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***Dear readers of the collection of scientific papers
«Theory and Practice of Forensic Examination and Criminalistics»!***

Expert provision of judicial power in Ukraine is one of the most important tasks of the society and state, striving to occupy a worthy place in the world. Forensic expert and criminalistic activities are becoming more and more in demand both in criminal proceedings and in other types of legal proceedings. The development of the law-governed state on the territory of Ukraine under the conditions of an anti-terrorist operation, transformation of crime, reforming criminal justice authorities, new criminal procedural legislation requires consolidation of the efforts of theoreticians and practitioners in countering crime.

Today, our country is going through difficult times, which certainly affects forensic expert activity: unprecedented expert workload on specialists, insufficient level of financing forensic expert institutions (for labor payments and purchasing new equipment) are the problems that need immediate solution. However, despite these difficulties, scientists and practitioners in the field of forensic examination and criminalistics perform their functions to ensure forensic expert and criminalistic activity at a high scientific level.

The source of any knowledge is practice, and its main producer is science. That is why, it is important to develop modern scientific provisions of forensic examination and criminalistics. The publication of the next issue of the collection of scientific professional papers “Theory and Practice of Forensic Examination and Criminalistics”, in which the results of scientific researches of scientists and practitioners of Ukraine and abroad in the field of forensic science and criminalistics are published, is a step forward in this direction.

I wish inexhaustible energy, optimism, prosperity, creative successes, professional achievements, new fulfillments and fruitful work for all authors of the edition, for the members of the editorial board and readers thereof!

A. Rusetskyi

From the Editorial Board

The editorial board when forming the sixteenth issue of the collection of scientific papers «Theory and Practice of Forensic Examination and Criminalistics» followed the traditional rubrication: it presents the materials on the coverage of contemporary problems of Criminalistics, solutions to general problems in the theory of forensic science, organization and normative legal regulation of forensic activity, as well as the sections that were formed from the works, in which theoretical and practical problems on separate classes, kinds, types and subtypes of forensic expertise are revealed. The issue of expert practice is highlighted in the relevant subdivisions of the main headings. Employees of forensic expert institutions, higher education establishments, law enforcement agencies of not only Ukraine but also foreign countries took part in the preparation of papers for the Collection. The collection contains historical materials for the 85th anniversary of the death of Honored Professor Mykola Serhiiiovych Bokarius and the 50th anniversary of the death of Professor Mykola Mykolaiovych Bokarius, as well as information on the congress of the Department of Criminalistics and the International Conference on the Problems of Criminalistics and Forensic Examination which took place in Warsaw (Poland), anniversaries, and so on.

We express our sincere gratitude to all authors who contributed materials for the publication in the Collection, as well as to the specialists who took part in its publication, and invite scientists and practitioners to prepare papers for the next issue.

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SYSTEM OF COUNTERMEASURES AGAINST ILLICIT ENRICHMENT IN CONTEMPORARY CONDITIONS

The paper deals with the contemporary problems of counteraction to illegal enrichment which research is carried out with taking into account international legal, criminal legal, criminalistical and criminal procedural aspects. The current state and the possibility of creating and then putting into practice an effective system of countermeasures against illegal enrichment, which is closely linked to the reforming of the national legislation, bringing it into compliance with the international legal requirements and standards, and to the realization of urgent measures aimed at improving investigative and judicial practice are analyzed. In order to elaborate a proper criminalistic ensuring detection and investigation of illicit enrichment, it seems appropriate to form a criminalistical investigation technique of such crimes. It's substantiated that the information basis for the construction and realization of an optimal technique of investigation of the illegal enrichment serves a criminalistic characteristics of this type of crime.

Keywords: illicit enrichment, corruption, crimes of corruption orientation, criminalistical characteristic of illicit enrichment, investigation technique of illegal enrichment.

The process of developing the rule of law in Ukraine necessitates overcoming certain difficulties associated with the negative tendency of growth in the crime rate, attainment of the organized and transnational nature by it. Among the crimes

which today are extremely dangerous are the crimes of corruption, detection and investigation of which is particularly difficult¹.

A characteristic feature of such offenses is a high level of latency which is explained by the growth of “the criminals’ professionalism”, imperfection of the legislation, narrow “business” contacts of persons with substantial sums of money obtained by criminal means. Such crimes are difficult to detect due to the fact that in the case of detecting them, corrupted persons and those who take the latter on the maintenance and is in dependence on them should arraigned on a criminal charge. So, both parties – participants in corruption schemes are not interested in exposing them and strongly oppose both detection and investigation of corruption facts².

Implementation of effective anti-corruption system in Ukraine provides for reforming national criminal law system, bringing it into conformity with international requirements and standards, in particular to the Criminal convention against corruption. The Law of Ukraine on 07.04.2011 No. 3207-VI amended Art. 368² of the Criminal Code of Ukraine which has established criminal liability for illegal enrichment. In the process of anti-corruption reforms the version of this article was repeatedly changed (in particular, the laws on 18.04.2013 No. 221-VII, on 18.04.2013 No. 222-VII, on 14.10.2014 No. 1698-VII, on 12.02.2015 No. 198-VIII, on 10.11.2015 No. 770-VIII). Therefore, the current version of Art. 368² of the Criminal Code of Ukraine may be applied only to those cases of illegal enrichment which occurred since April 26, 2015.

Establishing criminal liability for illicit enrichment was aimed at ensuring a more effective criminally-law protection of relevant social relations as well as provides for the creation and implementation effective system of counteraction which is closely related with the optimization and rationalization of detection, disclosure and investigation of these criminal phenomena, against such crimes into the practice. Complexity of development and effective implementation of an illegal enrichment investigation technique in practice is ambiguities, existence of certain contradictions and omissions in the anti-corruption legislation of Ukraine, numerous legislative changes of this norm of the Criminal Code of Ukraine, as well as the absence of the investigative and judicial practice generalizations.

However, today, law enforcement and judicial bodies are faced with certain difficulties in the criminally-legal qualification of illegal enrichment, in practice there are some problems in the disclosing and investigation of this category of crimes. Thus, most of the theoretical and practical aspects of the illegal enrichment investigation remain now unexplored, specifically, they are criminological characteristics and interrelations between its elements, particularities of disclosure of illegal enrichment signs and beginning of criminal procedure, typical investigative situations and algorithms for their solutions, organization

¹ See: *Шепітько В. Ю.* Розслідування злочинів корупційної спрямованості : наук.-практ. посібник / В. Ю. Шепітько, В. А. Журавель. — Х. : Харків юрид., 2013. — 220 с.

² See: *Суворов О. М.* Поняття службових злочинів корупційної спрямованості та їх криміналістична характеристика / О. М. Суворов // Часоп. Акад. адвокатури України. — 2014. — Т. 7, № 4. — С. 69.

and planning of the investigation, tactics of carrying out separate investigative (search) actions, covert investigative (search) actions, problems of development and application of tactical operations. Therefore, research and development foundations of investigation technique for illegal enrichment in the present conditions of counteraction against corruption are actual and necessary.

In these studies, along with analysis of investigative and judicial practice one should be guided by the provisions of the criminalistic characterization of crimes which represents data (information) system of criminalistically significant signs of crimes of this kind that represents obligate relations between them and serves for building and testing investigative versions in the investigation of specific criminal manifestations.

Criminalistic characteristic of illicit enrichment serves as informational basis for building and forming optimal technique for investigation of this type of crime. Between the elements of such characteristics correlation interactions and interdependence have to be traced, taking into account these data are constructed and put forward investigative leads in the investigation of the crimes in question. Such elements of criminological characteristics as the subject of a criminal assault, ways of committing, methods of concealment, typical traces, situation of commission of such offenses and personality of a criminal have a great significance in order to form illegal enrichment investigation technique.

The subject of illicit enrichment are the assets in a significant amount, the legality of the grounds of which acquisition has not been confirmed by evidence. Disclosure of the notion of the assets in a significant amount is comprised in item 2 of the notes to Art. 368² of the Criminal Code of Ukraine (CrC), the main characteristics of which define: 1) their nature as monetary assets or other property as well as the income from them. Norms of the United Nations Convention against Corruption¹, whose party is Ukraine, define the notion of property as any assets, tangible or intangible, movable or immovable, expressed in things or rights, as well as legal documents or assets which confirm ownership of the assets or interests in them. Illicit enrichment subject becomes a wider understanding than the money, securities, movable and immovable property; 2) their size – the price that exceeds one thousand non-taxable minimum incomes of citizens (the components of crime of illicit enrichment, which in its essence is closely related to an offense which is referred in Art. 368 of the Criminal Code of Ukraine provides a much more strict, although only one criterion of the amount of illegally acquired assets as opposed to the acceptance of the offer, promise or receipt of undue advantage by an official, where the amount of such benefit which is necessary to recognize this act as a crime, is in ten times less than the amount which is required to qualify an act of illegal enrichment) 3) the lack of evidence that prove legality of the assets acquisition. There is a certain debatability of the content of this provision in the presumption of the criminal nature of the property assets acquisition by a person in a significant amount, the legality of the grounds of which acquisition has not been confirmed by evidence. A person who is accused in illicit enrich-

¹ See: Конвенція Організації Об'єднаних Націй проти корупції. [Електронний ресурс]. — Режим доступу : http://zakon2.rada.gov.ua/laws/show/995_c16.

ment, should disprove this presumption that directly contradicts the constitutional principle of the innocence presumption (part 1 of Art. 62 of the Constitution of Ukraine) and the basic rules of criminal law, in particular part 2 of Art. 2 of the Criminal Code of Ukraine. Thus, Art. 62 of the Constitution of Ukraine states that no one is obliged to prove his innocence in committing a crime.

It should be noted that the innocence presumption principle entrenched in item 2 of Art. 6 of the Convention for the Protection of Human Rights and Fundamental Freedoms of 1950, and on item 1 of Art. 11 of the Universal Declaration of Human Rights of 1948 points out that each person who is accused in a criminal offense is innocent until his guilt is proven in accordance with the law. It is expedient bringing forward requirements of the presumption of innocence as a fundamental principle that the burden of proving is assigned to the prosecution authority; the assumption of a person guilt can not begin investigation of the crime; an accused person has the right not to testify against himself; a right of an accused person to silence¹. Article 20 of the United Nations Convention against Corruption established that on the condition of compliance with one's constitution and the fundamental principles of one's legal system, each State-Party shall consider a possibility of adopting such legislative and other measures which may be required for the recognition of willful illicit enrichment to be a crime, that is, a significant increase in the assets of a public official exceeding his legal income, which he can not reasonably explain. Therefore, the presumption of criminal nature is contrary to the Constitution and applicable legislation of Ukraine, as the Constitution of Ukraine establishes the presumption of innocence.

In the process of proving the subject of illicit enrichment one should proceed from the most detailed describing and establishing individual properties and features of the subject of a criminal assault. When the subject of illicit enrichment is cash, it is necessary to establish which is exact amount, which is the currency, which are denominations, individual signs of banknotes, if possible, banknotes numbers, which are individual features and characteristics. When the subject of illicit enrichment are the commodities and materials, it is important to establish their name, quantity, qualitative attributes, shape, size, color, volume, weight, individual features, numbers, defects, data on the sources of their acquisition, the material from which they are made, hallmarking, labeling, packaging characteristics and other individual features that have criminalistic value.

Criminalistic feature of the subject of illicit enrichment is that they are trace-receiving and trace-forming objects of animate and inanimate nature, their qualitative and quantitative indicators, physico-chemical and consumer properties individualizing the object in the material world, determine the ways of committing and concealing these crimes.

The ways of committing illicit enrichment – the determined system of criminal actions on preparation, execution and concealment of illicit enrichment, as well as on the use of the results of this criminal activity. The ways of commit-

¹ See: *Гарбазей Д. О. Незаконне збагачення: міжнародно-правовий аспект / Д. О. Гарбазей // Наук. вісн. Міжнар. гуманітар. ун-ту. Серія: Юриспруденція. — 2013. — № 6-1. — Т. 2. — С. 213.*

ting illicit enrichment may be different. Illicit enrichment may be committed by: a) obtaining illicit assets by a subject of crime; b) acquisition of illicit assets and their further transfer to another person. Crime committing may be manifested only in the form of action. The ways of illicit acquisition of assets may be different. When acquisition of such assets is committed in accordance with the way prescribed by the Criminal Code of Ukraine as a separate composition of crime, such conduct should be qualified not as illicit enrichment but as the other corruption crime.

In the criminally-legal qualification of socially dangerous act as illegal enrichment on the objective side, it is enough to establish one of the following actions: “the acquisition of assets” or “transfer of assets”. In addition, the legislative definition is given only to the latter. It is possible to incriminate the transfer of the assets in a considerable amount, the legality of grounds of which acquisition is not confirmed by evidence, to the person authorized on fulfillment of the state or local governmental functions, only after proving the fact of acquisition of these assets.

Illicit enrichment in the form of acquiring assets in a significant amount by a person authorized to perform functions of the state or local government when the legitimacy of grounds of their acquisition has not been confirmed by evidence, is considered to be a completed crime after such acquisition. Proving fact of committing illicit enrichment in this form of manifestation requires establishment of non-compliance of official income of the said person with the real assets which are available. Handover of assets in a significant amount when the legitimacy of grounds of their acquisition has not been confirmed by evidence, by a person authorized to perform the functions the state or a local government to any another person, is considered as a completed crime from the moment of the transfer. A person who has been transferred with assets may be physical or legal.

One of the ways of committing illicit enrichment is the transfer of assets in a significant amount when the legitimacy of grounds of their acquisition has not been confirmed by evidence, by the subject of crime to any another person. Let us note that it is unlikely this “another” person will belong to one of those whose exhaustive list is enshrined in item 1 of part. 1 of Art. 3 of the Law of Ukraine “On Prevention of Corruption”, otherwise handover of the assets to him has no meaning for both the offender and the person himself. In connection with this, the person favored with trust on the official receipt of the assets may be chosen as an offender on the criterion of his loyalty to the beneficiary and the absence of “risk indicators” in the eyes of officials of the government and the public.

However, there is a real chance of exposing fictitious status of the owner of illicit assets on the specific features of the psychological profile of a figurehead which may occur in certain acts of his behavior.

For example, boasting in his social circle (real and/or virtual which is created in social Internet networks) by the assets acquired and closeness to their beneficiary. Therefore, such a person may become just that element of the criminal technology who will not have evidence of the legal origin of the assets acquired, and his testimony will serve as a valuable source of evidence in committing criminal enrichment by the real beneficiary. Special attention should be

paid to such criminalistic category as negative circumstances which may be expressed in the absence of relevant age, level of education, inheritance or official income and so on of this person, under which acquisition of suspicious assets would not give rise to reasonable doubts as to the legality of their origin (for example, as in the situation of the emergence of a new car of the premium class belonging to the student, who has just reached majority and has no own earnings).

In addition, one should pay attention to the fact that, according to item 3 of the Comments to Art. 368² of the Criminal Code of Ukraine, assets in significant amount in this article are understood as not only monetary assets or other property, but also as the income from them if its size (value) exceeds one thousand non-taxable minimal incomes of citizens.

Concealment of illegal enrichment is a deliberate act of a criminal which lies in obstructing to the establishment of the objective truth on the illicit enrichment by concealment, destruction, masking or falsification of traces of such a crime, aimed at full or partial escaping of guilty person from criminal responsibility.

The ways of concealment of illicit enrichment are connected with the use of certain cunning by criminals, in particular, in order to conceal full and trustworthy information about his financial situation. The persons who are suspected in committing illicit enrichment, beforehand officially divorce the marriage in the state bodies of civil registration, while, in fact, they are continuing to reside with his/her wife/husband and maintain joint household. There are the cases when the subject of crime registers the ownership rights on the property on individuals who are not the subjects of declaration and information on whom is not subjected to declaration, etc.

The subject of a crime under Art. 368² of the Criminal Code of Ukraine, is a special subject, and, accordingly, bringing to criminal responsibility for committing a crime of such a kind is possible with regard only to the person who has features of the special subject. According to part 2 of Art. 18 of the Criminal Code of Ukraine, a special subject of the crime is a physical able person who has committed a crime at the age from which criminal responsibility may ensue whereas the subject of it can only be a specified person. According to the dispositions of Art. 368² of the Criminal Code of Ukraine, the subject of crime under this article may only be a person authorized to perform functions of the state or local government. Illicit enrichment, committed by an official holding responsible (part 2 of Art. 368² of the Criminal Code of Ukraine) or especially responsible position (part 3 of Art. 368² of the Criminal Code of Ukraine)¹ are attributed to the qualified types of crimes.

According to item 1 of the Comments to Art. 368² of the Criminal Code of Ukraine, persons authorized to perform functions of the state or local government, are the persons indicated in item 1 of part 1 of Art. 3 of the Law of Ukraine "On Prevention of Corruption". Namely, such persons as: a) the President of Ukraine, President of the Supreme Soviet of Ukraine, his first deputy and deputy, Prime-Minister of Ukraine, First Vice Prime Minister of Ukraine, Vice

¹ See: Драгоненко А. О. Суб'єкт незаконного збагачення / А. О. Драгоненко // Порівнял.-аналіт. право. — 2013. — № 3-2. — С. 254–256.

Prime Minister of Ukraine, ministers and others heads of the central authorities of the executive power which are not included in the composition of the Cabinet of Ministers of Ukraine and their deputies, the Chairman of the Security Service of Ukraine, General Prosecutor of Ukraine, Chairman of the National Bank of Ukraine, the Chairman and other members of the Accounting Chamber, the Commissioner of Supreme Soviet of Ukraine on Human Rights, President of the Supreme Soviet of the Autonomous Republic of Crimea, Chairman of the Council of Ministers of the Autonomous Republic of Crimea; b) people's deputies of Ukraine, deputies of the Supreme Soviet of the Autonomous Republic of Crimea, deputies of local soviets, village, settlement, city heads; c) public servants and officials of local self-government; d) military officials of the Armed Forces of Ukraine, State Service for Special Communications and Information Protection of Ukraine and other military units established in accordance with the laws, except for the soldiers of urgent military service; e) judges of the Constitutional Court of Ukraine, other professional judges, members, disciplinary inspectors of the High Qualification Commission of Judges of Ukraine, officials of the Secretariat of this Commission, Chairman, Deputy Chairman, Section Registrars of the High Council of Justice, as well as other members of the High Council of Justice, peoples' assessors and jurors (during carrying out these functions by them); f) junior enlisted and commanding staff of the State Criminal Executive Service, Tax Police, individuals of commanding staff of bodies and subdivisions of Civil Protection, National Bureau of Investigation, National Anti-Corruption Bureau of Ukraine; g) public and service individuals of prosecution authorities, Security Service of Ukraine, State Bureau of Investigation, National Anti-Corruption Bureau of Ukraine, diplomatic service, state forest guard, state guard of natural reserve fund, central body of the executive power which ensures the formation and implementation of the state tax policy and state policy in the sphere of state customs affairs; h) members of the National Agency for the Issues of Corruption Prevention; i) members of the Central Election Commission; j) policemen; k) public and service individuals of other state bodies, bodies of power of the Autonomous Republic of Crimea.

Researching such an element of criminalistic characteristic of this crime as a personality of a criminal, one should take into account that for the election or appointment to the listed positions, a candidate has to meet certain requirements defined by legislation as to achieving certain age, obtaining education (often higher legal one), obtaining specific professional experience, and the like. Therefore, the subjects of this crime have their own high level of general and special (including legal) knowledge or have necessary resources for the unobstructed obtaining such knowledge from other sources, including from the nearest social environment. The above said forms the basis for understanding potential possibility of bringing to responsibility for illicit enrichment and may be used by them for the purpose of counteraction to investigation by the timely fulfillment of actions aimed at concealment of both the facts of illegal getting into ownership of certain assets and the sources of their origin. To do this, they may widely use the variety of fictions, particularly in the form of fictitious transactions and false persons.

Therefore, while investigating difficult and intricate schemes (technologies) of illicit enrichment, ascertainment of the horizontal and vertical linkages with other suspected persons in order to establish the final beneficiary, hidden under the mask of a nominal holder, should be recognized as appropriate. This task may be performed by complex realization of the investigative (search) and covert investigative (search) acts during which, above all, public data on persons and assets contained in various public registers and electronic informational systems or their parts, access to which is not restricted by their proprietors, owners or holders, and not associated with overcoming the system of logical protection, should be analyzed.

