of their delivery and, in some cases, due to the abuse of authority or negligence on the part of certain heads of military units, their financially responsible persons, violation of the accounting procedures and deficiencies in writing off these military assets. In light of the aforementioned and the consequences of illegal airstrikes, missile and artillery attacks on residential areas, educational, entertainment institutions, and other establishments, recreational facilities and civilian infrastructure of Ukrainian settlements and vehicles with civilians, the number of expert forensic ballistics and forensic explosives examination appointments has significantly increased, and therefore the workload of experts conducting these expert examinations has intensified accordingly. This requires the leadership of expert institutions to set some additional tasks in order to increase the number of experts in this category, and to conduct handwriting and forensic accounting examinations, since when keeping these arms records, interested persons fill out the relevant official document forms by hand. The author states that when considering peculiarities of actions by investigators and inquiring officers, one should take into account and comply with the relevant forensic and ballistic methods and methodologies for inspecting the crime scene with a view to a comprehensive and high-quality

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The author declare that they have no conflict of interest.





detection, recording, seizure and evaluation of firearms, ammunition, explosives, their components and remains as well as other objects found by law enforcement agencies after the shelling, which confirm such facts and investigation results, and will be sent to the International Criminal Court or Tribunal. It is emphasized that issues involving preparation for conducting specific types of forensic examinations remain important, including the proper formulation of questions, taking into account martial law and the use of certain military equipment, missiles and shells, which have been understudied in peacetime and require the application of additional specific expertise, and the resolution of challenging issues related to improving the efficiency of interaction between employees of the ministries and agencies concerned. Based on the results of the research, proposals and recommendations have been developed that will enhance the efficiency of pre-trial investigation and expert research in the above-mentioned promising area.

Key words: weapons, ammunition, explosives, trends, martial law, causes, conditions, forensic examination, expert research, forensic ballistics, forensic atlases, suggestions, improvements, expert permission, investigator, inquiring officer, prosecutor.

Research Problem Formulation. Over the past years, taking into account the important constitutional and social components, the legislature has improved legal and regulatory framework for governing legal trafficking in firearms, ammunition, explosives and substances in the country, increased criminal liability for their illegal trafficking as well as governed preventive issues in this area ¹. Ukraine has always adhered to international legal acts and international cooperation in this area, especially in issues of combating transnational organized crime ². Scientists have conducted scientific research on identification of existing challenges and ways of their solution ³. At the same time, even under martial law, scientists continued not only educational activities, but also their research and scientific work, especially on the issues ⁴ we discussed in the article.

As the criminal situation on the territory of Ukraine shows, illicit trafficking in weapons, ammunition and explosives tends to involve significant quantities, and the state of war additionally and significantly affects the increase of new sources of their entry into illicit trafficking, both for the purpose of committing criminal acts and for illegal storage by the population “just in case” or for “self-defense”. According to the National Police of

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ПРОБЛЕМНІ ПИТАННЯ СУДОВОЇ БАЛІСТИКИ І КРИМІНАЛІСТИЧНОГО ВИБУХОЗНАВСТВА ПРИ ДОСУДОВОМУ РОЗСЛІДУВАННІ КРИМІНАЛЬНИХ ПРАВопорушень У МИРНОМУ, ВОЄННОМУ СТАНІ ТА ПОВОЄННІЙ ПЕРСПЕКТИВІ

У статті на ретроспективному рівні розглянуто основи судової балістики та криміналістичного вибухознавства, тенденції та причини розповсюдження в незаконний обіг вогнепальної зброї, бойових припасів і вибухових речовин в мирному передвоєнному стані, а також з початку військових дій в зоні дії Антитерористичної операції і Операції об'єднаних сил, а також у сучасному воєнному стані та визначено тенденції з прогнозуванням у повоєнній перспективі. При цьому проаналізовано чинне національне кримінальне та кримінально-процесуальне законодавство і зміни до нього щодо кваліфікації і особливостей розслідування таких видів злочинів у різні періоди та тенденції його застосування і співвідношення запровадження у правозастосовну діяльність слідчими, дізнавачами, прокурорами на досліджуваних етапах, зокрема при порівнянні мирного довоєнного часу та воєнного стану. За результатами дослідження з'ясовано, що при воєнному стані кількість фактів незаконного обігу вогнепальної зброї, бойових припасів та вибухових речовин залишається значною через великий витік їх з деюкованих населених пунктів, з місць ведення бойових дій і військових операцій, при логістиці їх доставлення та в окремих випадках пов'язаних із зловживанням чи халатністю окремих керівників військових частин, їх матеріально відповідальних осіб при порушенні порядку обліку та недоліків при списанні такого військового майна. Констатовано, що у зв'язку з вказаним, а також за результатами незаконних повітряних обстрілів авіацією, ракетними і артилерійськими системами місць постійного проживання громадян, навчальних, розважальних та інших закладів, місць відпочинку та цивільних об'єктів інфраструктури населених пунктів України і транспортних засобів з цивільним населенням, значно зросла кількість призначення експертних судово-балістичних та з криміналістичного вибухознавства досліджень у зв'язку з чим, відповідно зросло навантаження на експертів з проведення вказаних експертів, що вимагає додаткові завдання перед керівництвом експертних установ щодо збільшення кількості такої категорії експертів та відповідно й для проведення почерково-навичих та судово-бухгалтерських експертів, оскільки при веденні вказаних обліків озброєння зацікавлені особи заповнюють відповідні

¹ Про внесення змін до Кримінального та Кримінального процесуального кодексів України щодо відповідальності за незаконне поводження зі зброєю та вибухонебезпечними матеріалами : Закон України від 05.07. 2012. № 5064-VI. *Відомості Верховної Ради*. 2013. № 28. Ст. 299% Кримінальний кодекс України : станом на 1 вересня 2023. Харків. Право. 2023. 292 с.; Кримінальний процесуальний кодекс України : станом на 1 травня 2024. Харків. Право. 452 с.

² Про внесення зміни до статті 263-1 Кримінального кодексу України у зв'язку з приєднанням України до Протоколу проти незаконного виготовлення та обігу вогнепальної зброї, її складових частин і компонентів, а також боеприпасів до неї, який доповнює Конвенцію Організації Об'єднаних Націй проти транснаціональної організованої злочинності: Закон України від 14.05. 2013 № 228-VII. *Відомості Верховної Ради*. 2014. № 11. Ст. 133.

³ Кітов О.В. Історія розвитку законодавства щодо відповідальності за застосування зброї в кримінальному праві України. *Наше право. OUR LAW*. 2023. №3. С. 110-117. (DOI 10.32782/NR.2023); Торопов С.О. Попередні та експертні балістичні дослідження на місці події : дис. ... канд. юрид. наук. 12.00.09. Харківський національний університет внутрішніх справ. Харків. 2011. С. 200-207; Торопов С.О. Судово-балістична експертиза на місці події. *Вісник Харківського національного університету внутрішніх справ*. 2008. Вип. 43. С. 115-120; Козаченко С.В. Доказування у кримінальних провадженнях, пов'язаних із незаконним обігом вогнепальної зброї або боеприпасів : автореф. дис. ... канд. юрид. наук. 12.00.09. Харків. Харківський національний університет внутрішніх справ. 2023. 20 с.

⁴ Науково-дослідна діяльність Харківського національного університету внутрішніх справ в умовах воєнного стану : монографія. За заг. ред. В.В. Сокуренька, Д.В. Швеця, О.А. Моргунова. МВС України. Харк. нац. ун-т внутр. справ. Вінниця. ТВОРИ. 2023. С. 2-9.

бланки службових документів власноручно. Охарактеризовано особливості дій слідчих, дізнавачів, з метою врахування і дотримання ними відповідних криміналістичних і балістичних методів і методик щодо огляду місць подій з метою повного і якісного виявлення, фіксування, вилучення і оцінювання вогнепальної зброї, боєприпасів, вибухових речовин, їх елементів і рештків та інших об'єктів які виявлені правоохоронцями після вказаних обстрілах, що підтверджують такі факти і результати розслідування по яким будуть скеровані до Міжнародного кримінального суду чи трибуналу. Наголошено, що важливими залишаються питання підготовки до проведення досліджених видів експертиз, зокрема й з належної постановки запитань, враховуючи воєнний стан і застосування специфічної військової техніки, ракет, снарядів, що не досліджувалось у мирний час і вимагає використання додаткових спеціальних знань та вирішення проблемних питань підвищення ефективності взаємодії між працівниками зацікавлених міністерств і відомств. За результатами дослідження напрацьовані пропозиції і рекомендації, які підвищують ефективність досудового розслідування та проведення експертних досліджень у розглянутому перспективному напрямі.