According to part 2 of Art. 61 of the Constitution of Ukraine, legal responsibility of a person has an individual character. This imperative requirement of the Basic Law has found its development, in particular, in the formulation of criminal proceedings tasks. Thus, according to Art. 2 of the Criminal Procedural Code of Ukraine (Code of Criminal Procedure), the tasks of criminal proceedings is to protect individuals, society and the state from criminal offenses, the protection of rights, freedoms and legitimate interests of the participants in criminal proceedings, as well as to provide fast, full and impartial investigation and court examination, so that everyone who has committed a criminal offense, had to be brought to justice to the extent of his guilt, neither no one innocent had to be accused or convicted nor no one person had to be subjected to unjustified procedural coercion, and that each participant of criminal proceedings had to be applied with due process of law. According to part 2 of Art. 6 and part. 2 of Art. 19 of the Constitution of Ukraine, the bodies of legislative, executive and judicial power exercise their authority within the limits established by the Constitution and in accordance with the laws of Ukraine. Public authorities and their officials are obliged to act only on the basis, within the powers and in the manner stipulated by the Constitution and the laws of Ukraine.

In deciding on the possibility of proving legality of illegal enrichment by means of the testimonies of witnesses, it is necessary to proceed from the definition of the relevance of evidence.

Thus, according to part 1 of Art. 85 of Criminal Procedure Code of Ukraine evidence are appropriate if they directly or indirectly confirm the existence or absence of circumstances subjected to proving in criminal proceedings and other circumstances relevant to the criminal proceedings, as well as reliability or unreliability of the possibility or impossibility of using other evidence. Thus, the testimony of witnesses due to the legality of acquiring by a person authorized to perform the functions of state or local government, will not be valid, and therefore, will not be considered as appropriate. This follows from the fact that the subject of a crime trying to conceal the fact of illegal acquisition of assets, as a rule, is trying to prove the existence of legal grounds for such an acquisition by using fabricated evidence. In addition, probably fabricated documents also are going to be used.

Thus, the testimony of witnesses will not be considered as appropriate evidence due to their unreliability. However, relevant evidence can not be categori-

cally not to be taken into account due to the fact that no reason has no advantage over the others. When using relevant evidence, it is necessary to pay attention to other factors: had the person the opportunity to enter into the relevant transaction and execute it; or have the taxes been declared and paid from transactions to those the persons are referenced in the confirmation of the legality of assets acquisition, other circumstances – all these may be established by analyzing the tax declarations and property status of both the person – the subject of crime, and the person with whom the subject of crime might have entered into transactions to which the latter refers as to the confirmation of his claims and defenses.

Competent evidence of asset acquisition legality by a person authorized to perform the functions of state or local government, will be, first of all, tax declarations, bank documents, conclusively concluded agreements, extracts from the registers of property rights, as well as other written evidence, including means of audio, video recording, conclusions of experts and specialists, particularly when carrying out merchandising and economic forensic expertise, physical evidence. Testimonies of witnesses are not competent evidence of the legality of assets acquisition, but the latter may play a supporting role or may be evaluated in relation to other evidence.

In the subject of proof in the criminal proceedings regarding illegal enrichment, one should take into account a priority for the need to establish the sources of assets origin of the persons authorized to perform the functions of the state or local government which legality of acquisition grounds has not been confirmed by evidence. Ignoring this position complicates the proof of other circumstances under Art. 91 of the Criminal Procedural Code of Ukraine. According to this article, in the criminal proceedings, including the criminal proceedings on illicit enrichment, the following should be proved: 1) the event of a criminal offense (time, place, method and other circumstances of committing a criminal offense) 2) the guilt of the accused person in the commission of a criminal offense, the form of guilt, the motive and purpose of a criminal offense; 3) the type and extent of the damage caused by a criminal offense, as well as the size of the procedural costs; 4) circumstances which affect upon the degree of gravity of the criminal offense, characterize the personality of the accused person, aggravate or mitigate punishment, exclude criminal responsibility or are the basis for closing criminal proceedings; 5) the circumstances which are the basis for excluding criminal liability or punishment; 6) the circumstances proving that money, valuables and other property which are subjected to special confiscation, have been obtained from committed criminal offense and/or the proceeds of such property were appointed (used) for the declination of a person to commit a criminal offense, financing and/or material supporting a criminal offense or for rewarding for its commission, or are the subject of a criminal offense, including those related to illicit trafficking or which are found, manufactured, adapted or used as a means or instrumentalities for committing a criminal offense; 7) circumstances which are the basis for applying criminal legal measures for the legal entities.

The above list of circumstances subjected to proving in criminal proceedings, has the generalizing and oriented nature. Depending on the committed criminal offense, the list of circumstances subjected to proving in a criminal proceeding, is concretized and individualized, including illicit enrichment, taking into account the provisions of Art. 368² of the Criminal Code of Ukraine. Correct definition of the circumstances, their comprehensive, complete and objective investigation will significantly improve the efficiency and effectiveness of evidence in the criminal proceedings on illicit enrichment.

In general, the importance and social significance of the designated problem deserves systematic presentation of criminalistic recommendations on the technique of crimes investigation under Art. 368² of the Criminal Code of Ukraine, as well as the tactics features of conducting separate investigative (search) and covert investigative (search) actions and tactical operations during investigation of crimes of this type and corruption crimes as a whole in the relevant scientific issues, monographs, teaching-methodical manuals and so forth.

Thus, in the present conditions, spreading of crimes of corruption orientation, among which a special place is taken by illegal enrichment, the problem of development and implementation of an effective mechanism to counteract these criminal phenomena became highly relevant and urgent. Creation of such mechanism involves introduction of an effective system of counteraction against such crimes, reforming criminal and criminal procedural legislation, taking immediate measures aimed at improving the investigative and judicial practice, based on the latest achievements of science and technology. Therefore, in order to ensure proper criminalistic detection and investigation of illicit enrichment, it is expedient to develop and form criminalistic investigation technique of such crimes.

Further scientific research of this problematics, especially in the aspect of taking into account current situation on electronic declaration of deputies and officials, changes in anti-corruption legislation, the Criminal Procedural Code of Ukraine, the influence of international legal standards has not only theoretical but also practical importance. All this demonstrates the importance and necessity of the scientific justification and development of the criminalistic recommendations to counteract illicit enrichment and in the future their implementation in practical activities, that will improve the efficiency, effectiveness and quality of the pre-trial process and judicial consideration of these criminal manifestations.

СИСТЕМА ЗАХОДІВ ПРОТИДІЇ НЕЗАКОННОМУ ЗБАГАЧЕННЮ В СУЧАСНИХ УМОВАХ

Шепитько В. Ю., Шевчук В. М., Білоус В. В., Керик Л. І.

Розглянуто сучасні проблеми протидії незаконному збагаченню, які досліджуються з урахуванням міжнародно-правових, кримінально-правових, криміналістичних і кримінально-процесуальних аспектів. Проаналізовано сучасний стан і можливості створення та запровадження в практику дієвої системи заходів протидії незаконному збагаченню, яка тісно пов'язана із реформуванням національного законодавства, приведення його у відповідність із міжнародними ви-

могами та стандартами, ужиття невідкладних заходів, спрямованих на вдосконалення слідчої й судової практики. Із метою належного криміналістичного забезпечення виявлення та розслідування незаконного збагачення вбачається доцільним розроблення й формування криміналістичної методики розслідування таких злочинів. Обґрунтовано, що інформаційною основою формування оптимальної методики розслідування незаконного збагачення виступає криміналістична характеристика цього виду злочину.

Ключові слова: незаконне збагачення, корупція, злочини корупційної спрямованості, криміналістична характеристика незаконного збагачення, методика розслідування незаконного збагачення.

СИСТЕМА МЕР ПРОТИВОДЕЙСТВИЯ НЕЗАКОННОМУ ОБОГАЩЕНИЮ В СОВРЕМЕННЫХ УСЛОВИЯХ

Шепитько В. Ю., Шевчук В. М., Белоус В. В., Керик Л. И.

Рассмотрены современные проблемы противодействия незаконному обогащению, которые исследуются с учетом международно-правовых, уголовно-правовых, криминалистических и уголовно-процессуальных аспектов. Проанализированы современное состояние и возможности создания, а затем внедрения в практику действенной системы мер противодействия незаконному обогащению, которая тесно связана с реформированием национального законодательства, приведением его в соответствие с международно-правовыми требованиями и стандартами, проведением неотложных мер, направленных на совершенствование следственной и судебной практики. С целью надлежащего криминалистического обеспечения выявления и расследования незаконного обогащения представляется целесообразным формирование криминалистической методики расследования таких преступлений. Обосновано, что информационной основой формирования оптимальной методики расследования незаконного обогащения выступает криминалистическая характеристика этого вида преступления.

Ключевые слова: незаконное обогащение, коррупция, преступления коррупционной направленности, криминалистическая характеристика незаконного обогащения, методика расследования незаконного обогащения.

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NATURE OF CRIMINALISTICS: MODERN SCIENTIFIC CONCEPTS

The paper discusses genesis and current state of scientific views about the nature essence of Criminalistics. Attention is paid to the fact that the indicated problematics is one of the most debatable in the general theory of Criminalistics and up to date criminalist scientists have not reached a consensus position on this matter. At present two basic scientific concepts about the nature of Criminalistics coexist, one of them

considers Criminalistics to be the special legal science and the second – the science of synthetic (integrated) nature. The author's position on the indicated concepts has been expressed.

Keywords: nature of Criminalistics, differentiation and integration of knowledge, scientific concepts, legal sciences, synthetic sciences.

Definition of the essence of Criminalistics nature is considered to be one of the most topical and debatable problems of this branch of knowledge. The solution to this problem has not only the methodological significance for Criminalistics but also affects upon the realization of its tasks and functions, clarifies directions of researches, establishes the nature of inter-scientific links. At the same time, scientists-criminalists still not have reached agreement on many key issues of the considered problematic, the evidence for this is the coexistence of several scientific concepts about the essence of the Criminalistics nature. As the special literature notes, this circumstance in any case is not related with the omission of separate scientists-criminalists or preconception of any one single conceptual idea which combines representatives of a scientific school and does not allow them “free thinking” but is a confirmation of the fact that Criminalistics is a complicated and in many ways contradictory in its empirical being object which can not be easily generalized¹.

The state Criminalistics Science, the formation degree of its general theory, realization performance of the tasks and functions determine the need for enhancing researches of the said problem and formation of a generalized scientific position on it.

Such scientists-criminalists as R. S. Bielkin, O. M. Vasyliiev, A. I. Vinberg, I. O. Vozgrin, A. V. Dulov, Ie. P. Ishchenko, Z. I. Kirsanov, V. Ya. Koldin, O. N. Kolesnichenko, V. O. Konovalova, H. A. Matusovskyi, V. O. Obratsov, O. R. Rossynska, P. I. Tarasov-Rodionov, O. H. Filipov, B. M. Shaver, V. Yu. Shepitko, O. O. Eisman, O. O. Eksarhopulo, M. P. Yablokov, I. M. Yakimov at al. turned in one or another extent in different years in their researches to the definition of the essence of the Criminalistics nature. At the same time scientific views at the indicated problem were constantly changing and in different historical periods Criminalistics was considered as natural and technical sciences, science of double (dualistic) natural or juridical science. The latter concept prevails today both in Criminalistics and Legal Science in general.

The opinion that Criminalistics is the Legal Science of applied character or special legal discipline was supported by such scholars as O. Yu. Holovin, A. F. Volobuiev, V. O. Konovalova, H. A. Matusovskyi, O. S. Podshubiakin, O. H. Filipov, V. Yu. Shepitko, M. P. Yablokov and some others. In particular, M. P. Yablokov considers Criminalistics to be a “Special Judicial Science of Applied Character” and its legal nature is due to the general and separate tasks, objects and subjects of cognition, social importance, official functions and severe compliance of its developments and recommendations with the Criminal Procedural

¹ See: *Даньшин М. В. Криміналістика ХХІ століття: місце у системі наукового знання : монографія / М. В. Даньшин. — Х. : ХНУ ім. В. Н. Каразіна, 2013. — С. 89.*

Law¹. To the convince of V. Yu. Shepitko, Criminalistics is legal science by its nature². O. H. Filipov notes that Criminalistics really uses certain provisions of other sciences, including natural and technical, but this in no way may cast doubt on its legal nature³.

In support of their position supporters of the scientific concept under consideration present the following arguments: a) Criminalistics – legal science as its subject and object of cognition lie in the field of legal phenomena; b) Criminalistics – legal science, as its official functions, the problems solved by it, belong to the legal sphere of activity of state authorities and to the legal processes (investigation, court proceedings) c) all recommendations developed by Criminalistics for practices have strictly distinct legal nature based on the law, such that corresponds to its spirit and letter; they are called to live in order to provide scientific assistance to the investigative and judicial authorities in finding truth in the case; d) the legal nature of Criminalistics appears in the normative legal function inherent to it as to a branch of law, under the influence of which a lot of scientific recommendations of Criminalistics are introduced into the content of legal norms; e) Criminalistics is related to many sciences – both social and technical, but these links are mostly particular and local in nature whereas the basis for the Criminalistics is law, legal sciences, investigative and judicial practice⁴; f) Criminalistics historically originated within the framework of namely legal – criminal procedural science⁵; g) recommendations of Criminalistics are addressed to the subjects whose activities have exclusively legal nature, juridical regulation and nature; h) the future of Criminalistics – only a legal application⁶.

Considering the above, in the special literature there was correctly paid attention to the fact that the essence of the legal nature of Criminalistics is mainly related to the legal scope of application of its knowledge and necessity to observe legality in the activities on disclosure and investigation of criminal manifestations. Along with what, it is necessary to separate clearly the scope of application of Criminalistic knowledge and the source (the nature) of their origin. In this connection, it is expedient to consider the nature of the Criminalistics Science basing on the positions of the specifics of the objects of its knowledge which have synthetic essence and researches on which are impossible without involvement of knowledge from different scientific area ⁷.

¹ See: Криминалистика : учебник / отв. ред. Н. П. Яблоков. — 2-е изд., перераб. и доп. — М. : Юрист, 1999. — С. 11, 19–20.

² See: *Шепитько В. Ю.* Криминалистика : курс лекций / В. Ю. Шепитько. — Харьков : Одиссей, 2011. — С. 11.

³ See: Криминалистика : учебник / под ред. А. Г. Филиппова. — М. : Высш. образование, 2007. — С. 15–16, 19–20.

⁴ See: *Матусовский Г. А.* Криминалистика в системе наук и ее межнаучные связи : автореф. дис. на соискание уч. степени д-ра юрид. наук : спец. 12.00.09 «Уголовный процесс и криминалистика. Судебная экспертиза» / Г. А. Матусовский. — М., 1980. — С. 13.

⁵ See: *Белкин Р. С.* Курс криминалистики : в 3 т. Т. 1: Общая теория криминалистики / Р. С. Белкин. — М. : Юрист, 1997. — С. 161–162.

⁶ See: *Даньшин М. В.* Indicated work. — С. 92, 93.

⁷ See: *Игошин В. В.* Интегральная природа науки криминалистики и ее проявление в криминалистической технике : автореф. дис. на соискание уч. степени канд.

Recently, new views on the nature of Criminalistics have appeared, due to which it is attributed to Hybrid Sciences and it is recognized to be a science of integrated or synthetic nature. In this regard, in the criminalistic literature, it is noted that the nature of Criminalistics is not any complex of constituent parts, not a mechanical association of data of various sciences but their profound synthesis¹.

Complexity of determining the essence of nature of Criminalistics is evidenced by the fact that some scientists repeatedly changed their position on the considered issue. Thus, R. S. Bielkin initially was the supporter of referring Criminalistics to Legal Sciences but subsequently he changed his position, having noted that arguments which were given by criminalists in favor of legal nature of Criminalistics, are controversial and do not give grounds for an unambiguous conclusion. In support of his opinion, he states:

1. Not the whole subject and not all the objects of Criminalistics cognition are in the field of legal phenomena. For example, not all the regularities of offense mechanism, criminal activity, and all the more the emergence of information on the crime and its participants are in the field of legal phenomena. A part of them – are regularities of any activity in general terms, regularities of reflection process of a general nature and do not depend on the sphere of their action, manifestation.

2. Criminalistics should not be considered as a legal science only in view of that its service function and the tasks that it solves, belong to the legal scope of activity of state bodies and to the legal processes.

3. Not all the recommendations developed by Criminalistics for practice, have a legal nature and are based on the law, correspond to its spirit and letter, in particular, are there legal knowledge in the development of the rules of photographing at the crime scene?

4. Can we consider the relationship of Criminalistics with other sciences, nonlegal sciences to be “separate and local”, and the law, legal sciences, law enforcement practice – its main “nutrient medium”?

Considering the above mentioned, R. S. Bielkin believes that we should speak not on adaptation, appliance of data of other sciences by Criminalistics but on the fusion of knowledge within framework of the subject and the content of Criminalistics, that is, on the integral nature of Criminalistics².

Expressed position of R. S. Bielkin was joined by T. V. Averianova, O. H. Volynskyi, Yu. G. Korukhov, V. P. Lavrov, O. P. Rossynska, who noted that in Criminalistics it is impossible to distinguish purely legal and natural sciences or technical sections, knowledge complexes as some fixed structures. It is the only fusion of knowledge and not the set of sciences and is the science of

юрид. наук : спец. 12.00.09 «Уголовный процесс; криминалистика и судебная экспертиза; оперативно-розыскная деятельность» / В. В. Игошин. — Ижевск, 2005. — С. 15.

¹ See: *Белкин Р. С. Криминалистика: проблемы сегодняшнего дня. Злободневные вопросы российской криминалистики* / Р. С. Белкин. — М. : НОРМА (Издат. группа НОРМА-ИНФРА-М), 2001. — С. 43.

² See: *Белкин Р. С. Курс криминалистики* : в 3 т. Т. 1: Общая теория криминалистики. — С. 167–169.

synthetic nature and not complex (as the complexation assumes association of separate knowledge rather than merging them). Possibilities of Criminalistics in solving legal problems, is directly dependent on its ability to accumulate the achievements of other sciences and to ensure their use in the disclosure and investigation of crimes¹.

Change in the scientific paradigm regarding the nature of Criminalistics was perceived ambiguously by scientists-criminalists. Thus, according to opinion A. Yu. Golovin, non-legal nature of Criminalistics largely changes the idea on its system, and so such views of scientists raise serious objections². O. O. Eksarkhopulo is convinced that the synthetic nature of criminalistic knowledge should not be viewed as a ground to change the place of Criminalistics in the system of sciences. It should remain in the classification row of the legal cycle sciences³.

So, nowadays we can speak about the coexistence of two⁴ basic scientific concepts about the essence of the Criminalistics nature: 1) stable, traditional, according to which Criminalistics is a special legal science; 2) innovative, where Criminalistics – the science of synthetic (integrated) nature.

As to the first concept, in the legal literature the arguments in its favor are presented in a sufficient amount, and, therefore, it seems appropriate to particularize in detail on the synthetic, integrated nature of Criminalistics. First of all, it should be stated a high degree of scientific foresight, which was inherent to the known forensic scientists R. S. Bielkin. Namely he yet in the middle of 80s of the Twentieth century has managed to provide activization of processes of differentiation and integration of scientific knowledge and the emergence of a significant number of integrated nature sciences. As noted in sciencestudying literature, the process of emergence of so-called synthetic (in the modern interpretation – integral) science has even more intensified. System, evolutionary, synergistic approaches are the strategic directions of modern scientific search. Integral researches provide movement to a single scientific knowledge, to the use of the ideas and methods of some sciences by others, to the transition from disciplinary research methods to problem-oriented. On this basis, there is a formation of new areas of knowledge, such as biophysics, radio-

¹ See: *Криминалистика : учебник / под ред. Р. С. Белкина.* — М. : НОРМА-ИНФРА, 1999. — С. 71; *Россинская Е. Р. Криминалистика : курс лекций / Е. Р. Россинская.* — М. : Норма, 2006. — С. 24–25; *Криминалистика : учеб. для студ. вузов / под ред. А. Ф. Волинского, В. П. Лаврова.* — 2-е изд. перераб. и доп. — М. : ЮНИТИ-ДАНА : Закон и право, 2008. — С. 22.

² See: *Головин А. Ю. О систематике и содержании закономерностей, изучаемых криминалистикой / А. Ю. Головин // Проблемы системных исследований в криминалистике и судебной экспертизе : материалы науч. конф., Москва, 4–5 декабря 2006 г.* — М. : МАКС Пресс, 2006. — С. 45–46.

³ See: *Криминалистика : учебник / под ред. Т. А. Седовой, А. А. Эксархопуло.* — СПб. : Лань. — С. 71.

⁴ It should be noted that some researchers, as before, support the point of view on the double, dualistic nature of Criminalistics (see, for example: *Зашляпин Л. А. Основы теории эффективности адвокатской деятельности: прелиминарный аспект / Л. А. Зашляпин.* — Екатеринбург : Урал. ун-т, 2006. — С. 7–11.

fotonics, psychophysics, eozphysics and others, and, as a result, to the creation of a universal scientific picture¹. So, as of today, there are legal and integrated paradigms regarding the nature of Criminalistics. Thus, it appears that the coexistence of these paradigms is forced in some extent. This is explained, on the one hand, by purely pragmatic motivation of referring Criminalistics to legal sciences, on the other hand, by the presence of currently existing classification of sciences on the distribution on the natural, technical and by the absence in the science studying of such a variant as a science of synthetic (integrated) nature. But this situation, in our opinion, is temporary, and in the future under the conditions of successful formation of a class of integrated sciences will be resolved in favor of the latter.

ПРИРОДА КРИМІНАЛІСТИКИ: СУЧАСНІ НАУКОВІ КОНЦЕПЦІЇ

Журавель В. А.

Розглянуто генезис і сучасний стан наукових поглядів стосовно сутності природи криміналістики. Звернуто увагу на те, що зазначена проблематика є однією з найбільш дискусійних у загальній теорії криміналістики й до сьогодні вчені-криміналісти не дійшли узгодженої позиції з цього питання, а тому нині співіснують дві основні наукові концепції стосовно природи криміналістики, за однією з них криміналістика визнається спеціальною юридичною наукою, а за другою – наукою синтетичного (інтегрального) характеру. Щодо зазначених концепцій висловлена авторська позиція.

Ключові слова: природа криміналістики, диференціація та інтеграція знань, наукові концепції, юридичні науки, синтетичні науки.

ПРИРОДА КРИМИНАЛИСТИКИ: СОВРЕМЕННЫЕ НАУЧНЫЕ КОНЦЕПЦИИ

Журавель В. А.

Рассмотрены генезис и современное состояние научных взглядов на сущность природы криминалистики. Обращено внимание на то, что указанная проблематика является одной из наиболее дискуссионных в общей теории криминалистики и до настоящего времени ученые-криминалисты не пришли к согласованной позиции по этому вопросу, а поэтому на сегодня сосуществуют две основные концепции касательно сущности природы криминалистики, по одной из них криминалистика признается специальной юридической наукой, а по другой – наукой синтетического (интегрального) характера. Относительно указанных концепций изложена авторская позиция.

Ключевые слова: природа криминалистики, дифференциация и интеграция знаний, научные концепции, юридические науки, синтетические науки.

¹ See: *Исакова Е. И.* Современные процессы дифференциации и интеграции наук / *Е. И. Исакова, И. В. Дьяконов* // Гуманітар. вісн. ЗДІА. — 2010. — Вип. 43. — С. 30–32.

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SCIENTIFIC APPROACHES TO UNDERSTANDING TACTICAL AND CRIMINALISTIC COMPLEXES AND PROBLEMS OF THEIR PRACTICAL APPLICATION

The paper examines theoretical foundations of tactical and criminalistic complexes and their practical application in the criminal proceedings. Scientific approaches to understanding notion "tactical and criminalistic complex", its functional purpose in the investigative and judicial activities are analyzed. It is proved that the doctrinal approaches to the definition of the notion under consideration should be based on the differentiated understanding of such organizational and tactical means as a tactical operation and tactical combination.

Keywords: tactical and criminalistic complex, complex means of criminalistic tactics, criminalistic complex, tactical operations, tactical combinations, criminalistic theory of tactical operations.

One of the defining trends of the modern development of Criminalistics and practice of counteraction to criminality is a comprehensive realization of investigative (search), covert investigative (search) activities, operational-search, provisional, organizational-technical and other measures in order to resolve individual tactical tasks whose solution by another way is ineffective or impossible at all in a specific investigatory situation. Therefore, the statement of B. V. Schur is justifiable that time has come to move from segmental methodological recommendations for tactical expediency of certain investigative actions to the relevant complex approach, to the establishment of specific dependencies with intermediate (tactical) task of investigation¹. Wherein, one should keep in mind that tactical and criminalistic complexes in the investigation of crimes (techniques, combinations, operations) are certain instruments of evidence collection and verification. They are considered as procedural and organizational tactical form of exercising optimal, allowable methods of action, line of conduct in the process of solving tactical problems, being realized in order to achieve purposes crime investigation².

In the special literature and practice of criminal proceedings different terms are used in order to indicate complex tactical means. Often they are referred as

¹ See: Щур Б. В. Теоретичні основи формування та застосування криміналістичних методик : монографія / Б. В. Щур. — Х. : Харків юрид., 2010. — С. 185.

² See: Якушин С. Ю. Криминалистическая тактика: вопросы теории и практики : учеб. пособие / С. Ю. Якушин. — Казань : Казан. ун-т, 2010. — С. 50.

“tactical complex”¹ “criminalistic complex”², “tactical-criminalistic complex” or “tactical (criminalistic) complex”³, “organizational-tactical complex”⁴ and others. In most cases, there are different approaches to the interpretation of notions under consideration, some discussions on their essence and content. At the same time, unfortunately, there is no unambiguous understanding of the essence considered actions and measures, methods until now, as well as, there is no single scientific approach to their research.

So, one of the urgent tasks of development of the theoretical problems of complex use of tactics is to solve the problems of the conceptual apparatus. After all, at the beginning of any scientific research, it is necessary to determine the significance, position and relationship of the phenomenon (category) under study, to understand the general theoretical positions, to formulate original notions and only then to initiate directly scientific solution of the problem. Flouting this rule leads only to confusion and, sometimes, causes to “reject” the existing experience of the theoretical and applied researches and to begin consideration of certain issues from the very beginning, from the first principles. In this aspect, undoubtedly a considerable scientific and practical interest is in depth study of the notion “tactical-criminalistic complex”, its structure, and relation of the components that are combined in it, their influence on each other and so forth.

Formulation of the notion “tactical-criminalistic complex” requires first of all a thorough analysis and clarification of the essence of the term “complex” which is defined as (English – Complex, Latin – Complexus – interlacement, combination, link) a set of objects, notions or associations which constitute one whole⁵. In the explanatory dictionaries the term “complex” is defined as a set, combination of phenomena and properties⁶ or a set of objects, devices, programs,

¹ See: *Селиванов Н. А.* Советская криминалистика: система понятий / Н. А. Селиванов. — М. : Юрид. лит., 1982. — С. 92; *Исаенко В. Н.* Тактические комплексы в расследовании убийств с использованием сведений о материальных ценностях, похищенных преступниками у потерпевших : дис. ... канд. юрид. наук : 12.00.09 / В. Н. Исаенко. — М., 1990. — С. 77; *Головин А. Ю.* Криминалистическая систематика / А. Ю. Головин / под ред. Н. П. Яблокова. — М. : ЛексЭкст, 2002. — С. 216–221; *Шмонин А. В.* Методология криминалистической методики : монография / А. В. Шмонин. — М. : Юрлитинформ, 2010. — С. 321–333 та ін.

² See: *Сорокотягин И. Н.* Использование специальных познаний в криминалистическом комплексе «установление неопознанного трупа или его частей» / И. Н. Сорокотягин, А. А. Шмидт. — Свердловск : Изд-во Свердлов. юрид. ин-та, 1986. — С. 98; *Матусовский Г. А.* Экономические преступления: криминалистический анализ / Г. А. Матусовский. — Харьков : Консум, 1999. — С. 155.

³ See: *Асташкина Е. Н.* Расследование преступлений. Криминалистические комплексы : учеб.-практ. пособие / Е. Н. Асташкина, Н. А. Марочкин, А. Е. Михальчук. — М. : Приор-издат, 2003. — С. 5.

⁴ See: *Шепітько В. Ю.* Організаційно-тактичні засоби: поняття та значення / В. Ю. Шепітько, В. А. Журавель // Питання боротьби зі злочинністю : зб. наук. пр. — Х. : Право, 2009. — Вип. 18. — С. 185–192.

⁵ See: *Большой словарь иностранных слов* / сост. А. Ю. Москвин. — М. : Центр полиграф : Полус, 2001. — С. 299.

⁶ See: *Толковый словарь русского языка* / под ред. Д. Н. Ушакова. — М. : Астрель : АСТ, 2000. — Т. 1. — С. 1428.

phenomena, actions, properties that make up one whole, work in a single system, have a common purpose, “in complex” – together, into one, instead of separating anything¹, or a set, a combination of anything; a group, a set of objects, phenomena of a single purpose².

In the psychological literature complex is understood as a combination of individual mental processes into a single whole different from the sum of its elements³; a set of mental elements united around some thematic kernel and associated with certain feelings⁴. In psychology – a set of psychic processes that cause an inadequate response to any external or internal psychic irritant⁵ or a set of any psychic elements which is characteristic to someone that is grasped by him and determine his behavior⁶.

In the conceptual apparatus of Criminalistics the term “tactical (criminalistic) complex” appeared as a consequence of scientists attempt to unite all existing organizational and tactical means under “one roof”⁷. In this sense, O. Yu. Holovin fairly notices that in the modern Criminalistics the problem of constructing clear and logical system of notions necessitates introduction of a special term which denotes different complexes of investigator's actions united by necessity of solving definite problems of investigation⁸.

Along with it, in the theory of Criminalistics the question concerning notion “tactical (criminalistic) complex” remains debatable. In particular, M. O. Selivanov understands conjunction (combination) of tactical methods within the frames of a single procedural act as a tactical complex⁹. V. I. Sorokotjagin and O. A. Schmidt, on the contrary, believe that the criminalistic complex is a combination of the set of investigative, organizational-checking, control-revising measures, as well as actions with applying special knowledge carried out by investigators and other participants in the criminal proceedings with the purpose of timely execution of certain problems significant in terms of content¹⁰.

According to Ye. H. Dzhakishev, the notion “tactical-criminalistic complex” combines per se two categories – “tactical operation” and “tactical combination”. This approach, as the scientist notices, to denote different sets of investigative

¹ See: Великий тлумачний словник сучасної української мови / уклад. і голов. ред. В. Т. Бусел. — К. ; Ірпінь : ВТФ «Перун», 2002. — С. 445.

² See: Ожегов С. И. Толковый словарь русского языка / С. И. Ожегов, Н. Ю. Шведова. — 3-е изд. — М. : АЗЪ, 1995. — С. 282.

³ See: Юридична психологія : словник / [Д. О. Александров, В. Г. Андросюк, Л. І. Казміренко та ін.]. — Вид. 2-ге, уточ. та допов. — К. : КНТ, 2008. — С. 79.

⁴ See: Столяренко Л. Д. Психология : учебник для вузов / Л. Д. Столяренко. — СПб. : Питер, 2008. — С. 269.

⁵ See: Большой словарь иностранных слов. — С. 299.

⁶ See: Великий тлумачний словник сучасної української мови. — С. 445.

⁷ See: Колдин В. Я. Логико-информационная структура следственного действия и тактической комбинации / В. Я. Колдин // Криминалистика : учебник для вузов ; отв. ред. Н. П. Яблоков. — М., 1996. — С. 369.

⁸ See: Головин А. Ю. Indicated work. — С. 216–217.

⁹ See: Селиванов Н. А. Indicated work. — С. 92.

¹⁰ See: Сорокотягин И. Н., Шмидт А. А. Indicated work. — С. 98.

actions is optimal because tactical operation and tactical combination mutually complement each other, and can be used simultaneously for the characteristics of the entire system from the set of investigative measures¹. Some scientists believe that the tactical-criminalistic complex is a set of investigative actions, operational-search, control-revisory, technical and other measures, as well as a set of tactical methods that are realized within the framework of a separate investigation. These complexes are used to solve concrete problems that arose at certain stages of investigation of crimes in the conditions of various investigative situations².

In his turn S. Yu. Yakushin³ in system tactical and criminalistic complexes distinguish separate tactical methods and complex tactical means – combinations tactical and tactical operations. In doing so, the scientist emphasizes that the notion of tactical-criminalistic complex should not be identified with the notion a criminalistic complex which is wider in its content. According to O. Yu. Golovin, tactical complexes – multilevel systems of investigative, operational-search and organizational actions, methods aimed at solving problems under investigation of the criminal case⁴.

Exploring the issues under consideration, A. V. Shmonin notes that the term “tactical complex” – is organizationally-ordered set (system) of tactical methods and/or procedural actions and/or operational-search and/or other measures aimed at solving problems of preliminary investigation or stipulated by this task and investigative situation. In his opinion, tactical complexes may include in their structure the following elements: tactical methods; investigative actions; other procedural acts; organizational activities; technical measures; operational-search measures; revisions and documentary checkings (tax audits), measures on the study of documentary information; measures on the use of mass media and Internet technologies in the process of crimes investigation; activities related to the use of public assistance (non-governmental organizations, other associations of citizens, etc.)⁵.

Stated position of A. V. Schmonin has been criticized on the pages of criminalistic editions. In particular, B. V. Schur believes that it is difficult to imagine a combination of multi-ordinal means of criminalistic tactics – systems of tactical methods (or separate tactical methods) and procedural (investigative) actions or other measures because tactical methods do not exist by themselves; they are used within the limits of investigative action. Therefore, there may be a combination of investigative and others (procedural and non-procedural) measures. Another thing is that there are varieties of tactical operations – 1) the system of investiga-

¹ See: *Джакишев Е. Г.* Проблемы совершенствования криминалистических приемов и средств борьбы с хищениями и иными корыстными преступлениями в сфере экономики : автореф. дис. на соискание уч. степени д-ра юрид. наук : спец. 12.00.09 «Уголовный процесс; криминалистика и судебная экспертиза» / Е. Г. Джакишев. — Алматы, 1994. — С. 25.

² See: *Асташкина Е. Н., Марочкин Н. А., Михальчук А. Е.* Indicated work. — С. 5.

³ See: *Якушин С. Ю.* Тактические задачи и средства их решения при расследовании преступлений / С. Ю. Якушин // Криміналіст першодрукований. — 2011. — №3. — С. 63–66.

⁴ See: *Головин А. Ю.* Indicated work. — С. 216.

⁵ See: *Шмонин А. В.* Методология криминалистической методики. — С. 346–347.

tive actions; 2) complex of investigative actions and operational-search measures; 3) complex of investigative actions, organizational and technical measures and so forth. Such combinations could be attributed to tactical complexes used as an element of separate criminalistic methods¹. Various positions of scholars on the integrated use of tactical-criminalistic means of crimes investigation were expressed in the criminalistic literature. Thus, some forensic scientists² offer to consider tactical combination as the most common collective notion of the whole entirety of combinational tactical actions in Criminalistics, that is, they, in fact, equate such notions as “tactical combination” and “tactical-criminalistic complex”. An active supporter of this position was R. S. Bielkin, who initially proposed the term “tactical combination” to describe the tactical means of interrogation which were called “psychological trap” or “investigative tricks”, and later, having expanded the notion of tactical combinations included combination of not only tactical methods but also the investigative acts in it. In his opinion, “tactical combination” – it is some combination of tactical methods of or investigative actions aims to solve a particular task of investigation caused by this purpose and investigative situation”³. R. S. Bielkin divided all tactical combinations at simple (consisting from the system of tactical methods which are applied within the frames of a single investigative action) and complex (systems of investigative actions and other measures).

The peculiarity of the above concept is that a single term – “tactical combination” refers to two different notions: a system of tactical methods of that are used in the fulfillment of one investigative action, and a set of investigative, operational-search and other actions aimed at solving certain tactical tasks. According to the stated position, in the criminalistic literature critical remarks were expressed to the address of its supporters. In particular, M. P. Maliutin thinks that notions under consideration are different in their scope and combination of them into one definition is hardly appropriate⁴. V. Yu. Sokol notes that the overall directivity on the solution of emerging tactical tasks can not be the basis for unification of the system of tactical methods and the system of investigative actions within the frames of a single theoretical construction⁵.

Other scientists defend the thought which is common in criminalistic science, according to which, the separate organizationally- tactical means of investigation are the tactical operation and tactical combination. With this in mind, the terms “tactical combination” and “tactical operation” reflect certain types of tactical

¹ See: *Щур Б. В.* Indicated work. — С. 188–189.

² See: *Криминалистика : учеб. для вузов / [Т. В. Аверьянова, Р. С. Белкин, Ю. Г. Корухов, Е. Р. Россинская]*; под ред. Р. С. Белкина. — М. : НОРМА – ИНФРА-М, 1999. — С. 507–514; *Чурилов С. Н.* Криминалистическая методика: история и современность / С. Н. Чурилов. — М. : Маркетинг, 2002. — С. 343–356.

³ See: *Белкин Р. С.* Криминалистика: проблемы, тенденции, перспективы. От теории к практике / Р. С. Белкин. — М. : Юрид. лит., 1988. — С. 140.

⁴ See: *Малиutin М. П.* Тактические приемы в расследовании преступлений / М. П. Малиutin. — М. : Юрлитинформ, 2009. — С. 25–31.

⁵ See: *Сокол В. Ю.* Методологические и организационные аспекты тактико-криминалистического обеспечения раскрытия преступлений / В. Ю. Сокол. — Краснодар : Изд-во Кубан. гос. ун-та, 1998. — С. 162.

complexes. “Tactical combination and tactical operation, – S. Yu. Yaku-shev marks – are a form of tactical complexes or complex tactical means”¹.

Along with that, in Criminalistics there were expressed various, not unambiguous views on the understanding and relationship between the notions “tactical operation” and “tactical combination”. In their studies, scientists consider these categories as either independent, or, conversely, equate, mix them seeing only the difference in terminology. Thus, Ye. H. Dzhakishev combines the notions “tactical combination” and “tactical operation” in one term, and offers such complexes of actions to call “tactical combinational operation”, noting that namely in this form the notions “... do not contradict each other, but on the contrary, they complement each other and can be used simultaneously to characterize the overall system from the combination of investigative actions, operational-search and other measures”². V. I. Shykanov also considered that combination is the attribute of the theory and practice of operative-investigative activities, and in Criminalistics the term “tactical combination” is used only when one stresses that the tactical operation is related with very difficult “multi-level” estimations based on the possibilities of reflective analysis, and involves extensive use of the operational capabilities of the inquiry body³. In other words, he considered tactical combination to be a kind of tactical operation.

Along with this the vast majority of scientist-criminalists believe that tactical operations and tactical combinations are independent means and offer their own criteria of their differentiation. Thus, A. V. Shmonin supports the position on distinction of these complexes and their independent status. Such a conclusion, in his opinion, is considered to be important in terms of methodology and mainly affects upon the research results of the problem under consideration⁴.

Individual authors provide us with other points of view on the understanding of the tactical combination and tactical operation. Thus, O. O. Mykhalchuk and V. V. Stepanov believe that the tactical combination and tactical operation are two independent of each other substantive criminalistic categories, but tactical combination, in addition, besides having an independent nature, may also be a structural element of a tactical operation⁵.

Certain scientific interest is deserved by position V. Yu. Shepitko who believes that systems of tactical methods (tactical combination) and tactical ope-

¹ See: *Асташкина Е. Н., Марочкин Н. А., Михальчук А. Е.* Указ. работа. — С. 44; Дулов А. В. *Тактические операции при расследовании преступлений* / А. В. Дулов. — Минск : Изд. БГУ, 1979. — С. 45; *Чебуренков А. А.* Основы теории расследования : монография / А. А. Чебуренков. — М. : Юрлитинформ, 2010. — С. 68 та ін.

² See: *Джакишев Е. Г.* Indicated work. — С. 25–26.

³ See: *Шиканов В. И.* Теоретические основы тактических операций в расследовании преступлений / В. И. Шиканов. — Иркутск : Изд-во Иркут. гос. унта, 1983. — С. 18–19.

⁴ See: *Шмонин А. В.* Методика расследования преступлений : учеб. пособие / А. В. Шмонин. — М. : Юстицинформ, 2006. — С. 331–343.