Ключові слова : зброя, боєприпаси, вибухові речовини, тенденції, воєнний стан, причини, умови, судова експертиза, експертні дослідження, судова балістика, криміналістичні атласи, пропозиції, удосконалення, експертний допуск, слідчий, дізнавач, прокурор

Ukraine, in 2023, 4,840 facts of their illicit trafficking were registered, 5,000 firearms, 1.8 million rounds of ammunition and cartridges were seized. At the state and academic level, the significant and problematic issue of resuming the record-keeping of firearms, ammunition, explosives and military equipment, which were indiscriminately issued by individual ministries and agencies in the first days of the Russian aggression, including to regional and other terrorist defense units, unknown citizen defenders, etc., is ignored, which will have significant and negative consequences not only today, but also in the post-war perspective. The martial law has also contributed to the increase in the recorded facts of Stealing, appropriation or extortion of firearms (other than smooth-bore hunting guns), ammunition, explosive substances, explosive devices or radioactive material, or obtaining them by fraud under Art. 262 of the Criminal Code of Ukraine, in contrast to the previous peaceful state, when criminal offenses of Unlawful handling of weapons, ammunition or explosives under Art. 263 of the Criminal Code of Ukraine⁵ were more common. Despite the above, the Ministry of Internal Affairs of Ukraine, on the basis of the anonymous survey conducted in 2023 among Ukrainian citizens, takes a democratic and weakened position on the resolution of the controversial issue in society regarding the issuance of a permit for the legal purchase and possession of rifled small arms and other types of firearms and ammunition to the population. Specifically, 1 million, 012 thousand 897 people took part in the survey. The survey results demonstrated that 59% of respondents were in favor of free carrying of weapons by citizens; 22% of the respondents were strongly against it; 19% decided to grant only a permit to store weapons without carrying them. At the same time, all respondents unanimously supported the legal procedure for issuing permits for the purchase and use of rifled firearms and ammunition. However, it remains unclear why representatives of the Permit System of the Ministry of Internal Affairs of Ukraine and other law enforcement agencies do not engage in arguments or explanations, especially through the mass media, regarding the rights of citizens under the law (in particular, after conducting the required inspections) to purchase and keep a hunting smooth-bore firearm at their residence for protection, even if they do not have hunting privileges. Such firearms pose fewer risks than rifled firearms when used for protection. Even before this survey, the challenging issues raised were discussed at a meeting of the Verkhovna Rada of Ukraine during the first reading of the draft law dated 25.06.2021⁶. However, there are a number of fragile and sensitive factors and concerns in the questions raised about allowing the civilian population of our country to purchase and use these rifled weapons, especially based on the example of foreign countries whose media regularly inform us about the facts of mass intentional killings of people with the use of firearms (an average of 10-15 people or more) in schools, other educational and entertainment facilities, etc. This is despite the fact that the level of education, culture, mentality and behavior in public places in the USA and Western countries is dozens of levels higher than in former CIS countries, including in Ukraine. Here we indirectly see the hidden intentions of domestic and foreign commercial



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⁵ Кримінальний кодекс України : станом на 1 вересня 2023. Харків. Право. 2023. 292 с.; Кримінальний процесуальний кодекс України : станом на 1 травня 2024. Харків. Право. 452 с.

⁶ Проект Закону про право на цивільну вогнепальну зброю від 25.06. 2021. №5708 URL: <https://itd.rada.gov.ua/billInfo/Bills/Gard/27190>.



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**PROBLEMATIC ISSUES OF
FORENSIC BALLISTICS AND
FORENSIC EXPLOSIVES
SCIENCE IN THE PRE-
TRIAL INVESTIGATION OF
CRIMINAL OFFENCES IN
PEACETIME, MARTIAL LAW
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The article retrospectively examines the basics of forensic ballistics and forensic explosives science, trends and reasons for trafficking in firearms, weapons, ammunition and explosives in the peaceful pre-war period, as well as since the beginning of military operations in the area of the Anti-Terrorist Operation and the Joint Forces Operation, and in the current martial law period, and identifies trends with a forecast in the post-war perspective. At the same time, the author analyses the current national criminal and criminal procedural legislation and changes to regarding the qualification and specifics of investigation of these types of crimes in different periods and trends in their application and the ratio of their implementation in law enforcement activities by investigators, inquirers, prosecutors at the stages under study, in particular, when comparing peaceful pre-war times and martial law. The research revealed that during martial law, the number of illicit trafficking cases in firearms, ammunition and explosives remains significant due to their large leakage from de-occupied settlements, from the sites of military operations, during the logistics of their delivery and, in some cases, due to abuse or negligence of certain heads of military units, their financially responsible persons in violation of the accounting procedure and deficiencies in writing-off these military assets.

It is established that in connection with aforementioned, and the results of illegal air attacks by aircraft, missile and artillery systems on places of permanent residence of citizens, educational, entertainment and other institutions, recreational facilities and civilian infrastructure of Ukrainian settlements and vehicles with civilians, the number of expert forensic ballistics and forensic explosives research appointments has significantly increased, and therefore the workload of experts on conducting these investigations has increased accordingly. The author describes the peculiarities

structures (small arms and ammunition are almost not produced in our country) to make significant profits from the sale of firearms and ammunition in Ukraine, which ranks second in the world in terms of profits after the sale of narcotics. As evidenced by the practice of law enforcement agencies, during martial law and in the post-war period, the granting of the specified permits and their implementation will only aggravate the crime and operational situation in the country and complicate police activities in preventing illicit trafficking of the specified dangerous objects, and may also result in a significant number of victims, in particular among children and teenagers. As an example, on December 15, 2023, Serhii Batran (birth year 1969), Deputy of the local Council, member of the Keretsk Municipal Commission for the Rule of Law, brought three grenades to the meeting of the same city commission, which he detonated during a discussion of the issues under consideration, as a result of which a total of 26 people were injured, and 3 of them died in hospital ⁷. Another example is the fact that on the night of May 14–15, 2024, Anatolii Soroka, Head of the Aviation Institute, while intoxicated, used an award pistol and fired shots into the air in a multi-story building in the Obolon district of Kyiv. This is qualified as hooliganism, but it could have resulted in significant human losses (it is no coincidence that after World War II the government confiscated most weapons from their owners). What is more, according to mass media, on 9 June 2024, in the city of Kyiv, an unknown person threw a grenade into the facade of a residential building, as a result of which one of the women present near him was injured, the offender was identified and detained. Such and other cases are numerous and not isolated. These and other examples testify to the presence, in the post-war perspective, of the so-called psychological 'Afghan syndrome', when the nervous system of people who have participated in hostilities (or demonstrated their power) becomes excitable and manifests itself in extreme aggressiveness, sometimes uncontrollable. Moreover, it should be added that under martial law there is also an increase in the uncontrolled leakage of a significant number of firearms, ammunition, explosives and substances from military operation sites and from de-occupied areas and settlements. Therefore, a rather important and problematic issue is raised in our society: to provide or not to provide civilians with firearms for their own protection, necessitating subsequent research or scientific and applied study. In addition to the above, it should be pointed out that another alarming and discussed problem, which manifests itself significantly in a state of war, is a large quantity of weapons, ammunition, explosives and substances that fall into illicit trafficking, specifically due to deficiencies in accounting, logistics of supply, with their improper write-offs in the places of hostilities in military units and formations, sometimes combined with abuse or negligence of individual military officials and financially responsible persons who ensure progress on this front. It is necessary to prove the above not only by means of forensic ballistics, but also by means of the whole range of other forensic examinations (handwriting analysis, author recognition, forensic accounting, forensic DNA analysis, etc.). This poses additional challenges in solving a number of organizational and forensic issues of forensic science, which manifested itself less problematically in comparison with the peaceful pre-war state. In addition, new types of firearms, ammunition, grenades and other explosive materials have appeared on Ukrainian territory as a result of martial law. These objects come from our country's partners and from countries where they were purchased by the Government, and often end up in illicit trafficking due to their connection to conflict zones or logistics net-