⁵ See: *Михальчук А. Е.* Соотношение тактических операций и комбинаций в криминалистике / А. Е. Михальчук, В. В. Степанов // *Проблемы интенсификации деятельности по расследованию преступлений* : сб. науч. тр. — Свердловск : Изд-во Свердлов. юрид. ин-та, 1987. — С. 36.

ration as its independent elements belong to the organizational and tactical means of investigation realization as one of the varieties of criminal tactics means¹. In his opinion, the definition of the notion “tactical combination” comprising combination of investigative actions, raises objections. Moreover, he believes that it is inappropriate to combine two separate categories – “a combination of tactical methods” (system of means) and “combination of investigative (or other) actions” (tactical operation) into one notion. The combination of tactical means and investigative actions has different purposes and is not equivalent. In the etymological sense the term “combination” is identical to the term “system of means to achieve something”. Tactical combination is possible only within the same investigative (judicial) action and does not imply combination with tactical methods of other procedural act, therefore it should be considered as a synonym of tactical methods. Tactical operation involves combination of similar and dissimilar investigative actions, operational-search, organizational and other measures aimed at fulfillment of the interim investigation task in a particular investigative situation². S. B. Rossynskiy considers tactical operation and tactical combination in a slightly renewed interpretation. In his opinion, tactical combination – is a definite set of tactical methods, investigative and judicial actions, which is aimed at solving concrete task of the preliminary investigation or judicial consideration, and is stipulated by this purpose and investigative situation. Inclusion of court procedures into the elements that constitute tactical combination is motivated by scientists by the following reasons: a) procedural differentiation between investigative and judicial actions that cause their criminalistic differentiation; b) range expansion of the subjects of tactical combinations realization, among which one may attribute a court and a judge; c) the possibility of realizing not only at the pretrial investigation but also at the court³.

In our opinion expanding the scope of applying tactical combinations and operations by introducing the court into the subjects of their realization, we can talk about tactical combinations and operations in the court proceedings. A vivid example of the support of this position is the assertion S. Yu. Yakushyn that with regard to the stage of judicial investigation, as an example of the practical realization of complicated tactical combination may serve choosing optimal tactical methods and line of conduct with the participants of the investigation in conditions of conflict situation (for example, refusing to testify, giving false testimony, self-incrimination, and so on) by the court (and parties).

¹ See: *Шепитько В. Ю. Познавательные функции деятельности следователя и средства криминалистической тактики* / В. Ю. Шепитько // Актуальные вопросы применения уголовно-процессуального и уголовного законодательства в процессе расследования преступлений : сб. материалов межвуз. науч.-практ. конф. : в 2 ч. — М. : Акад. упр. МВД России, 2009. — Ч. 2. — С. 95–97.

² See: *Криміналістика : підручник* / [В. Ю. Шепітько, В. О. Коновалова, В. А. Журавель та ін.] / за ред. В. Ю. Шепітька. — 4-те вид., переробл. і допов. — Х. : Право, 2008. — С. 145.

³ See: *Россинский С. Б. Обыск в форме специальной операции : учеб. пособ. для вузов* / С. Б. Россинский ; под ред. В. Н. Григорьева. — М. : ЮНИТИ-ДАНА : Закон и право, 2003. — С. 19–20.

The solution of this situation may be application of the system of judicial, organizational-technical actions and activities, including: a) initial judicial questioning of individuals who give consistent and truthful testimonies; b) leaving of the composition of the court to the crime scene; c) carrying out judicial inspection; g) production for inspection of physical evidence; d) carrying out identification in court; e) applying (if necessary) disciplinary measures to the violators of the order in the courtroom and others¹.

The scientist notes further that as a general rule for the trial it is not characteristic any operative support of the criminal case being in proceedings. Application of the state measures of protection, stipulated by the legislation, for witnesses often takes place in the pre-trial investigation. At the same time in the situation of change of crime eyewitness testimony in the courtroom in the criminal case proceedings, the court and the prosecution party may apply the tactical means of provisional nature within the framework of peculiar tactical operation². Therefore, in our view, the proposal on expanding the scope of applying tactical combinations and operations in court proceedings in the court is one of the promising directions of tactical operations theory that requires further depth consideration and reflection.

Considering the ratio of the tactical operation and tactical combination, S. B. Rossynskiy notes that the main difference of the tactical complexes under consideration is the availability operational-search activities in the structure of tactical operation while the tactical combination is a set of tactical means or investigative actions³. The scientist underlines that tactical operation combines both elements of tactical combinations which consist in the complex of investigative actions and the elements of operative combination which consist in the complex of operational-search combinations. The author notes that the results of conducting tactical combinations can fully be the evidence in the case as they are obtained from the investigative (court) actions, but the results of the tactical operation are the evidence only partially as the data obtained in the course of operational-search activities which do not meet the requirements of the criminal procedural law, are prohibited at all to use in the process of proving in a criminal case. Finally, tactical combination differs from the tactical operation in a range of participants. In the tactical combination there are participating an investigator (there may be a group of investigators), prosecutor and a court, on their own or, acting upon authorization, exercise certain investigative (court) actions aimed at achievement of intermediate result in a case⁴.

It should be noted that the judicial actions are also interrelated in a certain way between themselves, and should be selected taking into account the expedient sequence. Therefore, we can talk about systems (complexes) of judicial actions as important means of criminalistic tactics. On this occasion, it is true that the

¹ See: Якушин С. Ю. Криминалистическая тактика: вопросы теории и практики. — С. 50.

² See: Ibid. — С. 137–138.

³ See: Россинский С. Б. К вопросу о соотношении понятий «тактическая комбинация» и «тактическая операция» / С. Б. Россинский // Известия ТулГУ. — Тула, 2001. — Вып. 5. — С. 102–103.

⁴ See: Россинский С. Б. Обыск в форме специальной операции. — С. 19–20.

success of the trial depends on the selected evidence examination order by the court. If the sequence of the proceedings is regulated by law, and the court cannot change it under any circumstances, the order of the proceedings is determined by the court taking into account the circumstances of the criminal proceedings.

Certain scientific interest constitutes attempts of O. D. Trubachov and M. Ye. Meretskiy to introduce the term “operational-tactical combination” into the conceptual apparatus of Criminalistics and again with its various interpretations. Thus, O. D. Trubachov understands “operational-tactical combination” a certain set of investigative and operational actions, which are based on reflexive control over behavior of an interrogated person¹. In his turn M. Ye. Meretskiy concludes that operational-tactical combination is a certain regular complex set of several tactical and operative combinations, planned and carried out with taking into account (by using) the surprise factor to address the specific problems of the investigation stipulated by a particular investigative situation².

In our opinion, development of problems of using tactical operations and tactical combinations is definitely necessary for the further improvement of scientific bases of the investigation process in order to optimize it. Along with this, we fully agree with R. S. Bielkin who cautioned against enthusiasm on desire to create new terms and neglect balanced approach to their development. He rightly pointed out that the replacement of an existing term (terms) is fully justified only if the new term denotes a new definition of the notion whose content has been changed or significantly updated. If the notion denoted by the term has been changed, but it has not lost its essential characteristics, that is, if the changes were made, for example, only for the content of the term, then it is advisable to save the term given the strength of linguistic tradition³.

So, given the above analysis, it can be argued that the categories of “tactical combination” and “tactical operation” reflect certain types of means of tactical-criminalistic complexes. They are relatively new, specific activist categories revealing the functional side of the complex means of the criminalistic tactics used by an investigator (prosecutor, court) during the criminal proceedings. Tactical combination and tactical operation – dynamical categories, the essence of which is the system of procedural and non-procedural actions (measures), interaction and influence. Despite the external similarity, they are autonomous tactical means and their distinction occurs on the basis of the following criteria: 1) essence and content; 2) a system of goals and tasks; 3) complexity of the structure components; 4) the functional purpose; 5) range and duration of the execution; 6) complexity of organization; 7) subject composition of

¹ See: Трубачев А. Д. Влияние научно-технического прогресса на развитие методики расследования хищений, совершаемых с использованием служебного положения / А. Д. Трубачев // Проблемы развития криминалистики в условиях научно-технического прогресса : сб. науч. тр. — Свердловск : Изд-во Свердлов. юрид. ин-та, 1982. — С. 115–116.

² See: Мерецкий Н. Е. Криминалистика и оперативно-тактические комбинации : науч.-практ. пособие / Н. Е. Мерецкий. — М. : Юрлитинформ, 2007. — С. 21–31.

³ See: Белкин Р. С. Ленинская теория отражения и методологические проблемы советской криминалистики / Р. С. Белкин. — М. : Высш. шк. МВД СССР, 1970. — С. 63–64.

the participants¹. However, not paying attention to certain criteria of differentiation of these complexes, it is necessary to agree with the V. A. Zhuravel who notes that the proposed means should not be considered as criminalistic categories competing between themselves but rather as complements to each other which together create a single, the most effective mechanism for obtaining information necessary for the detection, investigation and prevention of criminal manifestations².

Thus, the doctrinal approaches to the definition of “tactical-criminalistic complex” should be based on a differentiated understanding of organizational and tactical means as the tactical operation and tactical combination. In our opinion, in this case, the most successful term for designation of the complex of procedural and non-procedural actions and measures aimed at solving separate (intermediate) tactical problems, is still a “tactical operation” as this term reveals the essence and contents of criminalistic means. In order to unify notions, it is advisable to apply the term “tactical operation” only when we are talking about the system of investigative (search), covert investigative (search) activities, operational-search, organizational-technical and other activities (in court proceedings – on the system of judicial actions of organizational-technical and other measures), and the term “tactical combination” – only on the system of tactical methods in the framework of carrying out a separate investigative or judicial action.

Herewith tactical operation should be considered as an independent category of Criminalistics and as a special kind of tactical-criminalistic complexes of investigation and judicial consideration of crimes. The complex of actions that are included in the structure of tactical operation, does not replace the tactics of investigative or judicial actions, and forms a more complex construction, the content of which does not exhaust tactical methods, but also includes investigative (search) actions, covert investigative (search) actions, operative-search and other activities contributing to their realization³, and in legal proceedings – court actions and organizational-technical and other measures aimed at solving separate (intermediate) tactical tasks. Compared with the tactical methods and combinations thereof, tactical operations differ in scale and duration of actions, in a broader range of participants and in the high degree of organized nature of their activities. All this necessitates further active development of the problem of Criminalistic theory of tactical operations, has not only theoretical but also practical importance making it possible to include scientific recommendations capable to play a significant role in improving efficiency of criminal proceedings, and ultimately in establishing the truth, into the tactical arsenal of an investigator (judge). A clear understanding of the essence of the tactical operation and its relationship with

¹ See: *Шевчук В. М.* Тактичні операції у криміналістиці: теоретичні засади формування та практика реалізації: монографія / В. М. Шевчук. — Х.: Вид. агенція «Апостіль», 2013. — С. 86–88.

² See: *Журавель В. А.* Системи слідчих дій та тактичні операції в структурі окремої криміналістичної методики розслідування злочинів / В. А. Журавель // Вісн. Акад. прав. наук України. — 2009. — № 2(57). — С. 197–208.

³ See: *Шиканов В. И.* Indicated work. — С. 16–17.

other means of criminalistic tactics, tactical-criminalistic complexes serves for the further development of the theory of Criminalistics, for the improvement of the judicial and investigative practice. Therefore, in modern conditions of updating criminal procedural legislation, reforming criminal justice, researches and developments on the problems of tactical-criminalistic complexes and their application in counteraction to criminality are relevant and stipulated by the needs of modern practice.

НАУКОВІ ПІДХОДИ ДО РОЗУМІННЯ ТАКТИКО-КРИМІНАЛІСТИЧНИХ КОМПЛЕКСІВ І ПРОБЛЕМИ ЇХ ПРАКТИЧНОГО ЗАСТОСУВАННЯ

Шевчук В. М.

Досліджено теоретичні засади тактико-криміналістичних комплексів і практику їх застосування в кримінальному провадженні. Проаналізовано наукові підходи до розуміння поняття «тактико-криміналістичний комплекс», його функціонального призначення в слідчій і судовій діяльності. Обґрунтовано, що доктринальні підходи до визначення зазначеного поняття мають базуватися на диференційованому розумінні таких організаційно-тактичних засобів, як тактична операція й тактична комбінація.

Ключові слова: тактико-криміналістичний комплекс, комплексні засоби криміналістичної тактики, криміналістичний комплекс, тактичні операції, тактичні комбінації, криміналістична теорія тактичних операцій.

НАУЧНЫЕ ПОДХОДЫ К ПОНИМАНИЮ ТАКТИКО- КРИМИНАЛИСТИЧЕСКИХ КОМПЛЕКСОВ И ПРОБЛЕМЫ ИХ ПРАКТИЧЕСКОГО ПРИМЕНЕНИЯ

Шевчук В. М.

Исследованы теоретические основы тактико-криминалистических комплексов и практика их применения в уголовном производстве. Проанализированы научные подходы к пониманию понятия «тактико-криминалистический комплекс», его функционального назначения в следственной и судебной деятельности. Обосновано, что доктринальные подходы к определению указанного понятия должны основываться на дифференцированом понимании таких организационно-тактических средств, как тактическая операция и тактическая комбинация.

Ключевые слова: тактико-криминалистический комплекс, комплексные средства криминалистической тактики, криминалистический комплекс, тактические операции, тактические комбинации, криминалистическая теория тактических операций.

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FEATURES OF THE NOTION OF WEAPONS IN THE CRIMINALISTICAL SCIENCE ON WEAPONS

Particularities of the criminalistic notion of weapons are described from the standpoint of modern foundations of criminalistical science on weapons and practice on investigation of criminal acts.

Keywords: criminal law enforcement, investigation of criminal acts, criminalistical science on weapons, object of cognition of criminalistical science on weapons.

Any scientific research activity involves not only getting new reliable knowledge, but also generalization, designation, systematization and publication of knowledge. This requirement was elaborated historically and is practically carried out in the form of conducting thematic scientific seminars, colloquia, conferences, publication of various collections of scientific publications, monographs, educational and methodological literature. Only in this way the results of scientific research activities can be accessed and accepted by the scientific community. Only in this way the results of scientific research activities can be transferred to the future generations of researchers and can be used in the academic, professional education and practical activities.

Scientific knowledge from various fields is knowledge-on-demand in the area of investigation of criminal acts. This knowledge forms the basis of evidence on any criminal case in the adversarial criminal process; they are used as by the prosecution party and by the defense party. Therefore, it is extremely important their uniformity, common positive scientific evaluation of the validity and practical value of this knowledge.

Protecting the most important areas of rights and interests of individuals and society by the law, in national sources of criminal law are always provided with restrictions on the manufacture, acquisition, bearing, using of weapons as a potentially dangerous subject in committing criminal acts. The notion of the weapon and its individual varieties is used in the norms of criminal law or as the subject of the composition of the criminal act, or as a qualifying attribute of the objective side of the composition of the criminal act, or as an optional feature of the objective side of the composition of the criminal act.

In criminal law enforcement, the use of knowledge on weapons and the specifics of its application, Identification possibility on diagnosis and classification of weapons and traces of its application was always attributed to the field of

special cognition and realized in the form of criminalistic expertise¹. The reliability of the results of criminalistic expertise and the possibility of their to assessment necessarily requires scientific substantiation of a technique of a particular type of criminalistic expertise. These requirements are particularly evident on demand in the criminalistic expertise of weapons and traces of its application, as this type of forensic examination is traditionally obligatory in the investigation of criminal acts committed with the use of weapons.

The scientific validity of the technique of criminalistic expertise of weapons and traces of its application is constituted from two parts: methodological, describing scientific side of the process of obtaining results within a particular type of expertise, and subject, describing the theoretical validity of the basic notions of the subject of a specific type of expertise. For example, the basic notion of criminalistic expertise of bladed weapons is the notion of weapons. The essence of this notion is revealed within the forensic science on weapons.

Throughout historical development of Criminalistics, forensic scientists were trying to generalize and systematize the knowledge on certain types of weapons and traces of their use. This work was preceded by two stages: the purposeful generalization of judicial and expert practice and the creation of the theoretical foundations on certain types of weapons and traces of their use. Its key point was the definition of a logical scope criminalistically significant types of weapons and formulation of the criteria for criminalistic evaluation of these types of weapons and traces of their use. Reality of this process is that the dynamics of this process is determined not only by the historical, socio-economic, scientific-technical conditions in which forensic scientists from different countries work, but also by that system of the national criminal law, which envisages the use of the knowledge gained.

In order to determine properly the specificity of weapons as the main object of knowledge of forensic science on weapons, one should first stipulate criminalistic value of the objects of material reality, which are defined as the weapons and traces of their use. The weapon has appeared in the culture of human civilization as not an element of criminal law structures and not in connection with the investigation of criminal offenses. It is in its essence, first of all, the subject of the material culture of peoples. There is no nation in which history there was no need to satisfy its interests, to attack or defend against enemies, gather food by hunting and so on. In order to increase the efficiency of such activity, a person made or adjusted the items, which use contributed to the optimal achievement of such a goal. Historically, these items have been called weapons. By their nature weapon – a kind of instruments of labor whose constructive features and the method of use were determined by the need to protect and attack. Thus, the weapon – is such a tool that is designed to protect or attack. In modern military-technical disciplines complex of technical means of defense and attack is called weapon. Such is the reality of the notion “weapon”,

¹ Подробнее см.: Терехович В. Н. Криминалистика. Конспект курса лекций / В. Н. Терехович. — Рига, 2008. — С. 103–114; Он же. Основы криминалистического исследования холодного оружия. — Рига, 2010. — С. 103–217.

the nature of which is inextricably related with the material culture of the human civilization.

Our understanding of the logic scope of the notion “weapon” is directly dependent on a variety of really existing or historically being existed specific types of weapons. The logical scope of such a multiplicity is limited by the kinds of energy, the use of which is inherent to the constructive features of a particular type of weapon. This idea is the basis for the division of the notion “weapon” in military-technical disciplines.

Thus, choosing classifying feature, that is, the basis for classification – the kind of energy which is used to realize the combat characteristics of a particular type of weapon, in military-technical disciplines one distinguish the following groups of weapons: “edged weapon” (type of energy – the muscular strength of a man), “firearm” (type of energy – the combustion energy of powder materials), “weapon of explosive action” (type of energy – kinetic energy of the explosion), “nuclear weapons” (type of energy – energy of nuclear reaction), “chemical weapons” (type of energy – energy of destructive, irreversible chemical reactions for biological systems), and so forth.

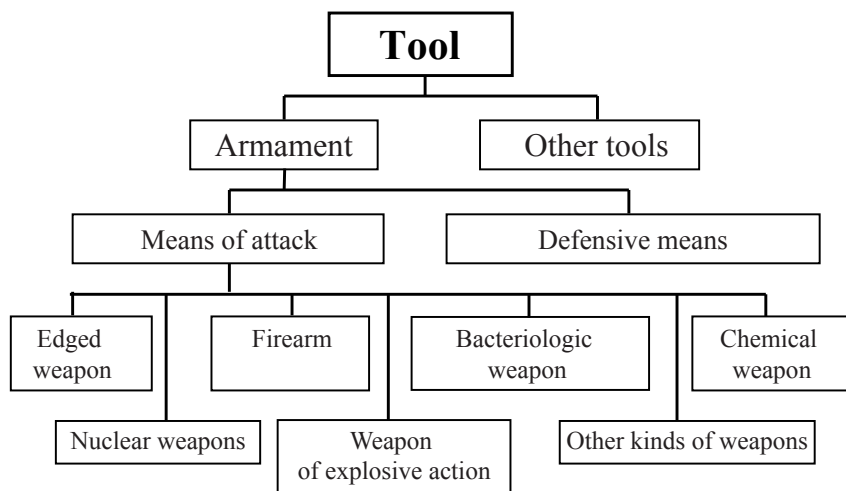


Figure. Classification of the notion “weapon”

The notion “weapon” is used in various fields of knowledge and human activities. However, each of these areas when using notion “weapon” puts its own sense and meaning in this notion. For example, an ethnographer and historian of material culture of peoples, specialist in military-technical disciplines, expert in the field of trade, and others fill the notion “weapon” with different meanings, and the field of investigation of criminal offenses is not an exception to this rule.

The notion “weapon” as an element of criminal law constructions – is the subject whose structural peculiarities and technical condition which may ac-

tually facilitate causing serious and fatal injuries to man by it. Item which can not cause serious or fatal injury to a man, in the criminalistic sense is not a weapon. These requirements for weapons were developed historically by criminalistic practice of investigation of criminal acts within the continental law system. Therefore, the definition of weapon used in military-technical disciplines, not clearly enough gives an idea of that subjects which are generalized in criminalistic notion "weapon". In the continental system of criminal law enforcement this state of affairs makes it impossible to use directly conventional encyclopedic notion "weapon". This disadvantage is eliminated by concretization of the notion "weapon" by introducing criminalistical value into this notion. Criminalistic concretization of the notion "weapon" allows to reveal essential features and to define clearly the logical scope of criminalistic notion "weapons", therefore, to define understandably and precisely the notion "weapons", suitable for the use in forensic practice.

Correct formation of the criminalistic notion of weapon provides evaluative nature of notions introduced into the judicial theory and practice. A true moment in legal thinking is secondary in relation to a valuable moment. Therefore, when qualifying violent criminal acts, one should take into account how availability of instruments of crime, its intended use, technical condition facilitated or could facilitate the commission of a particular crime. Consequently, introducing the notion of weapon into forensic practice, it is necessary to take into account the real danger of the use of a particular subject to cause serious or fatal injuries. This real danger is characterized by designation of the object and its suitability for realization of the designated functions. Thus, concretization of the scope of the criminalistical notion of weapon requires additional classification of weapon based on its suitability for the realization of embedded combating properties in its construction.

As a rule, experts receive the samples of weapon to be studied, technical parameters of which completely correspond to the parameters initially laid down in the manufacturing process of a particular sample weapon. However, the expert and judicial practice has shown that violent actions with a weapon, as a rule, are committed samples by weapon that was in use. Therefore, it has defects expressed in varying degrees.

From the criminalistic point of view, it is important how existing defects in a particular sample of a weapon affect upon the suitability of the realization of its combating properties. In the case when the presence of defects in a particular sample of a weapon slightly reduces combating properties and such defects can be easily eliminated under certain conditions in the presence of materials and skills, a concrete sample should be recognized as a weapon suitable for use. In the case when the presence of defects of a specific sample of weapon excludes the possibility of realization of combat properties originally projected in it, a sample of the weapon should be recognized inappropriate for use. Thus, weapons, depending on the technical conditions, are divided into two groups:

- 1) weapons, suitable for use (technically serviceable, free from defects);
- 2) weapons, not suitable for use.

The foregoing circumstance is the basis for the assertion that one more (apart from intended) essential feature of the criminalistic notion of a weapon is a real possibility of realization of its combating properties, originally projected into the construction of a particular weapon sample, in other words, the technical condition of a weapon for realization of its combating properties. In the theory of criminal law there is used the provision on individual criminal responsibility, in addition, in judicial practice criminal actions in which the weapon serves as a subject of crime (theft, manufacture, sale, bearing), or as the weapon of crime (use of weapons), there are the cases only with the individual weapon. This determines expediency when specifying criminalistic notion of weapon, to undertake also and classification of weapon depending on the number of people required for the use of weapon. If you choose this classification base, weapons can be divided into two groups:

1) individual weapon – a weapon which is borne, prepared and used by one person. For example, a dirk, a gun, a grenade, and so on;

2) collective weapon – a weapon which requires two or more people to be moved, prepared and applied. For example, the onager, arkbalista, various types of artillery, and so on.

Thus, a significant (from a practical standpoint) feature of criminalistic notion of a weapon is also individuality of its use. However, from a theoretical point of view, we can assume possibility of appearance of cases of using collective weapons in criminalistics practice. For example, in the cases of mass disorders investigations.

Concretization of the criminalistic notion of weapons on the indicated grounds is clearly illustrated by the cross-classification of weapons on two grounds:

1) on the technical condition – weapons, suitable for use and weapons, not suitable for use;

2) on the number of people required to use the weapon – individual weapon, collective weapon.

Namely these bases (features) allow to concretize forensic notion of weapons considering the criminalistic practice. Thus, the weapon in criminalistic science on weapon is recognized to be only individual weapons whose technical conditions allow to realize their combating qualities.

ОСОБЛИВОСТІ ПОНЯТТЯ ЗБРОЇ В КРИМІНАЛІСТИЧНОМУ ЗБРОЄЗНАВСТВІ

Терехович В. М., Німанде Е. В.

Із позиції сучасних основ криміналістичного зброезнавства та практики розслідування злочинних діянь описано особливості криміналістичного поняття зброї. Розкрито сутність процесу конкретизації й визначення криміналістичного поняття зброї.

Ключові слова: кримінальне правозастосування, розслідування злочинних діянь, криміналістичне зброезнавство, об'єкт пізнання криміналістичного зброезнавства.

ОСОБЕННОСТИ ПОНЯТИЯ ОРУЖИЯ В КРИМИНАЛИСТИЧЕСКОМ ОРУЖИЕВЕДЕНИИ

Терехович В. Н., Ниманде Э. В.

С позиции современных основ криминалистического оружиеведения и практики расследования преступных деяний описаны особенности криминалистического понятия оружия. Раскрыта сущность процесса конкретизации и определения криминалистического понятия оружия.

Ключевые слова: уголовное правоприменение, расследование преступных деяний, криминалистическое оружиеведение, объект познания криминалистического оружиеведения.

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ACUTE ISSUES OF ALGORITHMIZATION OF CERTAIN TYPES OF CRIMES INVESTIGATION

The issue discusses the problems of criminalistic algorithm of investigation as a flexible system of scientifically developed and formalized instructions of sequential execution in a definite order of optimal variants of investigative (search) activities, covert investigative (search) activities, operative-search measures and other actions, integrated by the intent of effective solutions of intermediate targets of crime investigation with regard to the relevant typical investigative situations. There is provided author's vision of the search algorithm of the unknown offender as a consistent solution of specific problems of the investigation.

Keywords: search activity of investigator, identification of a person who committed a crime, search algorithm of unknown criminal.

According to Art. 2 of the Criminal Procedure Code of Ukraine, one of the goals of criminal proceedings is "... to provide fast, full and impartial investigation and judicial examination, so that everyone who has committed a criminal offense, has been prosecuted to the extent of his guilt ..." ¹.

In accordance with the Law of Ukraine "On the National Police", the major powers of the police, among the others, include mandated task to search for persons hiding from the pre-trial investigation authorities, investigating judge, court, evading execution from criminal penalties, and others. (item 7 of part 1 of Art. 23) ². One of the serious disadvantages of the criminal procedural legislation in force is the absence of direct indication of the legislator to the need to solve the crime, that is, to search and establish the person who committed it. Because the crime investigation process naturally and logically should lead to the establishment of

¹ See: Кримінальний процесуальний кодекс України. — Х. : Право, 2012. — С. 3.

² See: Закон України «Про Національну поліцію». — Х. : Право, 2015. — С. 14.

the truth in a criminal proceeding, and, consequently, to the establishment of the personality of a criminal. Without this, it is impossible prompt, thorough and impartial investigation and trial proceedings. That is, it is impossible to solve the tasks of the criminal justice. We can state that this gap in the legislation of Ukraine even today extremely negative impacts on the overall level of crime detection, and among many other factors contributes to a sharp worsening of the crime situation in the country.

Of course, the search for the criminals and their subsequent detention contribute to the rapid, full and impartial investigation of the criminal proceedings, and shortcomings of investigator search activity negatively affect upon the national level of fight against crime. That's why the problems of search for the criminal receive much attention in Criminalistics. Determination in the course of proving of a person, who committed a crime, should be one of the central tasks of the pre-trial investigation. Solution of this task involves overcoming certain difficulties, especially when the offender has managed to escape from the crime scene. A person, who has committed an offense, can be regarded as established if the investigator has data allowing individualizing and identifying a particular person. Data on a personality of a criminal as the search object are formed as a result of regularities of forensic information emergence. The process of determination or search of an unknown offender should be expediently regarded as an algorithm of investigator search activity.

The purpose of investigation of any type of crime is establishing truth in a criminal proceeding. Achieving this goal is only possible if the investigator timely chooses optimal way of knowing offense on the basis of information which he has at the initial stage of the investigation after entering information in the Unified Register of Pretrial Investigations (URPI)

The practical realization of this direction is seen by scientists in the creation of program-target method of investigation of certain types of crime, which has its reflection in the development of specialized programs for investigation, algorithms for the process of investigation of certain types of crimes or conducting certain investigative (search) actions¹.

The question of algorithmization of investigation is subjected to careful scrutiny which culminated in the development of new standard programs (algorithms) for investigation of certain types of crimes, typical programs for conducting certain investigative (search) operations, as well as the scientific and practical basis for the use of such programs (algorithms) in both manual and machine options, that is, with the use of electronic computers and others.

Programming can be defined as a method of investigation rationalization and optimization of its planning, the content of which is constituted by programs aimed at determining the situation developed, identifying tasks of investigation and choosing the means to achieve them².

¹ See: Курс криминалистики : Особенная часть. Т. 1: Методики расследования насильственных и корыстно-насильственных преступлений / отв. ред. В. Е. Корноухов. — М. : Юристъ, 2001. — С. 12–19.

² See: Зорин Г. А. Криминалистическая методология : науч.-популяр. изд. / Г. А. Зорин. — Минск : Амалфея, 2000. — С. 145–146.

It should be noted that among scientists there is no unity of views on the names of both the method (target-oriented, programming, algorithmization), and the prescriptions which make up the content (program, algorithm)¹. These notions are based on the cybernetic terminology. So in computer science algorithm is understood as the exact prescription, defining a computational process which directs from the initial data to the desired result. The program also provides a description of the algorithm in a programming language. Bearing in mind that in the forensic literature, the authors, revealing the problem of investigation algorithmization, propose a precise system of actions aimed at typical investigative situations of one or another stage of investigation, depending on the type of criminal act, it seems correct to use the notion "algorithm". At the same time, the method of optimization of the investigation process should be expediently called as algorithmization².

In criminalistic activity on crimes investigation algorithmization is a formalized activity of the investigator, prosecutor and other persons by using the propositional logic of language, which represents by itself the method of solving forensic tasks³. Algorithmization allows you to turn this process from the poorly controlled activity to program-controlled activity, to increase objectivity of the results and create real prerequisites for an automated processing of information.

Algorithmization of investigation can be seen as a creative process for producing a formalized model of an investigator activity to address the tasks of crime investigation in the form of an algorithm, the practical use of which contributes to the optimization of said activity and to the improving of its efficiency⁴. An important precondition for the successful implementation of algorithmization of investigative activities on crimes investigation is the deve-

¹ See: *Густов Г. А.* Программно-целевой метод организации раскрытия убийств : конспект лекций / Г. А. Густов. — Л. : ЛГУ, 1985. — С. 6–7, 145–146; *Матусовский Г. А.* Возможности разработки и применения в целях расследования типовых схем признаков хищений и программ для ЭВМ / Г. А. Матусовский, А. А. Дудников // Проблемы совершенствования расследования и профилактика преступлений на современном этапе. — Уфа : Изд-во Башкир. гос. ун-та, 1990. — С. 129–130; *Цветков С. И.* Перспективы использования ЭВМ для алгоритмизации преступлений на современном этапе / С. И. Цветков, Е. П. Ищенко. — Уфа : Изд-во Башкир. гос. ун-та, 1990. — С. 26.

² See: *Турчин Д. А.* Система следов как алгоритм действий следователя / Д. А. Турчин // Алгоритмы и организация решений следственных задач. — Иркутск : Изд-во Иркут. ун-та, 1982. — С. 36–37; *Томш В. Г.* Подходы к разработке алгоритма поведения сотрудника ОВД в условиях многолюдности / В. Г. Томш, Ю. Н. Черторицкий // Алгоритмы и организация решений следственных задач. — Иркутск : Изд-во Иркут. ун-та, 1982. — С. 92–97.

³ See: *Быховский И. Е.* Программирование расследования: возможности и перспективы / И. Е. Быховский // Актуальные проблемы советской криминалистики. — М. : Юрид. лит., 1980. — С. 63.

⁴ See: *Асташкина Е. Н.* Криминалистические алгоритмы в расследовании квартирных краж : учеб. пособие / Е. Н. Асташкина, Н. А. Марочкин. — М. : Юрлитинформ, 2003. — С. 12.

lopment of standard algorithms for the investigation of certain types of crimes and carrying out investigative (search) operations.

Criminalistic algorithm of investigation – a flexible system of scientifically developed and formalized prescriptions of consistent fulfillment in a certain order of optimal variants of investigative actions, operative-search measures and other actions, unified by intention of effective solution of intermediate objectives of crime investigation with regard to the relevant standard investigative situations¹.

From a cognitive point of view, the starting point in the process of establishing unknown perpetrator is the definition of intermediate objectives, corresponding methods and subjects to them, leading to the final decision of the problem. The theoretical basis of the investigator's search activity is the provision of certain doctrines of Criminalistics: the theory of identification and diagnostics.

The search algorithm of an unknown offender includes a consistent solution of the following tasks:

- 1) revealing sources of information about the features of an unknown criminal;
- 2) construction of a hypothetical model of offender personality and the establishment of his belongingness to:
 - the broad totality (class) of the persons on general attributes;
 - the narrow totality (group) of persons by separate attributes;
- 3) determination of limited, quantitatively defined group of people who are checked;
- 4) determination of the person checked, i.e. a person who according to the circumstances of the criminal proceedings may be recognized to be an unknown criminal, and, if necessary, getting samples for expertise from him in accordance with Art. 245 of the Criminal Procedural Code of Ukraine;
- 5) identification of a particular person;
- 6) determination of an unknown criminal.

In the initial stages (tasks 1–3) in the most wide extent there are used the methods of diagnostic researches, the purpose of which is attribution of an unknown criminal (the person who is identified) to more narrow classificational sets with the help of stationary and specially created classifications.

Determination of limited classes and groups is important in the organization of search measures (Objective 4). After determining a set of people checked, there comes the stage of identification (Task 5). The offender is determined in accordance with the results of identification (Task 6). At the same time, each next task follows from the previous one and, as a rule, it can not be solved without solving the previous one.

Considering in more detail the given algorithm, we can state that each of the six intermediate objectives search algorithm of an unknown criminal assumes concrete, actions inherent to this intermediate task.

Intermediate task No. 1. Identification of material and ideal sources of information on crime and criminals. This is the basis for solving identificational-

¹ See: *Малюрова В. О.* Тактико-криміналістичні та процесуальні основи пошуку та затримання злочинця : дис. ... канд. юрид. наук : 12.00.09 / В. О. Малюрова. — Х., 2005. — 238 с.

search tasks. Traces of the wanted criminal, reflecting his properties, are the initial identifying information about the person, which is associated with the event under investigation.

Intermediate task No. 2. On the basis of the properties of the unknown criminal which were determined due to the traces remained, the initial task of his search is defined as the transition from the determination of an indefinitely broad totalities (classes) of persons to the determination of their narrow qualitatively determined totalities (groups), that is, the initial totality. To determine belongingness of the identified criminal to a class or a group of persons – it means to make representation to which population (age, gender, racial, national, professional, etc.) or to which social category, which sector of the population does he belong¹. The solution of this problem, even at the level of the construction of a hypothetical model of a criminal, allows to delineate the range of persons, among whom he may be. This initial totality can be determined as the minimum totality of the wanted persons, selected on the basis of the initial identificational information contained in the traces of the crime.

Reliable knowledge on any feature (features), when there is relevant evidence, as well as the possible (probable) knowledge, which follows from the analysis of the data on the way, motive of crime committing, and so on, may be put in the basis of determination of group belongingness of the criminal. Formed complex of search features may be combined and include determined and expected features. Usually, the primary data allows forming an idea of a sufficiently large number of people to be checked. After that, there arises the problem to provide concretization of the initial totality of objects under verification. For this purpose, one carries out classification, separation of the said totality on groups, subgroups, other unknown features of the criminal.

Determination of the class is based on the technical, natural scientific, stationary classifications created without the reference to the event under investigation, and the basis of classification are the common features a person. The characteristic features of such research with the purpose of classification are: a) obtaining initial information from the footsteps of an unknown criminal; b) the use of the standards of different classificational groups (e.g., blood samples), as well as descriptions of their properties in card-files, catalogs, reference books, etc. (for example, the description of a person look), c) comparing the detected traces and standards (descriptions) on classification criteria, highlighted before the beginning of the study; d) determination of the class of a minimum amount which definitely contains the wanted person.

As a rule, an investigator can only determine relatively broad classificational groups, and further determination of narrower totality requires involvement of specialists. Narrowing the range of persons being checked helps obtaining data on new and previously unknown features of the criminal, and their inclusion to the features of hypothetical imaginable model of an identity of the offender, and exclusion of individuals for whom these features are not typical, from these groups.

¹ See: *Образцов В. А. Криминалистика: модели средств и технологий раскрытия преступлений : курс лекций / В. А. Образцов. — М. : ИМПЭ-ПАБЛИШ, 2004. — С. 296.*

When the possibility of stationary classifications is exhausted, further individualization of this person shall be thereon effected by the accumulation of features which are used to form special (non-stationary) classes. In order to form them one can use not all the identificational features or separate features of the person, but only those that are well expressed and sufficiently stable in the period of identification, such as "special signs". It is understood that the greater the number of specific, well expressed and steady identificational properties were used to form non-stationary classification then such restriction will be more important for the investigation. An investigator, using the method of restrictions, as following from the circumstances of the criminal proceedings, distinguishes narrower group of people from the composition of the indicated class.

Intermediate task No. 3. Determination of limited, quantitatively defined group of individuals being checked (to which an unknown offender belongs to) is carried out by two interrelated ways: a) by the method of restrictions which consists in establishing an objective relation of persons constituting the group, with the event under investigation; b) the method of exclusion which is in that the comparative research is carried out with the purpose of successive exclusion of the main quantity of persons constituting the group being checked and the persons, who remained, are subject to a comprehensive identificational analysis. If the circle of people who are checked, is determined and clearly limited, the use of the method of exclusion may be sufficient to establish a particular person and solve the problems of proving¹.

Application of the method of exclusion requires a close relation of the investigative and expert methods of proving, and the information which is necessary to the establish an unknown person, should include: a) information which exhaustively establish the circle of people who are checked; b) the grounds for exclusion of all persons who are checked, except one; c) coincidence of identificational properties of the wanted but not excluded object being checked; g) data, indicating the relation of the person with the crime event. In the absence of at least one of the indicated information subsystems, an unknown can not be reliably established.

Intermediate task No. 4. The version of the relation of a particular person who checked, with the event under investigation, may have two grounds: identificational (when there is a coincidence of identification features) and situational (when during analysis of the investigative situation the person being verified, is considered as one of the possible participants of the event under investigation).

The person being checked – it is a model of an unknown criminal personality, firstly informational-logical (version), and then the material (from the moment of detection of the corresponding person). Modeling an unknown criminal personality with taking into account the situation of crime committing, allows to establish the direction of his properties reflection, their character and nature. It allows you to pre-determine the object being identified, as well as the content of the work on the preparation of the samples for expertise (Art. 245 of the Criminal Procedural Code of Ukraine).

¹ See: *Малярова В. О.* Indicated work.

Preliminary modeling of a person of an unknown criminal has different functional purposes: 1) it provides obtaining samples for examination; 2) allows separate traces related with crime from other neutral information examined in a dynamic system of other elements of the event under investigation; 3) helps to solve the issue, important for investigative and judicial practice, on the information about the circumstances of the crime that are significant for carrying out an expertise, and therefore they should be reported to the expert by an investigator; 4) taking into account investigative situation, it facilitates verification and evaluation of the results of identification under total evaluation of the evidence gathered. An effective method, in this connection, is modeling of the event under investigation with “involving” of the wanted person which is realized in the form of an investigative experiment, by reproducing actions, situation, circumstances of the particular event, by carrying out necessary researches or tests (Art. 240 of the Criminal Procedural Code of Ukraine).

Establishing person being verified, as an informational and subject model of a personality of an unknown criminal is an important tool in proving, that provides proper orienting of an investigator (expert) in the circumstances of the crime under investigation, focused search of the criminal, effective obtaining samples for the examination, verification and evaluation of the results of identification in the system of gathered evidence in the criminal proceedings.

Intermediate task No. 5. In the presence of an unknown criminal trace and samples from the person being checked, one may carry out a comparative research to address the question on identity, that is, the identification. The task of establishing the person being identified, is decided on the basis of the entire amount of information about an unknown criminal, which is contained in the totality of left traces.

Intermediate task No. 6. An unknown criminal is established on the basis of detecting relationship of a person being identified with the circumstances of crime commitment.

Each of the intermediate tasks, assigned with the purpose of establishing an unknown criminal, is addressed by specific subjects by using two groups of methods: one group of methods (tasks 2–5) is used for the individualization of a person, the second group of methods – to establish the relation of the person with the event under investigation (task 6).

Establishing restricted classes and groups of objects is very important for the organization of search actions, while limitation of the initial totality plays a significant role in determining the criteria for evaluating the combination of features necessary for establishing identity.

Classification researches requiring knowledge of general scientific and special classifications, methods of identifying and evaluating features, using special equipment and scientific-technical means are related with the need to involve the relevant professionals.