⁷ Юхно О.О. Діяльність Національної поліції України щодо попередження незаконного обігу вогнепальної зброї, боеприпасів і вибухових речовин: матеріали Міжнародної науково-практичної конференції «Злочинність і протидія їй в умовах війни та у повоєнній перспективі». Міждисциплінарна панорама: збірник тез доп. (м. Вінниця, 19 квітня 2024 р.) МВС України. Харківський національний університет внутрішніх справ. Кримінологічна асоціація України. Вінниця. ХНУВС. 2024. С. 611-615.

of actions by investigators and inquirers in order to take into account and comply with the relevant forensic and ballistic methods and techniques for inspecting the scene of an incident with a view to complete and high-quality detection, recording, seizure and evaluation of firearms, ammunition, explosives, their elements and remains and other objects found by law enforcement officers after the said shelling, which confirm such facts and the results of the investigation, which will be sent to the International Criminal Court or Tribunal. It is emphasized that the preparation issues for conduct types of forensic examinations studied remain important, including the proper formulation of questions, taking into account martial law and usage of specific military equipment, missiles, and shells, which have not been studied in peacetime and require the application of additional specialized knowledge and the resolution of problematic issues of improving the efficiency of interaction between employees of the ministries and agencies concerned. Based on the results of research, suggestions and recommendations have been developed that will increase the effectiveness of pre-trial investigation and expert research in above-mentioned promising area.

Keywords : weapons, ammunition, explosives, trends, martial law, causes, conditions, forensic examination, expert research, forensic ballistics, forensic atlases, suggestions, improvements, expert admission, investigator, inquirer, prosecutor.

works. As a result, they are used in the commission of criminal acts. At the same time, engineering drawings, documentation on operation and use, forensic and other atlases were not available to ballistics experts and explosives specialists before the war. This extends the duration of today's forensic ballistics and explosives examinations. These challenges require new organizational, procedural, and other approaches by investigators, inquiring officers, prosecutors, and forensic experts in the identification of such objects/items at crime scenes, as well as in preparation and conduct of forensic ballistics and forensic explosives examinations. Efficiency of interaction between investigators, inquiring officers, prosecutors and experts in forensic ballistics and explosives science, the development and improvement of special methods and methodologies of crime scene inspection related to the shelling of houses, vehicles with civilians, educational institutions, life support facilities and infrastructure, organizational issues related to the preparation and conduct of the above, as well as handwriting, forensic accounting and other types of forensic examinations should be improved. Qualifications of pre-trial investigation workers and experts should be enhanced. According to D. V. Sherbaniuk, it is necessary to support and encourage the initiative of forensic experts to conduct research in accordance with their acquired skills and abilities in specific specialties and tasks of performing official duties⁸, taking into account the peculiarities of the activity and the existing organizational and other conditions, peculiarities and shortcomings in the activity of forensic experts. This position was also supported by S. I. Perlin, S. O. Shevtsov, A. I. Tymoshenko, T. P. Matiushkova⁹. We also support these scientific positions of the above-mentioned scientists, since war is an extraordinary factor and requires joint efforts of many law enforcement agencies, investigators, inquiring officers, including representatives of forensic ballistics and forensic explosives science in order to fulfill set tasks. The aforesaid requires further research to identify problematic issues in this area and to develop appropriate proposals and recommendations for improving research activities of investigative and inquiring officers, prosecutors (whose employees act as procedural executives of pre-trial investigation bodies), expert institutions and experts in the relevant field within the framework of our study.

Analysis of Essential Research and Publications. Particular issues of the researched area were considered by scientists: Yu.P. Alenin, I.A. Aliiev, V.P. Bakhin, V.V. Biriukov, A.F. Volobuev, V.V. Hlobush, M.V. Danshyn, F.M. Dzhavadov, V.A. Zhuravel, V.V. Kikinchuk, I.I. Kohutych, S.V. Kozachenko, S.P. Lapta, V.H. Lukashevych, S.I. Perlin, I.A. Petrova, I.V. Pyroh, R.L. Stepaniuk, D.R. Stepaniuk, S.O. Toropov, V.Yu. Shepitko, S.O. Shevtsov, D.V. Sherbaniuk, M.H. Shcherbakovskiy at el. Emphasis should be placed on doctoral dissertations and monographs published in recent years by researchers such as: I.A. Aliiev Problems of Forensic Prevention (1990), Yu.P. Alenin Identification and Investigation of Crime Foci: Theory and Practice (monograph, 1996);



⁸ Шербанюк Д.В. Теорія і практика реалізації експертної ініціативи у кримінальному провадженні : дис. ... канд. юрид. наук. 12.00.09. Харків. 2019. С. 97-98.

⁹ Перлін С.І., С.О. Шевцов, А.І. Тимошенко, Т.П. Матюшкова Експертна версія - задокументоване ініціативне інформування суб'єктів розслідування. Вісник Луганського державного університету внутрішніх справ ім. Е.О. Дідоренка. Луганськ. 2014. Спец. випуск. № 1. С. 225-231.



Yukhno Oleksandr,
Penzieva Kateryna

**PROBLEMATISCHE FRAGEN
DER FORENSISCHEN
BALLISTIK UND
DER FORENSISCHEN
SPRENGSTOFFKUNDE BEI
DER VORGERICHTLICHEN
UNTERSUCHUNG
VON STRAFTATEN IN
FRIEDENSZEITEN, UNTER
KRIEGSRECHT UND IN DER
NACHKRIEGSZEIT**

Der Artikel untersucht rückblickend die Grundlagen der forensischen Ballistik und der forensischen Sprengstoffkunde, Trends und Ursachen des Handels mit Schusswaffen, Waffen, Munition und Sprengstoffen in der friedlichen Vorkriegszeit sowie seit Beginn der Feindseligkeiten im Bereich der Anti-Terror-Operation und der Joint Forces Operation sowie in der aktuellen Kriegeperiode und zeigt Trends mit Prognosen in der Nachkriegsperspektive auf. Gleichzeitig analysiert der Autor die aktuelle nationale Straf- und Strafprozessgesetzgebung und deren Änderungen im Hinblick auf die Qualifikation und die Besonderheiten der Untersuchung solcher Arten von Straftaten in den verschiedenen Perioden und die Trends in ihrer Anwendung und das Verhältnis ihrer Umsetzung in der Strafverfolgung durch Ermittler, Ermittler und Staatsanwälte in den untersuchten Phasen, insbesondere beim Vergleich von Vorkriegsfrieden und Kriegezeit. Die Studie ergab, dass während des Kriegerechts die Zahl der Fälle von illegalem Handel mit Schusswaffen, Munition und Sprengstoffen aufgrund des großen Abflusses dieser Güter aus den geräumten Siedlungen, aus den Schauplätzen der Feindseligkeiten und militärischen Operationen, während der Logistik ihrer Lieferung und in einigen Fällen aufgrund des Missbrauchs oder der Nachlässigkeit bestimmter Leiter von Militäreinheiten, ihrer materiellen und immateriellen Ressourcen, die für die Herstellung von Waffen, Munition und Sprengstoffen benötigt werden, weiterhin erheblich ist. Es wird festgestellt, dass im Zusammenhang mit den obigen Ausführungen sowie den Ergebnissen illegaler Luftangriffe durch Flugzeuge, Raketen und Artilleriesysteme auf Orte mit ständigem Wohnsitz von Bürgern, Bildungs-, Unterhaltungs- und andere Einrichtungen, Freizeiteinrichtungen und zivile Infrastrukturen ukrainischer Siedlungen und Fahrzeuge mit Zivilisten die Zahl der Ernennungen von Sachverständigen für forensische Ballistik und forensische Sprengstoffforschung erheblich zugenommen hat, was die Arbeitsbelastung der Sachverständigen für die Durchführung dieser Studien entsprechend erhöht hat.

F.M. Dzhavadov Conceptual Fundamental Bases of Development of Judicial Expert in Modern Conditions (2000); E.B. Simakova-Yefremian Theory and Methodology of Complex Examination of Contact of Trace Interaction of Objects (monograph, 2004); V.Yu. Shepitko Forensic Tactics (Systemic and Structural Analysis) (monograph, 2007); V. H. Lukashevych Modeling in Criminalistics and Cognitive Activity of Investigators (monograph, 2008); I.I. Kohutych Theoretical Foundations of Using Forensic Knowledge in Criminal Court Cases (2010); O.M. Moiseeva Expert Technologies in Forensic Activities: Theoretical Principles and Practice of Use (2011); R.L. Stepaniuk Criminalistics Support of Investigation of Crimes Committed in the Budgetary Sphere of Ukraine (monograph, 2012); I.A. Petrova Theoretical and Legal, Organizational and Methodological Principles of Regulating Forensic Commodity Examination of Consumer Goods (2012); I.V. Pyrih Theoretical Foundations of Pre-trial Investigation Expert Support (2015), M.H. Shcherbakovskyi Conducting and Using Forensic Examinations in Criminal Proceedings (monograph, 2015), and D. V. Sherbaniuk's PhD dissertation Theory and Practice of Expert Initiative Implementation in Criminal Proceedings (2019) et al. They have made a significant contribution to the development of the theory and practice of national criminalistics. In 2011, during peacetime, at the PhD level, S.O. Toropov directly studied the issue of Preliminary and Expert Ballistic Examination at Crime Scene, and S.V. Kozachenko Proof in Criminal Proceedings Related to Illicit Trafficking in Firearms or Ammunition (2023). At the same time, (except the penultimate scientist), they considered the issues of forensic ballistic examinations and criminal explosives science only fragmentarily, and separate dissertations did not adequately emphasize and thoroughly outline these particular topics, which requires that such issues be singled out as a separate area of promising scientific research, the relevance of which is confirmed by the current martial law and the existing problems associated with this process and post-war perspective.

Research Purpose and Tasks. The Article Purpose is to identify current challenges related to the trends in the state of illicit trafficking of weapons, ammunition and explosives in the conditions of martial law and in the post-war perspective, as well as to improve, methods and techniques of crime scene inspection, detection, recording, seizure and evaluation of objects and physical evidence for the purpose of preparing and conducting forensic ballistics and forensic explosives examinations, and to address challenges related to the workload of experts and resolution of issues by forensic ballistics and explosives experts. The tasks are to determine the sources of illicit trafficking in firearms, ammunition and explosives and their manifestation in this research area, as well as problematic issues related to the inspection of the scenes of such crime types, to organize the preparation and conduct of forensic ballistics and forensic explosives examination by the country's expert agencies, and to identify and develop proposals and recommendations to address them in the current martial law situation as compared to pre-war peacetime, as well as to determine trends and directions in the post-war perspective.

Research Scientific Novelty. Research on criminal situation and its outcomes in the country during peacetime, martial law and post-war periods has improved in terms of identifying trends, causes, conditions and characteristics related to entering into illicit trafficking of weapons, ammunition, explosive devices and substances, especially new types and sources of leakage of such items, etc. The methodology of identifying existing problematic issues has been improved, particularly when inspecting the places where events took place, preparing, appointing and conducting required expert studies in the indicated area, and during the activities of investigators, inquiring officers, prosecutors and forensic experts of

Охарактеризовано особливості дій слідчих, дізнавачів, з метою врахування і дотримання ними відповідних криміналістичних і балістичних методів і методик щодо огляду місць події з метою повного і якісного виявлення, фіксування, вилучення і оцінювання вогнепальної зброї, боєприпасів, вибухових речовин, їх елементів і рештків та інших об'єктів які виявлені правоохоронцями після вказаних обстріла, що підтверджують такі факти і результати розслідування по яким будуть скеровані до Міжнародного кримінального суду чи трибуналу. Наголошено, що важливими залишаються питання підготовки до проведення досліджених видів експертиз, зокрема й з належної постановки запитань, враховуючи воєнний стан і застосування специфічної військової техніки, ракет, снарядів, що не досліджувалось у мирний час і вимагає використання додаткових спеціальних знань та вирішення проблемних питань підвищення ефективності взаємодії між працівниками зацікавлених міністерств і відомств. За результатами дослідження напрацьовані пропозиції і рекомендації, які підвищать ефективність досудового розслідування та проведення експертних досліджень у розглянутому напрямку.

Ключові слова : зброя, боєприпаси, вибухові речовини, тенденції, воєнний стан, причини, умови, судова експертиза, експертні дослідження, судова балістика, криміналістичні атласи, пропозиції, удосконалення, експертний допуск, слідчий, дізнавач, прокурор.

expert institutions. As a result, proposals and recommendations have been developed in order to solve the existing problems, to ensure quality and efficient preparation and conduct of forensic ballistic and forensic explosives examinations based on the results of illegal shelling of the territory of Ukraine, and to fulfill the tasks of pre-trial investigation of this category of crimes in accordance with criminal proceeding tasks under the provisions of Article 2 of the current Criminal Procedural Code of Ukraine, and to ensure their quality documentation and prospective submission to the International Criminal Court or Tribunal ¹⁰. Organizational, procedural, forensic, and expert proposals and recommendations have been provided to address issues concerning the peculiarities of the activities of investigators, inquiring officers, forensic experts during peacetime and martial law, and to explore the prospects for conducting forensic ballistic examinations in the post-war period.

Main Content Presentation. Forensic ballistics emerged as a separate branch of forensic technology and studies patterns of displaying and obtaining information about the origin and use of firearms, their cartridges (ammunition), and traces of their use, and develops techniques and methods of detection, recording, seizure, evaluation, storage and research of the aforementioned objects for efficient investigation and prevention of certain types of crimes and criminal offenses in this area. Ballistics expertise is used by investigators, inquiring officers, and prosecutors to obtain evidence associated with the use of firearms and ammunition during criminal offense commission. At the same time, it is necessary to determine the fact and circumstances of the use of a firearm, i.e., one of the first tasks is to establish whether the object used by a criminal is a firearm. To determine the above, the seized weapon must meet the following criteria: weaponizability, firing capability and reliability. The firearm under investigation must have the following design features: gun barrel, closing mechanism and firing mechanism. An important component of firearms is ammunition (cartridges) designed for firing from specific types of firearms. Modern small arms use exclusively unitary cartridges of industrial production, which combine a bullet, propellant and primer in a single shell: a cartridge case. Smoothbore hunting weapons combine: cartridge case, primer, propellant, wad, gaskets and projectile (bullet, shot, buckshot), which can be detected directly by ballistic experts, who can be involved as specialists when inspecting the scene in such a field ¹¹. Studies of the peaceful pre-war period show that criminal and marginal elements tried to obtain weapons in various ways, including: attacks to seize weapons and ammunition, including through fraudulent acquisition; theft; repair of old or unusable weapons; and producing home-made prototypes (atypical, non-standard weapons). Specific expertise in forensic ballistics and forensic explosives science is required to determine whether the found items belong to firearms, etc. The conduct of forensic ballistics examination, as well as other research, was regulated by



¹⁰ Кримінальний процесуальний кодекс України : станом на 1 травня 2024. Харків. Право. 452 с.

¹¹ Криміналістика : підручник у 2 томах. Т.1. [А.Ф. Волобуєв, М.В. Даньшин, А.В. Іщенко, та ін.]. За заг. ред. А.Ф. Волобуєва, Р.Л. Степанюка, В. О. Малярової. МВС України. Харківський національний університет внутрішніх справ. 2018. Харків. С. 180-181; Щербаківський М.Г. Проведення та використання судових експертиз у кримінальному провадженні : монографія. Харків. В деле. 2015. С. 190-195.