Application of the method of restrictions is based on the analysis of the criminal proceedings circumstances, mechanism of the event under investigation, and therefore it can only be carried out by the investigator. The competence of the investigator is ascertaining situation of individual definition construction of

versions on the wanted object, investigation of his relation with the crime event. All these methods are based on the analysis of the mechanism of the event under investigation and a separate system of factual data on the searched object.

Thus, establishing a person, who committed a crime, should be one of the central tasks of the pre-trial investigation in criminal proceedings in the process of the investigation.

Its decision reveals significant difficulties, especially when the offender managed to escape from the crime scene. The needs of contemporary investigative practices show that there is an urgent necessity to study scientific and applied problems of search and establishing personality of a criminal to ensure rapid, full and impartial investigation and judicial consideration of the case.

АКТУАЛЬНІ ПИТАННЯ АЛГОРИТМІЗАЦІЇ РОЗСЛІДУВАННЯ ОКРЕМИХ ВИДІВ ЗЛОЧИНІВ

Малярова В. О.

Розглянуто питання щодо криміналістичного алгоритму розслідування як гнучкої системи науково розроблених і формалізованих приписів послідовного виконання в певному порядку оптимальних варіантів слідчих (розишуківих) дій, негласних слідчих (розишуківих) дій, оперативно-пошукових заходів та інших дій, об'єднаних задумом ефективного вирішення проміжних завдань розслідування злочину з урахуванням відповідних типових слідчих ситуацій. Надано авторське бачення алгоритму пошуку невідомого злочинця як послідовного вирішення конкретних завдань розслідування.

Ключові слова: пошукова діяльність слідчого; установлення особи, яка вчинила злочин; алгоритм пошуку невідомого злочинця.

АКТУАЛЬНЫЕ ВОПРОСЫ АЛГОРИТМИЗАЦИИ РАССЛЕДОВАНИЯ ОТДЕЛЬНЫХ ВИДОВ ПРЕСТУПЛЕНИЙ

Малярова В. О.

Рассмотрены вопросы криминалистической алгоритмизации расследования как гибкой системы формализованных научных предписаний по последовательному выполнению оптимальных вариантов следственных (розыскных) действий, негласных следственных (розыскных) действий и оперативно-розыскных мероприятий, для эффективного решения промежуточных задач расследования преступления с учетом соответствующих типовых следственных ситуаций. Представлено авторское видение алгоритма розыска (установления) неизвестного преступника как последовательного решения конкретных задач расследования.

Ключевые слова: поисковая деятельность следователя; установление лица, совершившего преступление; алгоритм розыска неизвестного преступника.

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CLASSIFICATION OF UNMANNED AERIAL VEHICLES AND ITS SIGNIFICANCE FOR CRIMINALISTIC PRACTICE

The paper clarifies the notion and develops generalized classification of unmanned aerial vehicles. There is substantiated the need to consider the proposed classification in the formulation of criminalistic requirements for tactical and technical data of unmanned aerial vehicles and systems, unmanned aviation complexes and characteristics of their targeted equipment, compliance with which will be most of all correspond to the satisfaction of urgent needs of the Field Criminalistics.

Keywords: criminalistic technique, informational technologies, unmanned aerial vehicles and systems, unmanned aviation complexes, classification of unmanned aerial vehicles.

The Strategy of development of domestic aviation industry for the period until 2020 year has recorded a well known fact that Ukraine is one of the few states with a full cycle of aviation equipment creation and occupies a significant place in the global aviation market in the sector of transport and regional passenger aviation. Results of research of the potential of aviation industry enterprises show quite possible increase in the amounts of development and production of aircraft equipment, in particular on such directions as aircraft construction, airborne avionics, oriented to the use of satellite communication systems, navigation and surveillance systems, ultra-light and light aerial vehicles, helicopter building, unmanned aerial vehicles¹.

Under the latter according to the established special terminology, one should understand any aerial vehicles, capable of initiating and maintaining controlled flight and navigation without any human presence on the board². According to the recently approved definition aviation unmanned aerial vehicle (UAV – Unmanned aerial vehicle) – is an aviation aircraft without a pilot (crew) on the board, designed to perform the tasks inherent to the manned flying machines³. Definitions UAV, formulated by scientists, tend to fill the notion of means of

¹ See: Про схвалення Стратегії розвитку вітчизняної авіаційної промисловості на період до 2020 року : розпорядження Каб. Міністрів України від 27 груд. 2008 р. № 1656-р. [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua>.

² See: Про затвердження Порядку здійснення державного контролю за міжнародними передачами товарів військового призначення : постанова Каб. Міністрів України 20 листоп. 2003 р. № 1807 [Електронний ресурс]. — Режим доступу : <http://zakon5.rada.gov.ua>.

³ See: Техніка авіаційна військової призначеності. Апарати літальні безпілотні. Основні терміни, визначення понять і класифікація : ДСТУ В 7371:2013 / М-во економ. розвитку і торгівлі України [Наказ № 1010 від 22.08.2013]. — К., 2014. — С. 2.

this type with various additional features, offering to understand under UAV: 1) any aircraft without a human on board, designed to solve any problems, controlled remotely by the program or in combination¹; 2) aircraft of the multiple use, which is equipped with a power plant, remote, semi-automatic, automatic or combined control, capable to carry out various types of payloads, allowing it to perform specific tasks in the Earth's atmosphere or beyond in the time interval corresponding to fulfill the task² and others. The main compulsory feature for such vehicles is the absence of a pilot (crew) on UAV board, and forensically important – the ability to carry different types of targeted equipment.

Due to the lack of the state program on the development and introduction of unmanned aircraft complexes, the activity of UAV developers in Ukraine until recently was spontaneous and uncoordinated in character. The developers have been torn off from the real needs, first of all, from the bodies ensuring national security of the state³. A powerful impetus to the rapid increase of UAVs development and production extents has become a military aggression of the Russian Federation against our country. Thus, according to some estimates, the use by Russian terrorist groups of aerial reconnaissance in conjunction with fire cannon and rocket artillery caused 85% of all losses of anti-terrorist operation forces⁴ (according to the President of Ukraine P. Poroshenko, protecting Ukraine from Russian aggression, were killed 2533 Ukrainian military⁵). In order to prevent these serious consequences by increasing combat capability and provide opportunities for obtaining important intelligence data in the zone of ATO with minimal risk to the life of Ukrainian defenders, the forces of uncountable number of active representatives of civil society, especially those which combined their creative efforts under the aegis of the “Center for assistance to aero intelligence”, charitable funds “Army SOS”, “Wings of the Phoenix”, “Victory Sisters” and many others have organized financing, design and manufacture of intelligence UAVs, provided training for the operators of the service of mobile and pilotless aero intelligence and activity of autonomous groups in different sectors of the ATO zone. This has laid a solid foundation to ensure that, despite the crisis, due to the number of innovations and technologies, introduced in our country, the 2015-th year has become the most innovative in the modern history of Ukraine, where the unmanned technologies have become one of the most important technological

¹ See: Проценко М. М. Аналіз та варіанти побудови безпілотних авіаційних комплексів / М. М. Проценко // Вісн. ЖДТУ. — 2012. — №2. — С. 114.

² See: Мосов С. П. Беспилотная разведывательная авиация стран мира: история создания, опыт боевого применения, современное состояние, перспективы развития : монография / С. П. Мосов. — К. : Румб, 2008. — 160 с.

³ See: Проблемы создания беспилотных авиационных комплексов в Украине / [А. Г. Гребеников, А. К. Мяслиц, В. В. Парфенюк та ін.] // Открытые информ. и компьютер. интегрирован. технологии. — 2009. — №42. — С. 111.

⁴ See: Хочеш #Перемогу – готовь беспілотник [Електронний ресурс] // Цензор. Нет. — 2016, 15 лют. — Режим доступу : <http://censor.net.ua>.

⁵ See: Виступ Президента України під час церемонії складання урочистої клятви ліцеїстами Київського військового ліцею імені Івана Богуна [Електронний ресурс] / Прес-центр Адміністрації Президента України. — 2016, 14 жовт. — Режим доступу : <http://www.president.gov.ua>.

breakthroughs. According to the results of 2015, Ukraine has entered top-3 countries in the world as to UAV development, quickly overtaking industry leaders – the US and Israel¹. Separate contribution in this belongs to the cooperation of the productive forces of the educational, scientific and industrial sectors, which in a short time provided the opportunity to monitor the situation in the ATO zone from the air, for example, with the help of UAVs Spectator, developed by students of the National Technical University of Ukraine “Igor Sikorskyi Kyiv Polytechnic Institute” and put into operation by the State Concern “Ukroboronprom”², in the structure of which had been created an aircraft cluster – “Ukrainian Aircraft Corporation”.

Today, SC “Ukroboronprom” consolidates all aircraft construction capacities of the country, the foundation of which is the State Enterprise “Antonov”. It is at this enterprise the development of powerful domestic UAVs and unmanned aviation complexes is already taking place. As a striking example of the progress of the domestic military-industrial complex, UAVs of Ukrainian production were presented at EUROSATORY-2016 – the largest international exhibition, devoted to the security and defense issues, and advanced technologies related with this area³, at the XIII international specialized exhibition “Arms and Security-2016”⁴ and other world level events.

Unmanned aerial vehicles are characterized by the following advantages over manned aerotechnics as: lack of need in the crew and its life-support systems, airfields; relatively low cost and low costs for their creation, production and operation; relatively small weight and size parameters in combination with high reliability, significant flight duration and range, maneuverability and the list of targeted equipment which can be taken on board, and the like. Unmanned aviation systems are being introduced at all levels – from the tactical to the strategic. At the same time there is distinguished the appearance of areas of application, where UAVs do not have piloted alternative. Among them, for example, one can name proximal reconnaissance in favor of lower tactical units, especially in urban conditions, as well as long (a day or more) monitoring of large territories at the distance of several thousand kilometers from the base for obtaining operational and strategic information⁵. In connection with the foregoing, there is no doubt that the expediency of development, production and

¹ See: Юрасов С. Урожайный 2015-й. ТОП-10 украинских технологических прорывов / С. Юрасов [Електронний ресурс] // Лига.Бизнес. — 2015, 29 груд. — Режим доступу : <http://biz.liga.net>.

² See: «Укроборонпром» наступного тижня передасть ЗСУ другу партію безпілотників Spectator [Електронний ресурс] // УНІАН. — 2016, 13 січ. — Режим доступу : <http://economics.unian.ua>.

³ See: «Укроборонпром» вперше на EUROSATORY представив вітчизняні безпілотники [Електронний ресурс]. — 2016, 14 черв. — Режим доступу : <http://ukroboronprom.com.ua>.

⁴ See: «Укроборонпром» презентував новий український безпілотник «ANSER» [Електронний ресурс]. — 2016, 12 жовт. — Режим доступу : <http://ukroboronprom.com.ua>.

⁵ See: Класифікація безпілотних літальних апаратів / [О. І. Тимочко, Д. Ю. Голубничий, В. Ф. Третяк, І. В. Рубан] // Системи озброєння і військ. техніка. — 2007. — Вип. 1(9). — С. 61.

continuous improvement of Ukrainian UAVs remain key objectives, set by the country leaders before the scientists, designers, directors of defense enterprises and their employees¹.

However, these tasks, in our opinion, should be addressed not only to those scientists, whose scientific and technical (applied) results of activity are aimed at meeting the urgent needs of the country's defense against external aggression. Indeed, due to the UAVs listed advantages, their use has become a daily practice of law enforcement bodies in many countries², and is being introduced in the activities of crime counteraction in Ukraine. But without proper scientific support, that results in derivation of the following negative tendencies.

So, the basic flight-technical characteristics of modern UAVs are: a) altitude and speed; b) mass and dimensions; c) flight distance and duration³. All these characteristics are in correlation connection and interdependence that allows to relate them to particular classification group and, having established the presence of particular characteristics, with a high degree of probability to suggest other parameters. Failure to take account of the said above, when the UAV is an instrument of crime, results in improper establishing of the group belongingness of the flying machine, for example, as in the case of referring an unmanned helicopter apparatus, prepared for tobacco contraband by air to Hungary⁴, to the number of non-existent "quadrocopter of the drone type «8 screws»"⁵ by the representatives of the State Border Service of Ukraine.

Confusion in determining classification group, in its turn, may cause mistakes

¹ See: Україні потрібна сучасна, потужна зброя, яка зупинить агресора та захистить життя наших громадян – Президент під час передачі військової техніки ЗСУ [Електронний ресурс] / Медіацентр Адміністрації Президента України. — 2016, 15 жовт. — Режим доступу : <http://www.president.gov.ua>.

² See: *Krassowski K. Drones – new technological tools in detection of crimes / K. Krassowski // Kriminalistika ir reismo ekspertologija : mokslas, studijos, praktika XXI : scientific articles. — Vilnius, 2015. — С. 368–380; Митюшин Д. А. Опыт применения беспилотных комплексов и систем в деятельности полиции зарубежных стран / Д. А. Митюшин [Електронний ресурс]. — Режим доступу : <http://bnti.ru>; Бастрыкин А. И. О роли следователя-криминалиста в раскрытии и расследовании преступлений / А. И. Бастрыкин // Криминалистика – прошлое, настоящее, будущее: достижения и перспективы развития : материалы междунар. науч.-практ. конф., приуроч. к 60-летию образования службы криминалистики, Москва, 16 окт. 2014 г. — М. : Акад. Следств. ком. РФ, 2014. — С. 6.*

³ See: *Таврін В. А. Класифікація тактичних дистанційно пілотованих літальних апаратів / В. А. Таврін // Открытые информ. и компьютер. интегрирован. технологии. — 2014. — № 63. — С. 16.*

⁴ See: Прикордонники затримали українця з квадрокоптером, який переправляв сигарети до Угорщини [Електронний ресурс] / Держ. прикордон. служба України. — 2016, 16 жовт. — Режим доступу : <http://dpsu.gov.ua>.

⁵ It should be noted that UAV notation by commonly used term drone (Eng. Drone) has long become traditional and does not cause any discussion, however, classification of an unmanned helicopter machine if it has eight main rotors, as quadrocopter is a great mistake. Because in this case we are talking about multicopter — UAV with an arbitrary number of main rotors, located in one plane and which are diagonally rotating in opposite directions. A quadrocopter is only a multicopter with four rotors, thus, multicopter with eight rotors should be only called as an oktokopter.

in establishing location of Unmanned aerial system control station – assemblage of land (ship, air) technical means of control over aviation UAVs and their targeted equipment, means of communication, data transmission and information processing, as well as the operator of unmanned aerial vehicle control equipment – a persons who controls aviation UAV and its targeted equipment¹, preventing timely unmasking and detaining of the latter.

The second negative tendency consists in using UAVs, which are inappropriate for the aim of technical-criminalistic ensuring of performing actual tasks. Therefore, in our opinion, not quite felicitous example may be illustrated by using a multicopter of a micro class whose maximum tactical-technical certificate characteristics do not exceed: flight radius – 3 km, and its duration – 23 minutes² for monitoring traffic conditions on one of the most congested roads of the country. By carrying out multiple experiments, we have found that, taking into account real weather conditions, storage battery condition, radio air congestion in the place of conduct of flight, experience of an operator (external pilot), flight profile and other factors, even these fairly modest parameters may be significantly overestimated.

It is obvious that UAVs with ultra low tactical radius of action, ultra-short flight duration and the minimum set of targeted equipment, which includes only a means of photographing and video recording with a fixed lens, which is suitable for high-quality photo and video fixation only from a considerable distance in visible light spectrum during daylight hours in good weather conditions, will be ineffective for the full examination of motorways and other extended terrain sectors. The use of drones for solving important problems, not valid to the latter as to their flight-technical and other characteristics, does not justify the expectations and discredits the idea of the introduction of such an advanced technology as the drone to the field criminalistics.

Drones developers rightly point out that one type of UAV is impossible to solve all necessary tasks. There do not exist universal and at the same time effective solutions. Therefore, it is important among the wide range of available today devices to choose precisely those which match the specifics of the tasks performed. Informed use of UAV classification will promote to the said.

It should be noted that the relative novelty of unmanned technologies results in the lack of a single generalized classification of unmanned aerial vehicles both in our and in other countries. Existing classifications were ineffective because they had no sufficient completeness and did not consider an integrated approach to the modern requirements and technical specifications for UAVs³.

Recently, however, considerable range of scientific papers was devoted to the

¹ See: Техніка авіаційна військової призначеності. Апарати літальні безпілотні. Основні терміни, визначення понять і класифікація : ДСТУ В 7371:2013. — С. 3.

² See: Інновації поліцейських на дорогах Київщини [Електронний ресурс] / Відділ комунікації ГУ НП в Київській області. — 2015, 15 трав. — Режим доступу : <http://www.npu.gov.ua>.

³ See: Корченко А. Г. Обобщенная классификация беспилотных летательных аппаратов / А. Г. Корченко, О. С. Ильяш // 36. наук. праць Харків. нац. ун-ту Повітряних Сил. — 2012. — №4. — С. 28.

development of UAV classification¹, and the corresponding state standard has been elaborated concerning aviation equipment for military designation². Having taken it as a basis, taking into account the proposals of scientists and data of specialized non-governmental international association UVS International, we can offer a general differentiation of unmanned aerial vehicles UAVs for: 1) *military* and 2) *civil purposes*.

Among UAVs of the civil purpose in accordance with form of ownership we distinguish: 1) state; 2) individuals; with the purpose: 1) observational; 2) monitoring; 3) remotely-sounding; 4) information- reconnaissance; 5) guarding; 6) communication; 7) transportation (logistics) 8) protective; 9) working; 10) supporting; 11) commercial; 12) multipurpose; with the flight rules: 1) visual; 2) instrumental; 3) visually-instrumental.

Unmanned aerial vehicles for military purposes, in their turn, are classified as follows:

By purpose: 1) shock; 2) fighter; 3) reconnaissance; 4) target indicating; 5) for electronic warfare; 6) transportation; 7) repeater; 8) aerial targets 9) target imitators; 10) multipurpose.

By the class used class 1) segregated; 2) non-segregated.

According to the scale of missions: 1) battlefield (the radius of action up to 15 km); 2) tactical (operating range from 15 to 80 km); 3) operational-tactical (operating range from 80 to 300 km) 4) operational (operating range from 300 to 800 km); 5) strategic (operating range more than 800 km).

By the place of basing: 1) ground; 2) water; 3) ship; 4) air.

By the principle of creating lifting force: 1) aerodynamic: a) unmanned planes (with aerodynamic scheme: “normal”, “duck”, “tailless”, “tandem”, “flying wing”); b) unmanned airframes (with aerodynamic configuration: “normal”, “duck”, “tailless”, “tandem”, “flying wing”); c) unmanned WIG; g) unmanned helicopter vehicles (helicopters, rotorcrafts, gyroplanes, convertiplanes) g) machines with flapping movement of wings (ornithopters, orthopters) 2) aerostatic: a) automatic aerostats; b) tethered aerostats; c) controlled aerostats; g) uncontrolled aerostats; 3) dirigibles: a) traditional schemes; b) aeronautical; c) soft; g) semi-rigid; g) rigid.

According to the number of applications

1) multiple (more than 10 flights); 2) limited amount; 3) single (landing and non-landing); 4) situational.

By the wing type 1) fixed; 2) with variable wing geometry.

By the number of engines: 1) single-engine; 2) twin-engines; 3) multi-engined; 4) without engines.

By the type of engines in the power plant: 1) electric aviation engines: a) powered by accumulators; b) powered by solar panels; c) powered by fuel cells; 2) jet aviation engines: a) aerojet (without compressor (pulsation, direct flow), gas turbine (turbo-propeller, turboshaft, turbojet (forced), turbojet dual circuit (forced),

¹ See: Класифікація безпілотних літальних апаратів. — С.61–66; Корченко А. Г., Ільяш О. С. Indicated work. — С. 27–36; Таврін В. А. Indicated work. — С. 12–18.

² See: Техніка авіаційної військової призначеності. Апарати літальні безпілотні. Основні терміни, визначення понять і класифікація : ДСТУ В 7371:2013. — 11 с.

rocket (liquid, solid fuel), combined); 3) reciprocating: a) carburetor; b) diesel; c) two-stroke; d) four-stroke; d) single-cylinder; d) two-cylinder; e) multi-cylinder.

By the type of fuel system: 1) mono-refueling (single-use), and 2) poly-fueling (repeated): a) landing; b) platform (on board of a seagoing ship) c) on-board (on-board of a manned flying machine, designed for carrying, launching and refueling of UAV) g) flight refueling (refueling in the air during flight by aircraft-refueller).

By the type of the fuel tank: 1) base; 2) base-reserve (provide presence of primary and standby fuel tanks).

By the maximum takeoff weight: 1) nano (up to 0,025 kg) 2) micro (up to 1 kg); 3) mini (from 1 to 10 kg); 4) small (from 10 to 100 kg); 5) medium (from 100 to 1 thousand kg); 6) large (from 1 to 5 thousand kg); 7) heavy (from 5 to 10 thousand kg); 8) super-heavy (more than 10 thousand kg).

By the maximum flight altitude: 1) extremely low-altitude (200 m); 2) low-altitude (from 200 up to 1000 m); 3) medium-altitude (from 1 up to 4 km) 4) high-altitude (from 4 up to 12 km); 5) stratospheric (from 12 up to 50 km).

By the maximum flight speed: 1) extremely low-speed (up to 100 km/h); 2) low-speed (from 100 up to 300 km/h); 3) medium speed (from 300 up to 600 km/h); 4) high speed (from 600 km/h up to the sound speed); 5) ultrasonic (higher than the speed of sound in up to five times); 6) hypersonic (exceeding sound velocity in 5 times or more).

By the maximum flight time: 1) ultra-short duration (up to 1 hour); 2) short duration (from 1 up to 3 hours) 3) small-duration (from 3 up to 6 hours); 4) average duration (from 6 up to 12 hours); 5) long duration (from 12 up to 24 hours); 6) ultrahigh duration (over 24 hours).

By takeoff method: 1) horizontal (normal takeoff, short takeoff) 2) vertically (as helicopter, by lift motor, aerostatically); 3) by means of launching (by catapult, accelerator) 4) from the operator's hands; 5) from the air carrier (airplane, helicopter) 6) universal.

By the method of landing: 1) horizontal (normal run, short-run) 2) vertical (by parachute, as a helicopter, by landing engines, aerostatically) 3) to the catchment net or rope; 4) by free lowering; 5) universal.

By the type of flight control system: 1) autonomous (inertial-navigation, correlation-extreme) 2) telecontrol (command (with different ways of sending commands and surveillance towards UAV: by radio line, wire, fiber-optic line, television, radiolocation, visual); radio navigation (by radio-technical system of near navigation, radio-technical system of long-range navigation, satellite), 3) combined.

By maneuverability: 1) by maximum vertical overload of unmanned aerial vehicles (maneuverable from 5 up to 7, restrictedly maneuverable from 3.5 up to 5, non maneuverable – less than 3.5), 2) by maximum vertical overload of unmanned helicopters (maneuverable 1.6 and more, non maneuverable – less than 1.6).

By the type of target equipment: 1) search-aiming (television, infrared, laser, radar); 2) onboard electronic warfare (active, passive); 3) means of reconnaissance (photographic, television, infrared, laser, radio-technical, radiolocating, radio

reconnaissance, radiation); 4) means of imitating air targets (active increase of effective surface of scattering, passive increase of effective surface of scattering, infrared radiation, preventing infrared interference, radio counteraction); 5) board means of targeting (radio technical, laser, radar); 6) board means of repeating (UAVs with means of repeating, UAVs without means of repeating).

By the time of receiving of the information gathered: 1) at a scale of real time; 2) periodically during the communication sessions; 3) after landing.

By the type of combat load means: 1) control means of destruction (with air guided missile “air-air”, with air guided missile “air-surface”, with guided bombs, with aviation torpedoes, with anti-tank missiles); 2) with unguided means of destruction (with aerial bombs, with integrated payload, with unguided aviation missiles, with cassette aviation weapon); 3) with aviation artillery weapon (with aviation cannons, with aviation machine guns, with aviation grenade launchers)¹.

The issues of UAVs classification are extremely important from a practical point of view. After all, the classification significantly enhances the possibility of grounding choice of those or other particular UAVs for their use in the interests of the national economy and national security of Ukraine. Given that the classification has to simplify and facilitate the process of selecting one or another method of UAV application, determination of its role and place, it is necessary to take into account, in addition to the specified indicators, and those that will clearly define which UAVs are needed to perform specific tasks. And though existing UAV projects are developed or being developed mainly for the fulfillment of the tasks on monitoring the terrain, a wide range of technological developments with a high degree of unification and modularity of the construction makes it possible to create UAV systems (complexes) for carrying out almost any task².

Therefore, in our opinion, in the near future, UAVs can be successfully used to improve the quality and efficiency of the work on detection, disclosure, investigation, judicial consideration and prevention of the criminal offenses when carrying out and accompanying from the air of a wide range of investigative (search), covert investigative (search) judicial and procedural actions, on the realization of the powers defined by law by law enforcement authorities by means of introducing UAV in the following activities: 1) detection and preliminary investigation of the traces and subjects – physical evidence, search for people, animals and things in hard-to-reach or dangerous places, including night time and other unfavorable conditions; 2) photo and video recording of certain circumstances of offenses (including in real time regime), unlawful consequences of the latter, their participants, tools and the traces left by them; 3) taking samples, formalizing and removing objects; 4) remote production of

¹ See: Техніка авіаційна військової призначеності. Апарати літальні безпілотні. Основні терміни, визначення понять і класифікація : ДСТУ В 7371:2013; Корченко А. Г., Ільїш О. С. Indicated work. — С. 27–36.

² See: Проценко М. М. Indicated work. — С. 113–114, 116–117.

investigative (search), covert investigative (search) and judicial actions in open areas and in large-sized premises; 5) scientific organization of the investigator's work; 6) provision of the personal safety for the participants in the criminal proceedings; 7) recording offenders at the scene of incident, termination and prevention of the criminal infringements; 8) tracing and recording the location of the suspect or the accused.

The conceptual directions of development of unmanned vehicles in the interests of solving national security tasks and in other spheres are determined, on the one hand, by the interrelation between the importance and the volumes of tasks that are necessary to be solved and can be effectively addressed by air platforms without a human on board, on the other – by the cost of development production and operation of unmanned vehicles, and most importantly – by the effectiveness of their application. All this largely depends on the level of development of science, technics and technology. Analysis of trends in the UAVs usage tendencies and directions for their further development allows us to conclude that today it is an urgent task to improving existing and create new UAVs, to introduce their classification and to define the standard structure of unmanned aerial complexes¹.

A wide range of UAV characteristics not only demonstrates unique opportunities for their flexible use, but also makes it necessary to have a comprehensive set of unmanned aerial systems². Therefore, the orientation on improving the quality and efficiency of the listed types of activities and operating with the above UAV classification will make it possible to formulate as accurately as possible the requirements for UAV tactical and technical data, unmanned aviation complexes and the characteristics of their target equipment, the observance with which will most closely correspond to the satisfaction of the actual needs of field criminalistics.

КЛАСИФІКАЦІЯ БЕЗПІЛОТНИХ ЛІТАЛЬНИХ АПАРАТІВ ТА ЇЇ ЗНАЧЕННЯ ДЛЯ КРИМІНАЛІСТИЧНОЇ ПРАКТИКИ

Білоус В. В.

З'ясовано поняття та розроблено узагальнену класифікацію безпілотних літальних апаратів. Обґрунтовано необхідність урахування запропонованої класифікації при формулюванні криміналістичних вимог до тактико-технічних даних безпілотних літальних апаратів і систем, безпілотних авіаційних комплексів та характеристик їх цільового спорядження, дотримання яких найбільше відповідатиме задоволенню актуальних потреб польової криміналістики.

Ключові слова: криміналістична техніка, інформаційні технології, безпілотні літальні апарати й системи, безпілотні авіаційні комплекси, класифікація безпілотних літальних апаратів.

¹ See: Проценко М. М. Indicated work. — С. 113.

² See: Класифікація безпілотних літальних апаратів. — С. 64.

КЛАССИФИКАЦИЯ БЕСПИЛОТНЫХ ЛЕТАТЕЛЬНЫХ АППАРАТОВ И ЕЕ ЗНАЧЕНИЕ ДЛЯ КРИМИНАЛИСТИЧЕСКОЙ ПРАКТИКИ

Белоус В. В.

Выяснено понятие и разработана обобщенная классификация беспилотных летательных аппаратов. Обоснована необходимость учета предложенной классификации при формулировании криминалистических требований к тактико-техническим данным беспилотных летательных аппаратов и систем, беспилотных авиационных комплексов и характеристикам их целевого снаряжения, соблюдение которых в наибольшей степени будет соответствовать удовлетворению актуальных потребностей полевой криминалистики.

Ключевые слова: криминалистическая техника, информационные технологии, беспилотные летательные аппараты и системы, беспилотные авиационные комплексы, классификация беспилотных летательных аппаратов.

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FEATURES OF INVESTIGATION OF CRIMES, COMMITTED BY OFFICIALS OR OTHER PERSONS BY MEANS OF NONCOMPLIANCE WITH JUDICIAL BODIES DECISIONS

The main features of investigation of crimes, committed by public officials or other persons by means of nonfulfilment of judicial bodies decisions, are defined. Typical investigative situations of the initial stage of investigation of such crimes are disclosed, investigator actions algorithms are given. Tactical features of carrying out of certain investigative (search) actions and the interaction issues of the investigator with the law enforcement bodies are considered.

Keywords: noncompliance with judicial bodies decisions, crimes against justice, crimes investigation, criminalistic technique.

Creating jural state requires not only development of the judicial system and other law enforcement authorities, but also protection of the justice from criminal encroachments. Non-fulfillment of judicial bodies decisions negatively impacts on the prestige of both judicial power and law enforcement system as a whole, as in this case, as it is noted in the legal literature, the final goal of justice – protection of the interests of citizens and the real restoration of their violated rights is not achieved¹.

¹ See: Романюк Я. Невиконання судових рішень нівелює кінцеву мету правосуддя – захист інтересів громадян і реальне поновлення їхніх порушених прав [Електронний ресурс] / Я. Романюк // Інформ. сервер Верхов. Суду України. — Режим доступу : <http://www.scourt.gov.ua/clients/vs.nsf/>.

We note that we support the position of those researchers who include courts, operative units, preliminary investigation bodies, prosecutors and bodies, responsible for the execution of judicial decisions to the notion of the bodies of justice¹.

One of the types of crimes against justice are the crimes, committed by officials or other persons by non-fulfillment of judicial bodies decisions (non-fulfillment of judicial decision (Art. 382 of the Criminal Code of Ukraine); illegal actions in respect of property, which is seized, distrained or subjected to confiscation (Art. 388 of the Criminal Code of Ukraine)². At present, these crimes have become widespread in the territory of our state. The statistics of the General Prosecution of Ukraine and the Ministry of Internal Affairs of Ukraine shows that the number of the crimes investigated has increased more than double over the past five years³. At the same time, activity of law enforcement bodies for suppression, disclosure and investigation of certain crimes against justice is insufficiently effective. Analysis of the forensic-investigative practice indicates that the investigators have certain difficulties in the investigation of such crimes, especially at the initial stage.

Today, in the legal literature most of the works is devoted to the investigation of criminally-legal and criminological aspects of crimes against justice, including crimes committed by officials or other persons by non-fulfillment of decisions of the bodies of justice. Thus, criminally legal and criminological aspects of the crimes against justice were researched by M. P. Barabanov, A. V. Dmytrov, K. R. Idrisov, V. Ye. Kvashys, O. O. Korobeinikov, M. F. Kostiuk, L. V. Lobaniv, A. Ya. Markov, S. S. Miroshnychenko, V. O. Navrotskyi, V. K. Sauliak, V. V. Smirnov, A. P. Stukanov and others.

In Criminalistics the subject of investigation were the problems of investigating only certain types of crimes against justice. In particular, researches of S. A. Kutiakin with co-authors, A. S. Yamashkin were devoted to the method of investigation of escapes from the places of confinement⁴, V. G. Lisogor studied the problems of forensic provision for protection of privacy in pre-trial investigation⁵. In the works of Yu. P. Adamov, O. R. Ratinov the main

¹ See: *Навроцький В. О.* Злочини проти правосуддя : лекції для студ. юрид. ф-ту / В. О. Навроцький. — Львів : Юрид. ф-тет Львів. держ. ун-ту ім. Івана Франка, 1997. — С. 6.

² See: *Книженко С. О.* Криміналістична класифікація злочинів проти правосуддя / С. О. Книженко // *Право і безпека*. — 2013. — № 1(48). — С. 118.

³ See: *Стан та структура злочинності в Україні (2009–2010 рр.)* [Електронний ресурс] // Офіц. веб-портал МВС України. — Режим доступу : <http://mvs.gov.ua/>; *Єдиний звіт про кримінальні правопорушення по державі за січень–грудень 2015 р.* [Електронний ресурс] // Офіц. веб-портал Ген. прокуратури України. — Режим доступу : <http://www.gp.gov.ua/>.

⁴ See: *Кутякин С. А.* Криминалистическая характеристика побегов из учреждений уголовно-исполнительной системы : учеб. пособие / С. А. Кутякин, Н. И. Ткаченко, Э. В. Лядов. — Рязань : Акад. права и управ. Фед. службы исполнения наказания, 2005. — 165 с.; *Ямашкин А. С.* Методика расследования побегов из мест лишения свободы : монография / А. С. Ямашкин. — М. : Юрлитинформ, 2012. — 208 с.

⁵ See: *Лисогор В. Г.* Криміналістичне забезпечення збереження таємниці досудового слідства : дис. ... канд. юрид. наук : 12.00.09 / В. Г. Лисогор. — К., 2003. — 101 с.

provisions of the technique for investigation of giving false testimony are trashed out¹. Scientific works of D. Yu. Chetvertak are dedicated to the investigation of crimes concealment².

Criminalistic aspects of investigation of crimes, committed by officials or other persons by non-fulfillment of justice bodies decisions, unfortunately, are almost not researched. Such a situation eventually negatively affects upon the qualitative level of professional training of investigators which leads to the decrease in the effectiveness of counteraction to these criminal offenses.

The foregoing bears evidence on timeliness for the development of the technique for investigating crimes, committed by officials or other persons by non-fulfillment of justice bodies decisions.

The purpose of the issue is to disclose the main provisions of the investigation of crimes against justice, committed by officials or other persons by non-fulfillment of justice bodies decisions.

In the legal literature criminalistic technique is defined as a system of scientific provisions and recommendations, developed on its basis, for the disclosure and investigation of certain types of crimes.

Let us note that the technique for investigating crimes, committed by officials or other persons by non-fulfillment of decisions of the bodies of justice, has its own peculiarities, which, first of all, appear in the investigative situations of the initial stage of the investigation. Thus, the sphere, in which the decision of the justice body is not fulfilled, the nature of the criminal acts, the presence of counteraction from the suspect influence upon the type and content of the investigative situations of the crimes being investigated.

Criminologists divide investigative situations into simple and complex; typical and specific; initial, intermediate and final; conflict-free and conflictual³. The results of the conducted research indicate that a person, who has committed a criminal offense, is known at the initial stage of the investigation of the indicated crimes, since statements about committed crimes come often from the state executive service; separate citizens and representatives of institutions, organizations, whose rights are violated. Considering the foregoing, we propose at the initial stage of investigation of crimes, committed by officials or other persons by non-fulfillment of decisions of the bodies of justice, to distinguish the following typical investigative situations:

1. A person, who has committed a criminal offense, is hiding from the bodies of preliminary investigation or performs other active actions to counter the investigation. This situation is characterized as conflictual and requires the investigator

¹ See: *Ратинов А. Р. Лжесвидетельство (Происхождение, предотвращение и разоблачение ложных показаний)* / А. Р. Ратинов, Ю. П. Адамов. — М. : Юрлитинформ, 1976. — 135 с.

² See: *Четвертак Д. Характеристика обстановки вчинения приховування злочинів* / Д. Четвертак // Нац. юрид. журнал: теория и практика. — 2015. — № 3(13). — С. 85–88.

³ See: *Драпкин Л. Я. Основы теории следственных ситуаций* / Л. Я. Драпкин. — Свердловск : Изд-во Урал. ун-та, 1987. — 165 с.; *Белкин Р. С. Курс криминалистики : в 3 т.* / Р. С. Белкин. — М. : Юристъ, 1997. — Т. 3. — С. 143–144.

to make significant efforts to resolve it.

2. The person, who committed the crime, admitted his guilt and contributes to the investigation. This investigative situation is characterized by the greatest amount of information about the circumstances of the crime and is, accordingly, favorable for the investigation.

Investigative situations, as it is correctly noted in the criminalistic literature, stipulate main directions of investigation and taking appropriate decisions by the investigator and choosing necessary method of action by him⁴. The developed algorithms, in their turn, provide methodological assistance to the investigator, point to the path of search for obtaining information and effective investigation⁵.

The analysis of the judicial and investigative practice makes it possible to work out the following algorithm of the investigator's actions in the first typical investigative situation when investigating crimes, committed by officials or other persons by non-fulfillment of the decisions of the justice authorities:

- Interrogation of witnesses (applicant, state executors, persons, who delivered seizure on property, others);

- Requesting documents or temporary access to them;

- Examination of the scene (most often it is the location of the object of a criminal assault);

- Provision of orders to operational units in order to locate the suspect, the place of concealment or sale of the subject of the criminal assault, to establish witnesses);

- Scheduling of forensic expertise.

The algorithm of the investigator's actions in the second situation is as follows:

- Interrogation of witnesses (applicant, state executors, etc.);

- Demand or temporary access to documents;

- Interrogation of the suspect;

- Examination of the place of occurrence;

- Provision of orders to operational units in order to establish witnesses;

- Scheduling of forensic expertise.

The next peculiarity of the investigation of crimes, committed by officials or other persons by non-fulfillment of decisions of the justice authorities is that the investigator needs to study a number of documents, among which:

- Service documentation of bodies executing fulfillment of court decisions (or bodies which seized or distraint property, etc.). Most often such documents are court decisions, materials of enforcement proceedings, protocols of inspection of the distraint property, etc.;

- Duty regulations, orders of appointment, functional responsibilities. It should be noted that the crimes under research are most often committed by heads of local self-government bodies, heads of enterprises, institutions, organizations,

⁴ See: *МалярOVA В. О.* Розслідування злочинів проти моральності у сфері статевих стосунків: теорія та практика : монографія / В. О. МалярOVA ; за ред. С. М. Гусарова. — Х. : Діса плюс, 2013. — С. 222.

⁵ See: *Щур Б. В.* Теоретичні основи формування та застосування криміналістичних методик : монографія / Б. В. Щур. — Х. : Харків юрид., 2010. — С. 250.

and therefore the investigator faces a question – who was concretely responsible for executing decisions of the judiciary power;

- Reference from the State Register of Rights to Immovable Property and from the Unified Register of the Prohibition on the Transfer of Immovable Property;

- Accounting, banking documentation (if the facts of criminal assault were funds both in cash and non-cash forms);

- Documents showing commercial activities (licenses, contracts, etc.);

- References from various state bodies. For example, in criminal proceedings opened under Part 1 of Art. 382 of the Criminal Code of Ukraine, in order to obtain information about the fact of granting land plot and to demand project documentation, an investigative had to apply to the Kyiv State Administration¹.

In the course of the investigation of criminal proceedings regarding non-fulfillment of the decisions of judicial authorities, as an analysis of the materials of forensic-expert practice shows, an immediate investigative (search) action is the examination of the incident scene. Most often in the criminal offense under investigation, the place of the incident is the location of the facts of the criminal assault (undemolished constructions, land plots, places of concealment of the distraint property or their elements, etc.).

The investigator needs to establish which objects are at the scene of accident, to determine their relative location and relationship with the other elements of the situation, to record the condition, completeness, general and particular features of the objects under examination. In the protocol it is also necessary to note the fact of the protection of the object, pointing to the means of protection (presence of a fence, etc.). Neglect of these rules leads to the loss of important evidence.

The next feature of the investigation of the indicated crimes is that the investigator must always interrogate witnesses and such investigative (detective) action is urgent. The range of witnesses is usually wide enough, so we propose to divide them into the following groups:

- 1) employees of the State Executive Service. The investigator, during their interrogation, can obtain criminalistically significant information regarding:

- Time of opening enforcement proceedings;

- Violations of the legislation regulating the procedure for execution of decisions of the judicial authorities, disclosed by him;

- Circumstances of the commission of a crime;

- Persons who are guilty or were involved in its commission;

- Consequences of the crime;

- Causes and conditions that contributed to the commission of a crime and so forth.