**Yukhno Oleksandr,
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**QUESTIONS
PROBLÉMATIQUES DE LA
BALISTIQUE LÉGICQUE ET DE
LA SCIENCE LÉGALISTE DES
EXPLOSIFS DANS L'ENQUÊTE
AVANT LE PROCÈS SUR LES
INFRACTIONS CRIMINELLES
EN TEMPS DE PAIX, DANS
LA LOI MARTIALE ET DANS
LA PERSPECTIVE D'APRÈS-
GUERRE**

L'article examine rétrospectivement les bases de la balistique médico-légale et de la science médico-légale des explosifs, les tendances et les raisons du trafic d'armes à feu, d'armes, de munitions et d'explosifs au cours de la période pacifique d'avant-guerre, ainsi que depuis le début des opérations militaires dans la zone de la lutte anti-guerre. -Opération terroriste et opération des forces conjointes, et dans la période actuelle de la loi martiale, et identifie les tendances avec une prévision dans la perspective d'après-guerre. Dans le même temps, l'auteur analyse la législation nationale actuelle en matière pénale et de procédure pénale et les changements concernant la qualification et les spécificités des enquêtes sur ces types de délits à différentes périodes et tendances dans leur application et le rapport de leur mise en œuvre dans les activités d'application de la loi par enquêteurs, enquêteurs, procureurs aux étapes étudiées, en particulier lorsqu'on compare les temps paisibles d'avant-guerre et la loi martiale. L'étude a révélé que pendant la loi martiale, le nombre de cas de trafic illicite d'armes à feu, de munitions et d'explosifs reste important en raison de leurs fuites importantes depuis les colonies désoccupées, depuis les sites d'opérations militaires, pendant la logistique de leur livraison et, dans certains cas, en raison d'abus ou de négligence de certains chefs d'unités militaires, de leurs personnes financièrement responsables en violation de la procédure comptable et de déficiences dans la radiation de ces actifs militaires.

Il est établi qu'en relation avec ce qui précède et les résultats des attaques aériennes illégales menées par des avions, des systèmes de missiles et d'artillerie contre les lieux de résidence permanente des citoyens, les institutions éducatives, de divertissement et autres, les installations de loisirs et les infrastructures civiles des colonies ukrainiennes et les véhicules avec des civils, le nombre de nominations d'experts en balistique médico-légale et en recherche médico-légale sur les explosifs a considérablement augmenté, ce qui a entraîné une augmentation correspondante de la charge de travail des experts chargés de mener ces enquêtes.

the Ministry of Justice of Ukraine and legal regulations from various agencies in this field. Relevant methodologies on these topics were also created by eminent representatives of well-known forensic schools¹².

Since 2022, with the beginning of military aggression against Ukraine, such possibilities have increased many times due to the illegal arrival of the aforementioned items from the war zones, logistics for supplying military units with weapons, ammunition, explosives of industrial production, etc., as well as due to misuse or negligence in their handling and receipt from the occupied territories, where such weapons were collected and appropriated by civilians from the facilities of hostilities on both sides¹³. It should be emphasized that in modern combat operations the units use mainly old types of firearms: Stechkin automatic pistol (used by commanders), the SKS carbine, and, paradoxically, the Maxim gun, the Mosin-Nagant (Russia), which were manufactured in the beginning of the 19th and 20th centuries, etc., and fall into illicit trafficking, encouraging ballistic experts to return to the use of past methodologies and guidelines, firearms atlases for these types of firearms and ammunition. At the same time, for example, the modern domestic pistol Fort-12, Fort-14 (in service with the police) or its modifications are not used on the front line because they are technically underdeveloped. This was manifested on the battlefield, where the most frequently used safety catch, in some batches, was made of silumin and failed in situations crucial to life and health. The majority of small arms and ammunition entering Ukraine are also foreign-made by our partners and purchased by our government. This was unusual and not widespread in peacetime until 2022. In this context, expert agencies faced organizational problems related to significant workload of ballistic and forensic explosives experts. In order to increase the efficiency of the above-mentioned expert studies, we propose the following measures.

1. To ensure adequate forensic examinations of objects associated with illicit trafficking of firearms and cold weapons, military equipment, explosives and substances coming from partners of Ukraine or purchased by our country in conditions of martial law in certain foreign countries, it is advisable to enhance the qualifications of the expert staff working at forensic research institutions. In particular, it is expedient to carry out such actions also on the territory of those foreign partner countries where firearms, ammunition, explosives and substances coming to Ukraine are produced.

2. The Ministry of Justice of Ukraine, the Ministry of Internal Affairs of Ukraine shall cooperate with the Ministry of Defense of Ukraine and the Ministry of Foreign Affairs of Ukraine in the following matters: a) delivery of foreign samples of firearms, cold weapons, ammunition, explosives and substances, etc., coming from our partners and purchased in other countries, to the expert institutions of these agencies in order to ensure high-quality forensic, ballistic and other types of examinations; b) in cooperation with partners, improving the quality of appointing and conducting relevant types of forensic examinations to resolve the issue of printing or purchasing atlases: which would contain samples of foreign military firearms and cold weapons and ammunition; atlases of samples of explosive devices and substances as well as documentation on their operation and methods of use (which are used and referred to by forensic experts during research on identifying objects of research; c) providing expert agencies with samples of document flow related

¹² Науково-методичні рекомендації з питань підготовки та призначення судових експертів до експертних досліджень. Наказ Міністерства юстиції від 08.10.1998 № 53/5 у редакції Наказу Міністерства юстиції України від 27.07.2015 № 1350/5; Інструкція про призначення та проведення судових експертиз та експертних досліджень в системі Служби безпеки України. Наказ Центрального управління Служби безпеки України від 29.05.2015. № 371; Настільна книга слідчого. М.І. Панов, В.Ю. Шепітько, В.О. Коновалова та ін. Київ. Ін Юре. 2007. С. 23-29.

¹³ Шербанюк Д.В. Теорія і практика реалізації експертної ініціативи у кримінальному провадженні : дис. ... канд. юрид. наук. 12.00.09. Харків. 2019. С. 611-615.

L'auteur décrit les particularités des actions des enquêteurs et des enquêteurs afin de prendre en compte et de respecter les méthodes et techniques médico-légales et balistiques pertinentes pour inspecter les lieux d'un incident en vue d'une détection, d'un enregistrement, d'une saisie et d'une saisie complètes et de haute qualité. évaluation des armes à feu, munitions, explosifs, de leurs éléments et restes et autres objets trouvés par les forces de l'ordre après ledit bombardement, qui confirment ces faits et les résultats de l'enquête, qui seront transmis à la Cour ou au Tribunal pénal international. Il est souligné que les questions de préparation aux types d'examen médico-légaux étudiés restent importantes, y compris la formulation appropriée des questions, en tenant compte de la loi martiale et de l'utilisation d'équipements militaires spécifiques, de missiles et d'obus, qui n'ont pas été étudiés en temps de paix et nécessitent l'application de connaissances spécialisées supplémentaires et la résolution de problèmes liés à l'amélioration de l'efficacité de l'interaction entre les employés des ministères et des agences concernés. Sur la base des résultats de la recherche, des suggestions et des recommandations ont été élaborées pour accroître l'efficacité de l'enquête préalable au procès et de la recherche d'experts dans le domaine prometteur mentionné ci-dessus.

Mots clés : armes, munitions, explosifs, tendances, loi martiale, causes, conditions, expertise médico-légale, recherche d'expert, balistique médico-légale, atlas médico-légaux, suggestions, améliorations, admission d'expert, enquêteur, enquêteur, procureur.

to logistics, accounting, receipt, issuance and write-off of weapons lost or damaged during combat operations by financially responsible persons. The purpose of this is to specify the objects of expert research and to establish criminal acts of military officials and other financially responsible persons in this area, and to conduct necessary handwriting and forensic accounting examinations on these issues. In view of the fact that the legislative and executive authorities of the USA and certain partner countries, having voted in favor of the provision of military aid to Ukraine, have raised requirements for ensuring and increasing strict control over its provision and use, we believe that it would be expedient to obtain from them cost estimates for the investigated types of weapons, items of military circulation and use, and additionally to determine the extent of stolen military property attributable to the guilty parties and, if necessary, to file civil lawsuits in criminal proceedings. This will require amending the Current Criminal Code of Ukraine and Criminal Procedure Code of Ukraine.

3. It is expedient for investigators, inquiring officers, and prosecutors to make extensive use of forensic DNA analysis in the context of integration into the European Union. This will include identification of DNA profiles on weapons, certain types of oversized ammunition, seized explosive devices, and military equipment in order to identify persons who have used them during the commission of criminal offences, as the national theory and practice of criminalistics is significantly lagging behind the introduction of this area, in contrast to foreign countries¹⁴.

4. As a result of expert service reorganization (State Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine which was subordinated to the National Police of Ukraine and now is subordinated to the Ministry of Internal Affairs of Ukraine), the powers of this Ministry's experts have been changed. Nowadays they usually do not go to crime scenes (except for a certain number of agreed types of crimes and schedules). Therefore, given the complexity of crimes involving illicit trafficking of weapons and their commission with their use, in such cases it would be appropriate to provide duty shifts for forensic experts from the State Scientific Research Forensic Center of the Ministry of Internal Affairs of Ukraine according to separate schedules in the regions of scene inspection. Forensic scientists¹⁵ have been pointing out the importance, expediency and relevance of this field since the

¹⁴ Степанюк Р.Л., Кікіничук В.В. Напрями вдосконалення правового регулювання криміналістичного ДНК-аналізу в Україні в контексті інтеграції до Європейського Союзу. Вісник Харківського національного університету внутрішніх справ. 2022. Вип. 97(2). С. 234-249. DOI : 10.32631/v.2022.2.21; Степанюк Д. Р. Правові засади криміналістичного ДНК-аналізу й удосконалення законодавства України. Наше право OUR LAW. 2023. № 3. С. 118-124.



¹⁵ Торопов С.О. Попередні та експертні балістичні дослідження на місці події : дис. ... канд. юрид. наук. 12.00.09. Харківський національний університет внутрішніх справ. Харків. 2011. С. 97-112; Торопов С.О. Судово-балістична експертиза на місці події. Вісник Харківського національного університету внутрішніх справ. 2008. Вип. 43. С. 115-120; Плескачевский В.М. Судебно-балістические экспертные исследования на месте происшествия. Вопросы судебной экспертизы. Сб. науч. трудов Азербайджанского научно-исследовательского института судебных экспертиз. Баку. 1974. № 17. С. 19-23; Пирог И.В. О возможности проведения экспертизы на месте происшествия : материалы междунар. науч.-практ. конф. (Мариуполь, 15-16 января 2014 г.). Филиал Донецкого института внутренних дел. 2014. Мариуполь. С. 180-183.



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**PROBLEMATYKA BALISTYKI
KĄDOWEJ I NAUK
SĄDOWYCH O MATERIAŁACH
WYBUCHOWYCH W
PRZYGOTOWANIU
DOCHODZENIACH O
PRZESTĘPSTWA W CZASIE
POKOJU, STANIE WOJENNYM I
PERSPEKTYWIE POWOJENNEJ**

W artykule retrospektywnie omówiono podstawy balistyki sądowej i kryminalistycznej nauki o materiałach wybuchowych, tendencje i przyczyny obrotu bronią palną, bronią, amunicją i materiałami wybuchowymi w pokojowym okresie przedwojennym, a także od początku działań wojennych na obszarze Antymonopolu. -Operacji Terrorystycznej i Operacji Połączonych Sił oraz w obecnym stanie wojennym oraz identyfikuje trendy wraz z prognozą w perspektywie powojennej. Jednocześnie autor analizuje obowiązujące krajowe ustawodawstwo karne i procesowe oraz zmiany w zakresie kwalifikacji i specyfiki dochodzeń w sprawie tego typu przestępstw w różnych okresach i tendencjach w ich stosowaniu oraz wskaźniku ich realizacji w działaniach organów ścigania przez śledczych, pytających, prokuratorów na badanych etapach, zwłaszcza przy porównywaniu spokojnych czasów przedwojennych i stanu wojennego. Z przeprowadzonych badań wynika, że w okresie stanu wojennego liczba przypadków nielegalnego handlu bronią palną, amunicją i materiałami wybuchowymi utrzymuje się na wysokim poziomie ze względu na duży wyciek z okupowanych osiedli, z miejsc działań wojennych, podczas logistyki jej dostaw, a w niektórych przypadkach przypadkach, z powodu nadużyć lub zaniedbań niektórych kierowników jednostek wojskowych, ich osób odpowiedzialnych finansowo, z naruszeniem zasad rachunkowości i uchybień w spisanii tego majątku wojskowego.

Ustala się, że w związku z powyższym oraz skutkami nielegalnych ataków powietrznych samolotów, systemów raketowych i artyleryjskich na miejsca stałego pobytu obywateli, instytucje oświatowe, rozrywkowe i inne, obiekty rekreacyjne i infrastrukturę cywilną osiedli ukraińskich oraz pojazdy z ludnością cywilną znacznie wzrosła liczba powoływań na biegłych z zakresu balistyki sądowej i badań kryminalistycznych materiałów wybuchowych, w związku z czym odpowiednio wzrosło obciążenie ekspertów pracą związaną z prowadzeniem tych dochodzeń. Autor opisuje specyfikę działań śledczych i osób dochodzeniowych w celu

pre-war period, and the martial law and post-war perspective confirm the expediency of introducing such a direction.

The proposed measures are based on the results of studying the causes and conditions, new sources that contributed to the significant trafficking of the objects studied, starting from the time of the ATO and JFO and during the current martial law. As the statistics show, the number of cases of unlawful handling of weapons, ammunition or explosives (Article 263 of the Criminal Code of Ukraine) is 66.2% of all crimes of this category. In 2014–2017, due to military operations in the ATO and JFO territories, which resulted in an increase in the number of cases of illicit arms trafficking, etc., the number of criminal offenses increased from 6,929 to 8,002 (+15.5%), and in subsequent years, due to preventive and operational search activities of law enforcement agencies, it decreased and amounted to 4,067 cases in 2021. At the same time, in 2022, when the enemy began its aggression, more cases were recorded compared to the previous year: 4,735 (+13.0%). This trend indicates that there is still a considerable number of these crimes. In particular, these crimes are closely related to such crimes as illegal manufacture, processing or repair of firearms or falsification, illegal removal or alteration of their markings, or illegal manufacture of ammunition, explosives or explosive devices (Article 263-1 of the Criminal Code of Ukraine), which is characterized by their growth from 170 to 196 (+15.3%) between 2014 and 2016. In the following year, 2017, in comparison with the previous period, they increased by 1.7 times and amounted to 198 cases, and further decreased and were equal to 113 such cases in 2021, as the opportunity to purchase illegal weapons of industrial production increased, rather than repair, forgery or falsification, although such facts continued to take their place. At the same time, if since 2014 the number of cases of stealing, appropriation or extortion of firearms, ammunition, explosives or radioactive material, or obtaining them by fraud of abuse of office (Article 262 of the Criminal Code of Ukraine) has decreased, and it was only 48 cases in 2021, then their number increased by 3.6 times and was equal to 174 cases in 2022. Even in peacetime, the Supreme Court of Ukraine emphasized the importance of combating this type of crime and specifically summarized the case law on this category of crimes, drawing the attention of law enforcement and judicial authorities to this area of activity and adopting permanent preventive measures in order to weaken the crime situation in the country and ensure an effective legal, judicial and law enforcement response to such cases ¹⁶.

Moreover, during the martial law since 2022, the number of criminal offenses against the established order of military service (military criminal offenses) has increased to 13,766 cases (an increase of 4.5 times), which represents 3.8% of all criminal offenses registered in the country, compared to 0.9% in previous years. Specifically, there were only 7 offenses in 2020, 2 in 2012, and 13 in 2022 ¹⁷. The most frequently reported actions were absences without leave from a military unit or place of service (Article 407 of the Criminal Code of Ukraine), which amounted to 6,183 cases in 2022, three times more than in the previous period, while 37.3% of them were committed with unlawful acquisition of weapons, ammunition and grenades. In 2013, V.V. Davydenko devoted his research to the social danger and negative impact of this type of crime on the defense capability of our country and the need to develop a separate forensic methodology for its investigation ¹⁸, taking into

¹⁶ Науково-методичні рекомендації з питань підготовки та призначення судових експертів до експертних досліджень. Наказ Міністерства юстиції від 08.10. 1998 № 53/5 у редакції Наказу Міністерства юстиції України від 27.07.2015 № 1350/5.

¹⁷ Кримінальна ситуація в Україні в умовах війни : основні тенденції. 2022 рік. : монографія. Авт. кол. М.Г. Вербеньський, О.Г. Кулик, І.В. Наумова та ін. За заг ред. д-ра юрид. наук, проф. М.Г. Вербеньського. Київ. Юрінком Інтер. 2023. С. 156.

¹⁸ Настільна книга слідчого. М.І. Панов, В.Ю. Шепітько, В.О. Коновалова та ін. Київ : Ін Юре. 2007. С. 130-135.



uwzględnienia i przestrzegania odpowiednich metod i technik kryminalistycznych i balistycznych stosowanych przy oględzinach miejsca zdarzenia w celu pełnego i wysokiej jakości wykrywania, rejestrowania, zajęcia i ocena broni palnej, amunicji, materiałów wybuchowych, ich elementów i pozostałości oraz innych przedmiotów znalezionych przez funkcjonariuszy organów ścigania po wspomnianym ostrzale, potwierdzająca te fakty i wyniki dochodzenia, która zostanie przekazana Międzynarodowemu Trybunałowi lub Trybunałowi Karnemu. Podkreśla się, że istotne pozostają kwestie przygotowania do prowadzenia badań kryminalistycznych, w tym właściwe formułowanie pytań, z uwzględnieniem stanu wojennego i użycia określonego sprzętu wojskowego, rakiet i pocisków, które nie były badane w czasie pokoju i wymagają zastosowanie dodatkowej specjalistycznej wiedzy i rozwiązywanie problematycznych kwestii poprawy efektywności interakcji między pracownikami zainteresowanych ministerstw i agencji. Na podstawie wyników badań opracowano sugestie i rekomendacje, które zwiększą skuteczność badań przedprocesowych i badań eksperckich w ww. perspektywicznym obszarze.

Słowa kluczowe: broń, amunicja, materiały wybuchowe, trendy, stan wojenny, przyczyny, warunki, oględziny kryminalistyczne, badania eksperckie, balistyka kryminalistyczna, atlasy kryminalistyczne, sugestie, ulepszenia, przyjęcie biegłego, śledczy, pytający, prokurator.

account the importance of combating this type of crime even in peacetime. As the martial law and the above-mentioned statistics have shown, the predictions of this scientist have been confirmed and are still relevant to the present day.

In 2022, the number of facts of desertion increased 27 times to 3,214 cases, 61% of which were committed with the illegal appropriation of weapons and ammunition, and in 31.3% of cases also grenades. In addition, in 2022 there were 1,574 cases of military disobedience (Article 402 of the Criminal Code of Ukraine), and in 29.7% of these cases they were committed with the threat of using weapons. In 2022 there was also an increase in cases of stealing, appropriation, extortion or fraudulent obtaining of weapons, ammunitions, explosive or other warfare substances, vehicles, military or special machinery, or other munitions, or abuse of office by a military serviceman (Article 410 Criminal Code of Ukraine), which increased by 30.9% compared to 2021 and amounted to 250 such cases. In previous years, starting from 2014, their number ranged from 95 to 288. The number of violations of rules related to handling of weapons, and also substances and objects of increased danger to the surroundings (Article 414 of the Criminal Code of Ukraine) in the past 2014–2015 years increased 9 times and amounted to an increase from 7 to 188 cases. However, from 2016 to 2021, their number decreased to 33 cases. Simultaneously, in 2022, 303 such facts were recorded, demonstrating the relevance of the issues raised in the article during martial law. In the current state of war, there is an increase in cases of unauthorised leaving of a battlefield or refusal to use weapons (Article 429 of the Criminal Code of Ukraine), of which 150 cases were recorded in 2022, in contrast to 2013–2021, when only 2 such cases¹⁹ were registered.

During the martial law, the facts of neglect of duty in military service (Article 425 of the Criminal Code of Ukraine) renewed, which is associated with the failure to ensure proper record-keeping, use, logistics, and write-off of weapons, military supplies, explosives, etc. Thus, by 2021, their number was reduced to -13.9%, and the growth can be traced from 36 cases in 2013 to 273 in 2022, which in turn is 42.2% more compared to 2021. At the same time, there is a growing trend in the formation of paramilitary or armed groups that operate outside the bounds of the law, and their number in 2022 amounted to 276 cases, which is +29.6% more than in 2021, in which they were registered in the amount of 213 (the number of weapons seized is not reported). Therefore, given the statistics provided, the relevance of forensic ballistics remains substantial today.

Numerous instances of criminal offenses involving illicit trafficking of weapons, ammunition, explosive devices and substances, as well as results from shelling civilian residential buildings, economic facilities and civil infrastructure, have significantly increased the workload of forensic explosives experts and specialists. In this connection, it is expedient for the leadership of forensic institutions of all levels to resolve the issue of granting a significant number of additional permits to forensic experts in forensic ballistic and



¹⁹ Кримінальний кодекс України : станом на 1 вересня 2023. Харків. Право. 2023. 292 с.; Кримінальна ситуація в Україні в умовах війни : основні тенденції. 2022 рік. : монографія. Авт. кол. М.Г. Вербеньський, О.Г. Кулик, І.В. Наумова та ін. За заг. ред. д-ра юрид. наук, проф. М.Г. Вербеньського. Київ. Юрінком Інтер. 2023. С. 125-127.



explosives examination at the expense of improving the qualifications of existing and additional forensic experts in other fields, involving relevant specialists in expert examination, etc. In 2014, A. I. Lozovyi and E. B. Simakova-Yefremian²⁰ emphasized possible similar and other challenges in the reform of the legislation in the field of forensic experts' activity, expansion and specification of the rights of expert agencies heads and expert staff, etc. We fully support their viewpoints, as they resonate with current problematic issues and the ongoing scientific debate. This is particularly relevant in view of the long-standing discussion on the adoption of a new version of the Law of Ukraine On Forensic Examination, since the current version has been in force since 1994 and is significantly outdated for various grounds and reasons²¹. Therefore, we should await the political will of the Ministry of Justice of Ukraine, the Ministry of Health of Ukraine, the Office of the Prosecutor General of Ukraine and other concerned national ministries and agencies.

Forensic Examination of explosive devices, traces, and circumstances of the explosion is one of the important areas in forensics, in particular, the relevance of this research area has increased even more during the introduction of the ATO zone and later the OOS in 2014, and specifically in the current state of war. Forensic examination of explosive devices and substances during commission of crimes involving illegal shelling affects the state of their disclosure and proof, requiring the application of specific techniques, methodologies and methods, substantial use of specific expertise, as well as specific and forensic equipment. Forensic explosives science (explosives engineering) is deemed to be the body of knowledge related to explosives and explosive devices and circumstances of the explosion during crime commission (grave and especially grave crimes with significant casualties and large-scale physical damage), as well as rules under which they are discovered, recovered, evaluated and used according to clear methodologies. This is a branch of forensic technology that studies the patterns of chemical explosion energy use to commit crimes in order to obtain forensically significant information about explosives, explosive substances, explosive devices and circumstances of the explosion, as well as develops scientific and technical techniques, methods and means of their detection and preservation, recording, seizure and use for detection, investigation and prevention of crimes. Today, the specified process is associated with the peculiarities of submitting pre-trial investigation results of such a category of criminal offenses to the International Criminal Court or Tribunal, which requires high quality, starting with inspection of the crime scene and conducting relevant expert research and identification of other pieces of evidence in this area. Law enforcement agencies should be aware that the primary components of various types of explosive devices are an explosive charge and the initiator. In the lack of specified components, an explosive device cannot be considered as a special type of object with specific properties inherent in it. At the same time, the charge and the initiator (the object from which the shot is fired) must be structurally united and constitute a single technical device. Without this, actual explosion of the explosive material cannot take place. In the current state of war, the aggressor country uses a large number of explosive device varieties. In this connection, forensic experts should determine their group belonging and sources of use during shelling. Investigators, inquiring officers, and prosecutors should view explosive devices as industrial or non-industrial (self-made) one-time use devices adapted to certain conditions and capable of detonating. According to their purpose, they are divided into military, industrial-economic and special purposes. During

²⁰ 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. праць за ред. кол. М.Л. Цимбал, В.Ю. Шепітько, Л.М. Головченко та ін. Харків. Право. 2014. Вип. 14. С.157-166.

²¹ Про судову практику в справах про викрадення та інше незаконне поводження зі зброєю, бойовими припасами, вибуховими речовинами, вибуховими пристроями чи радіоактивними матеріалами : Постанова Пленуму Верховного Суду України від 26.04. 2002 р. № 3.

martial war, military and simulated pyrotechnic devices are predominately used: flares and explosive packages. Explosive substances are chemical compounds or mixtures capable of explosive transformation (explosion) under the influence of an external impulse (impact, friction, heating, pressure, etc.). It is crucial to identify traces of explosions, missiles, shells, and mines that originated from aerial sources, such as aircraft or specific weapon systems, when inspecting and documenting shelling sites. While a criminalist (a new position in the district and other police departments) is involved in the inspection of the crime scene during a normal inspection (in the period of peace) and in the case of common crimes, explosives experts, whose departments have been established in each regional police department, are involved in the inspection of shelling sites. They help investigators, inquiring officers, and prosecutors ensure safety and authorize the investigation team to work at the scene. In the inspection minutes, they accurately formulate technical data, markings, characteristics of objects, their metallic and chemical residues or fragments (smoke) and remnants of shelling found at that moment. These authorities also help with their seizure and packaging. Traces left on the hard surfaces of a building by a contact charge of various shapes, configurations, and sizes allow explosives specialists to determine features of the shape of the explosive charge used and its weight. Such specialists record the scene, its areas, details, explosion center (epicenter), as well as the location of physical evidence before seizure and its appearance, by taking photos and videos, drawing up large-scale plans and diagrams with the use of: tape measures, rulers, sighting bars; in some cases, theodolites; and in case of large-scale shelling, they record it with the help of drones, which is quite common in law enforcement today. Seizure of explosive residue particles is accomplished by flushing with cotton or gauze swabs soaked in acetone and other swabs soaked in distilled water, or by dry scraping from hard destruction agents prone to water absorption (such as brick, concrete, plaster, and other hard building surfaces). As for the blast crater, it is measured in several dimensions across the entire length, width, or configuration of the crater. At the same time, at least 1 kg of soil is taken from the bottom of the crater, and at least 1 kg of soil is also taken from the surface of the crater a few meters from the crater rim (as a control sample), but this soil does not contain any explosive residue²².

Peculiarities and consequences from illegal shelling on civilian facilities and infrastructure with significant human casualties and property damage have led to the emergence of new subjects and disciplines for training police officers, SES, military personnel, etc., in particular: tactical medicine, peculiarities of examining crime scene after shelling, etc., which requires the involvement of forensic experts or specialists possessing certain theoretical knowledge and practical experience in this process²³. Particular existing problematic issues and ways of their solution for the improvement of theoretical, procedural and forensic problems of forensic ballistics, which have been addressed in the article, are also characteristic of forensic explosives science and can be synchronized and used in this field.

Conclusions. In order to prevent and counter illicit trafficking in firearms and cold weapons, ammunition and explosives, it is already reasonable to adopt a set of legal, organizational and preventive measures in the researched area, such as:

1. Police officers should more effectively conduct explanatory activities among the population, in particular through mass media, about the fact that a person shall be discharged from criminal liability²⁴ if he/she voluntarily

²² Криміналістика : підручник у 2 томах. Т.1.[А.Ф. Волобуєв, М.В. Даньшин, А.В. Іщенко, та ін.]. За заг. ред. А.Ф. Волобуєва, Р.Л. Степанюка, В. О. Маляррової. МВС України. Харківський національний університет внутрішніх справ. 2018. Харків. С. 195-203.

²³ Науково-дослідна діяльність Харківського національного університету внутрішніх справ в умовах воєнного стану : монографія. За заг. ред. В.В. Сокурєнка, Д.В. Швеця, О.А. Моргунова. МВС України. Харк. нац. ун-т внутр. справ. Вінниця. ТВОРИ. 2023. С. 97-104; 341-347; 456-463.

²⁴ Кримінальний кодекс України : станом на 1 вересня 2023. Харків. Право. 2023. 292 с.; Кримінальний процесуальний кодекс України : станом на 1 травня 2024. Харків. Право. 452 с.



surrenders weapons, ammunition, explosive substances or explosive devices to the authorities (under Part 3 of Article 263 of the Criminal Code of Ukraine), paying more attention to citizens who are temporarily in the occupied territories and settlements and in the places of hostilities.

2. In cooperation with the Military Prosecutor's Office, the SBU, intelligence and counterintelligence units, through investigative (search) measures, determine the causes and conditions that contribute to the commission of such crimes, identify places and persons that enable or facilitate the illicit trafficking of detected items and other objects from combat, military units. Special attention is paid to the heads and those financially responsible for supplying, logistics and writing off such items, as well as military personnel who abuse his/her official position²⁵. This activity should be focused on preventing illicit trafficking in the investigated weapons received from our partners.

3. In the post-war period, it is expedient for all law enforcement agencies to plan national comprehensive and unified special criminal, procedural, operational-search and other measures to prevent illicit trafficking in weapons, ammunition, explosives and military equipment and supplies.

4. Bearing in mind the experience of martial law and previous peacetime, the National Police of Ukraine should continue the practice of conducting special operations Weapons, explosives in accordance with territorial and departmental affiliation and send briefs on them to territorial authorities of local self-government, police and prosecutor's office in order to increase the efficiency and effectiveness of their conduct.

5. Conduct trainings with investigators and inquiring officers specialized in the investigation of crimes involving illicit trafficking in weapons, ammunition, and explosives with participation of forensic ballistics experts and relevant explosives specialists and experts, specifically on the following issues: a) peculiarities of the methodology of crime scene inspection based on the researched facts, including the procedure and method of extraction with subsequent use of new basic methods in the appointment of forensic molecular genetic examinations and the correct extraction of DNA profiles for the purpose of detecting biological traces on firearms, certain types of ammunition, explosive devices, etc., which practice started in the pre-war period²⁶; b) peculiarities of the procedure for appointing and carrying out forensic, forensic-ballistic, forensic-explosive and other types of examinations, with special emphasis on the types of weapons provided by our partners.

6. Considering peculiarities of pre-trial investigation under martial law and in order to ensure more rapid implementation, distribution and fulfillment of tasks by expert agencies employees, it is necessary to improve the procedure requirements for maintaining the Register of Forensic Examination Methodologies in accordance with the Order of the Ministry of Justice of Ukraine No. 397 dated 02.10.2008, No. 1274/5, as amended and supplemented on July 15, 2009, and provide proper procedure for monitoring its implementation²⁷.

The importance and special significance of the researched area is essential for summarizing and submitting the results of pre-trial investigation into the

²⁵ Науково-методичні рекомендації з питань підготовки та призначення судових експертиз до експертних досліджень. Наказ Міністерства юстиції від 08.10.1998 № 53/5 у редакції Наказу Міністерства юстиції України від 27.07.2015 № 1350/5; Інструкція про призначення та проведення судових експертиз та експертних досліджень в системі Служби безпеки України. Наказ Центрального управління Служби безпеки України від 29.05.2015. № 371.

²⁶ Степанюк Р.Л., Кікінчук В.В. Напрями вдосконалення правового регулювання криміналістичного ДНК-аналізу в Україні в контексті інтеграції до Європейського Союзу. Вісник Харківського національного університету внутрішніх справ. 2022. Вип. 97(2). С. 234-249. DOI : 10.3263 1/ v.2022.2.21; Степанюк Д. Р. Правові засади криміналістичного ДНК-аналізу й удосконалення законодавства України. Наше право OUR LAW. 2023. № 3. С. 118-124.

²⁷ Порядок ведення Реєстру методик проведення судових експертиз : наказ Міністерства юстиції України від 02.10.2008 № 1666/5 із змінами, внесеними згідно з наказом Міністерства юстиції України від 15.07.2009 № 1274/5.

facts of unlawful shelling of the civilian population, their places of residence and life support, social facilities and civil infrastructure, to the International Criminal Court or Tribunal, and for developing preventive measures to counteract the facts of illicit trafficking in firearms, military supplies, explosive devices, and substances both during the martial war and in the post-war perspective.

The mentioned forensic and other aspects are not exhaustive and may be supplemented and expanded.

However, the problematic issues that we have raised are not conclusive and are the subject of separate and further research or scientific study.

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