Thus, in criminal proceedings under Part 1 of Art. 382 of the Criminal Code of Ukraine, opened with respect to S. for deliberate failure to comply with the court decision, a state executor was questioned as a witness, during the interrogation of whom, an investigator established: when the enforcement proceedings

¹ See: Архів Голосіївського районного суду м. Києва. Кримінальне провадження № 1-446/11.

were opened, which actions were performed by the state executor detection and establishing location of the property of S., was the property seized, did S. appear being called by the state executor¹;

2) eyewitnesses of the failure to comply with the decisions of the justice bodies. They can be employees of the enterprise, institution, organization where the decision of the justice body was carried out (lawyers, employees of the personnel department, accounting workers), as well as the other persons (for example, witnesses of the sale of the subject of criminal assault). During interrogation of these persons, an investigator ascertains: when and under what conditions they observed non-fulfillment of the decision of the justice body (counteractions to reinstatement in employment of the illegally dismissed worker, privatization of the property, the use of housing, other property, non-return of the child); did they know about illegality of the actions; reasons and conditions which contributed to the commission of the crime and so forth;

3) relatives of the suspect. These persons may characterize the suspect, his way of life, his contacts.

It should be noted that the investigation of the indicated crimes is almost impossible without carrying out forensic expertise. Merchandise, handwriting expertise are scheduled most often. Commodity expert examination is scheduled to determine the value of the subject of the criminal assault. Handwriting examinations are carried out in the case of necessity for identification of a person by handwriting. Daphthaloscopic, tracological examinations can also be carried out for such criminal proceedings.

In addition, during investigation of non-fulfillment of the decisions of the judicial authorities, the investigator has to use the help of operational units, that, in fact, as it is correctly noted in the forensic literature, the effectiveness of countering to crimes depends to a large extent on the unity of the law enforcement agencies, on coming together various areas of their functioning². This allows the investigator to take timely necessary procedural and tactical decisions, receive both guidance and evidence information. Most often, the investigator appeals to the operational units in order to establish the location of the suspect, of the subject of criminal assault, to evidentiate the witnesses of crime.

Summarizing the above, we note that at the initial stage of investigating crimes committed by officials or other persons by non-fulfillment of decisions of the justice authorities, the investigator already knows the information on personality of the suspect, and therefore the following typical investigative situations should be highlighted: 1) the person who committed the criminal offense, is hiding from the bodies of preliminary investigation or performs other active actions to counteract the investigation; 2) the person who committed the crime, pleaded his guilty and facilitates to its investigation. Urgent investigative (search) actions for such a criminal proceeding are exami-

¹ See: Архів Бабушкінського районного суду міста Дніпропетровськ. Кримінальне провадження 200/8684/14-к1-кп/200/427/14.

² See: *Топчий В.* Принципи взаємодії слідчого й оперативного працівника органів внутрішніх справ при розкритті та розслідуванні злочинів / В. Топчий // Підприємництво, госп. і право. — 2015. — №3. — С. 71–75.

nation of the scene of the incident, interrogation of the witnesses. In the course of investigation of non-fulfillment of the judicial authorities decisions, the investigator needs to seize a number of documents, to schedule forensic expertise, and use the help of operational units.

Prospects for further research are the development of tools forensic of criminalistic prevention of the crimes in question.

**ОСОБЛИВОСТІ РОЗСЛІДУВАННЯ ЗЛОЧИНІВ,
ЩО ВЧИНЯЮТЬСЯ СЛУЖБОВИМИ АБО ІНШИМИ ОСОБАМИ
ШЛЯХОМ НЕВИКОНАННЯ РІШЕНЬ ОРГАНІВ ПРАВОСУДДЯ**

Книженко С. О.

Визначено основні особливості розслідування злочинів, що вчиняються службовими або іншими особами шляхом невиконання рішень органів правосуддя. Розкрито типові слідчі ситуації початкового етапу розслідування таких злочинів, подано алгоритми дій слідчого. Розглянуто тактичні особливості проведення окремих слідчих (рошукових) дій та питання взаємодії слідчого з правоохоронними органами.

Ключові слова: невиконання рішень органів правосуддя, злочини проти правосуддя, розслідування злочинів, криміналістична методика.

**ОСОБЕННОСТИ РАССЛЕДОВАНИЯ ПРЕСТУПЛЕНИЙ,
СОВЕРШАЕМЫХ ДОЛЖНОСТНЫМИ ИЛИ ДРУГИМИ ЛИЦАМИ
ПУТЕМ НЕВЫПОЛНЕНИЯ РЕШЕНИЙ ОРГАНОВ ПРАВОСУДИЯ**

Книженко С. А.

Определены основные особенности расследования преступлений, совершаемых должностными или иными лицами путем невыполнения решений органов правосудия. Раскрыты типичные следственные ситуации первоначального этапа расследования таких преступлений, представлены алгоритмы действий следователя. Рассмотрены тактические особенности проведения отдельных следственных (розыскных) действий и вопросы взаимодействия следователя с правоохранительными органами.

Ключевые слова: неисполнение решений органов правосудия, преступления против правосудия, расследование преступлений, криминалистическая методика.

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**TEMPORAL SIGN OF CAUSE AND EFFECT
RELATIONSHIP IN CRIMINALISTICS**

The issues of temporal sign of a causal relationship in Criminalistics is considered. The problematics of the asymmetry of the direction of time and causality have been worked out, approaches to clarifying the sequence and simultaneity of the event-cause and the event-consequence in Criminalistics have been proposed.

Keywords: asymmetry of the cause and effect relationship, asymmetry of the temporary relationship, the sequence of the event-cause and event-consequence, temporary sign of the cause and effect relationship.

Time, as a circumstance of a criminal offense commitment in accordance with Art. 91 of the Criminal Procedural Code, is subjected to proof in the criminal proceedings. Such a normative prescription makes it mandatory to establish the moments of occurrence and completion, period of continuation of a particular event, as well as the temporal relation of several events in the forensic investigation of the cause-effect relationship. The means and recommendations of criminal investigation technique, tactics and methods of investigation, created for the work, are based with time on everyday and extremely rigid intuitions of tentative nature, constantly confirmed by practice. This, firstly, requires to throw light upon the influence of these practical approaches to the time sign on the forensic investigation of causality and, secondly, to try to penetrate into the structure of the practice of applying the signs of time within the framework of the proposed concept of causality theory in Criminalistics¹.

Establishing the signs of time is one of the important elements of the investigation of the causal relationship of events, while the position of the cause chronologically before the effect is seen as a component of the usual perception of time, according to which the movement of time occurs in one direction, from the past through the present moment to the future, and the flow of time coincides with the course of causality. At the same time, the legal view on time, its flow and temporal asymmetry, the order of cause and effect (first is the cause, the next is the effect and not otherwise) is generally not different from the practical approach which prevails. Therefore, A. E. Zhalynskyi's statement about the cautious attitude of law enforcement officers to the concepts of causality which have a philosophical or even just general scientific origin, and to the tendency of practitioners to solve the problem of causal relation from the standpoint of precedent thinking² is quite fair-minded and for a separate component of the concepts of causality – signs of time. However, namely available philosophical and general scientific constructions that are the background which is enough bright to throw light upon and enrich the legal and forensic vision of temporal and causal asymmetry.

The legal basis. In civil law, when forming a civil legal relationship, a certain, legally significant type of behavior or event is asymmetrical (i.e., must precede)

¹ See: Докладніше про подію-причину та подію-наслідок у теорії причинності в криміналістиці див.: Великанов С. В. Криміналістический анализ категорий причины и следствия / С. В. Великанов // Криміналістика і судовая експертиза : наука, обучение, практика / под общ. ред. С. П. Кушнirenко. — СПб. : СПбГУ, 2012. — С. 9–19; Він же. Події-причини як елемент предмета теорії причинності в криміналістиці // Питання боротьби зі злочинністю : зб. наук. пр. — Х. : Право, 2013. — Вип. 26. — С. 210–222; Він же. Структура причинно-наслідкового зв'язку в теорії причинності в криміналістиці // Теорія та практика судової експертизи і криміналістики : зб. наук. праць. — Х. : Право, 2015. — Вип. 15. — С. 73–83.

² See: Жалинский А. Э. Избранные труды : в 2 т. / А. Э. Жалинский. — М. : Изд. дом НИУ ВШЭ, 2015. — Т. 2. — С. 269.

the emergence of legal consequences, and in which connection not in all legal relations such a precedence is ordered in time. The famous civilian K. N. Annenkov wrote that “the basis of the agreement is only that reason owing to which it was committed, and such a cause may be a preceding action of one party against the other or any obligation of the first against the latter”¹. A similar opinion regarding asymmetry is adhered by S. A. Beliatkin “Obligations from the will, like any action of a man ... has its basis, the cause of occurrence, *causa*. *Causa* is also an immediate legal basis, which is necessarily inherent to each obligation. *Causa* of sale – receiving a sum of money. In general, in the property relations the *causa* most often coincides with the material equivalent. In the loan agreement, where the equivalent is obtained earlier, the latter is the casual basis of the debt”². So, for example, when selling, the reason for the obligation – the receipt of a sum of money – may be pursued as a goal.

H. F. Shershenevych brought out substantially regarding to the asymmetry of the consecution whostated that “for the emergence of an obligatory relation, a legal fact is necessary, with the advance of which the law would link such a consequence”³. Later, I. B. Novytskyi and L. A. Lunts spoke out with analogous conception: “legal facts (and their complexes), with the advance of which the law relates the emergence of an obligation, are called the grounds for the emergence of the obligations”⁴. In relation to one of the sources of obligations – offenses – the same authors note that “the existence of a causal link between the behavior of a person and the following harmful result is one of the prerequisites to impose responsibility on this person for the given harmful result and for the damage associated with it”⁵. Still later A. S. Ioffe described the asymmetry of the sequence as: “Obligations arise when certain legal facts occur. These facts or known their totalities are called the grounds for the emergence of obligations”⁶. In the framework of classical constructives there is M. M. Sibilov who believes that “the purpose of a deal is the intention of the persons who transact a deal, to reach the legal result that is stipulated by them. In science the basis of the deal (*causa*) is referred to be the legal goal typical for this type of transactions, for which it is committed”⁷. V. S. Yem embedded the idea of consecution into the definition of legal facts which are recognized to be “the facts of reality, with which existing laws and other legal acts relate the emergence, change or termination of civil rights and obligations,

¹ See: *Анненков К. Н. Система русского гражданского права : в 6 т. / К. Н. Анненков. — СПб. : Тип. М. М. Стасюлевича, 1899. — Т. 1. — С. 427.*

² See: *Беляцкий С. А. Частное право в основных принципах (Курс гражданского права) / С. А. Беляцкий. — Каунас : Тип. Ф. Соколовской и Г. Лана, 1928. — С. 346–347.*

³ See: *Шершеневич Г. Ф. Учебник русского гражданского права / Г. Ф. Шершеневич. — М. : Изд. Бр. Башмаковых, 1911. — С. 390.* See:

⁴ *Новицкий И. Б. Общее учение об обязательстве / И. Б. Новицкий, Л. А. Лунц. — М. : Юрид. лит., 1950. — С. 78.*

⁵ *Ibid.* — С. 302.

⁶ See: *Иоффе О. С. Обязательственное право / О. С. Иоффе. — М. : Юрид. лит., 1975. — С. 16–17.*

⁷ See: *Сибільов М. М. Правочини // Цивільне право України : в 2 т. / М. М. Сибільов ; за заг. ред. В. І. Борисової. — К. : Юрінком Інтер. 2004. — Т. 1. — С. 216.*

that is, legal relations”¹. He also notes that for all civil legal relations it is necessary to establish the existence of a causal relationship between the legal fact and the subsequent legal result. V. A. Bielov, using namely temporal characteristics, aggravates the problems of the inseparability of the asymmetric connection between the legal fact and the legal result and notes that “legal relations arise at that first infinitely small (indivisible) moment of time, with the advancement of which the legal status of a known person is enriched by a new element – subjective right, being the part of the content of these relations”².

Criminally-legal approaches also use asymmetry in the consecution of the deal and the criminal consequence and already directly include the sign of temporal ordering. According to A. A. Piontkovskiy, “causal link is a process that has a flow in time. The behavior of the person whom is considered to be the cause of this event, has to precede this event in time... this is an elementary requirement that must be observed when establishing a causal relationship”³. A. P. Kozlov considers the temporal sign to be simple because the consequence exists after the cause in time and space, therefore, from the relation of cause and effect it follows that the first generates, creates the second and, by virtue of this, the consequence can not precede the cause⁴. As we see, A. A. Piontkovsky and A. P. Kozlov see the temporal asymmetry in causality and immerse the causal relation into the flow of time, put the former in the dependence on the latter. The same point of view is also adhered by A. V. Naumov “the act must precede the criminal consequences in time... the establishment of an external sequence of events of the action and the consequences is only a stage in the establishment of a causal relationship”⁵. The position similar to previous authors is held in a special study of the causal relationship in the criminal law by V. B. Malinin, noting that “an important moment in determining the causal relationship is the strict temporal sequence of the act and the consequences”⁶. Another researcher, Z. B. Soktoiev, specializing in this very issue, emphasizes attention on the signs the causal relationship asymmetry and notes that “irreversibility as a property of causality extends to events and processes having criminal law significance. The process of causing has a certain direction in time from what is available, to what that arises, appears. If we consider the relationship between two phenomena and find out that one of them precedes the second in time, then

¹ See: *Ем В. С. Основания возникновения, изменения и прекращения гражданских правоотношений // Российское гражданское право : учебник : в 2 т. / В. С. Ем ; отв. ред. Е. А. Суханов. — М. : Статут, 2011. — Т. 1. — С. 333.*

² See: *Белов В. А. Гражданское право : в 4 т. / В. А. Белов. — М. : Юрайт, 2016. — Т. 1 — С. 539.*

³ See: *Пионтковский А. А. Курс советского уголовного права : в 6 т. / А. А. Пионтковский. — М. : Наука, 1970. — Т. 2. — С. 189–190.*

⁴ See: *Козлов А. П. Понятие преступления / А. П. Козлов. — СПб. : Юрид. центр Пресс, 2004. — С. 355.*

⁵ See: *Наумов А. В. Российское уголовное право : в 3 т. / А. В. Наумов. — М. : Юрид. лит., 2004. — Т. 1. — С. 204.*

⁶ See: *Малинин В. Б. Причинная связь в уголовном праве: вопросы теории и практики : дис. ... д-ра юрид. наук : 12.00.08 / Малинин Василий Борисович. — СПб., 1999. — С. 199.*

this second under no circumstances can not be regarded as a consequence”¹. The precedence of the cause (act) to the consequence in time is the first requirement in the list, proposed by M. I. Panov to establish the causal relationship².

An accurate summary of the brief survey of the problematics of temporal and causal asymmetry in civil and criminal law is expressed by H. Kelzen’s opinion that “the idea of the sequence of the cause and consequences that is introduced into the interpretation of the laws of nature, follows from the principle of retribution. According to this principle, the two parts are connected so that one has to chronologically precede the second: first is a crime and then – punishment, first is a service and then – a reward. However, these parts can not replace each other. The simultaneity of these parts is also unacceptable”³. Thus, it is seen that the position of the asymmetry of consecution of legal facts and legal consequences in civil law and actions and criminal consequences in criminal law can be used as a basis for developing criminalistic approaches to the mutual regard of event-causes and event-consequences.

Logico-philosophical basis. The existence of a sequence of cause and effect is the subject of a prolonged discussion. Aristotle shared the preceding, or priority, in several senses – by definition, essence, in time, and the like. For example, in relation to the past, he noted: “one precedes the other in time if the former forwards the second relative to the present time”⁴. This scientist, on the example of the interaction of two objects – that which moves and that which is moved – argued the possibility of the simultaneity and coexistence of the cause and effect⁵. As it is known, Aristotle distinguished four types of causes – formal, material, acting and target, and in relation to one of them F. Akvinskyi pointed out that “the acting cause must precede the consequence”⁶. Consequently, it is precisely differentiation conducted by Aristotle and scholastics defines the subject of discussion on the relationship between causality and time still now.

A sequence of causes and consequences in the codes of the rules of causality. In the scientific literature the formation of lists of signs of causality is quite popular. For example, D. Hume in the Treatise on Human Nature, regarding causality, used a temporal characteristic in determining the cause “as an object precedes another object”⁷, and further in the same work in paragraph 2 of the “On

¹ See: Соктоев З. Б. Причинность в уголовном праве: теоретические и прикладные проблемы : дис. ... д-ра юрид. наук : 12.00.08 / Соктоев Зорикто Борисович. — М., 2014. — С. 285.

² See: Панов М. І. Об’єктивна сторона злочину // Кримінальне право України : Загальна частина : підручник / М. І. Панов ; за ред. М. І. Бажанова, В. В. Сташиса, В. Я. Тація. — К. : Юрінком Інтер, 2005. — С. 138.

³ See: Kelsen H. Society and Nature: A Sociological Inquiry / H. Kelsen. — Chicago : University of Chicago Press, 1943. — P. 255.

⁴ Аристотель. Сочинения : в 4 т. / Аристотель. — М. : Мысль, 1976. — Т. 1. — С. 160.

⁵ See: Він же. Сочинения : в 4 т. — М. : Мысль, 1981. — Т. 3. — С. 106–107.

⁶ See: Аквинский Ф. Сумматеологии : Ч. 1. Вопросы 1–43 / Ф. Аквинский. — К. : Ельга Ника-Центр, 2002. — С. 26.

⁷ See: Юм Д. Трактат про людську природу / Д. Юм. — К. : Вид. дім «Всесвіт», 2003. — С. 181.

the Rules by means of which one Judges on the Causes and Consequences” has established that “the cause must precede the consequence”¹. Later, in “The Study of Human Cognition”, Hume defined the cause “as an object followed by another object”². This feature, proposed by the English empiricist, is an element of the modern scientific thought about causality. The requirement of immutability in the preceding cause and the subsequent consequence of the result is mentioned by J. F. V. Herschel as the first rule for finding out the common cause of any significant mass of phenomena. At the same time, it is noted that for a number of phenomena the consequence is generated gradually, and the cause acts with an increase in intensity which leads to complications in establishing the sequence of events. On the other hand, in situations where the consequence comes on so quickly directly after the cause, it is difficult to separate the consequence and the cause”³. The second sign of causality ascertainment, defined by M. Born, is similarly set forth: “the preceding demands the cause to occur before, or at least simultaneously with the effect”⁴.

The reason precedes the consequence. The idea of a sequence of cause and effect is the most common among scientists although the provision on following consequences after the cause can not itself completely exhaust the cause-effect relation, it is necessary to agree with the observation of I. Kant, who wrote that “the temporal sequence is in fact only an empirical criterion of the consequences with respect to the causality of the cause that precedes it”⁵. The above set forth view of D. Hume on the sequence of causes and consequences had a significant impact on the development of science. In this occasion, J. St. Mill noted that “after well-known facts there always follow and, as we are convinced, some other facts will always follow. The constant preliminary is called the cause, the unchanging next is the effect”⁶. Analogous is the concept of V. Hamilton, who believed that causality is an observation that “a certain phenomenon is the succeeding after another specific phenomenon, and on this there is based the generalization that these phenomena are one for each other as the causes and consequences”⁷. G. H. Lewes generally saw only the unconditional precedence in causality⁸. Asceticism in the formulation of temporal attributes is characteristic to the researchers of the twentieth century. So, in the opinion of the Kantian and the well-known logician V. F. Asmus “the cause precedes in time, and the effect

¹ See: Юм Д. Трактат про людську природу. — С. 182.

² See: Він же. Сочинення : в 2 т. — М. : Мысль, 1965. — Т. 2. — С. 65.

³ See: Гершель Дж. Ф. У. Философия естествознания / Дж. Ф. У. Гершель. — М. : Либроком, 2011. — С. 148–149.

⁴ See: Born M. Natural philosophy of cause and chance / M. Born. — Oxford : Clarendon press, 1949. — P. 9.

⁵ See: Кант И. Сочинения : в 6 т. / И. Кант. — М. : Мысль, 1964. — Т. 3. — С. 269.

⁶ See: Милль Дж. Ст. Система логики силлогистической и индуктивной / Дж. Ст. Милль. — М. : ЛЕНАНД, 2011. — С. 267.

⁷ See: Hamilton W. Lectures on metaphysics and logic. / W. Hamilton. — Boston: Gouldand Lincoln, 1859. — Vol. I. — P. 544.

⁸ See: Lewes G. H. Aristotle: a chapter from the history of science / G. H. Lewes. — London: Smith, Elder and co., 1864. — P. 90.

flows in time after its cause¹". In the authoritative textbook "Logics" M. S. Strogovich writes that "the cause of the phenomenon always precedes this phenomenon. Therefore, when we have some phenomenon and are looking for its cause, we must look for the cause among the phenomena that preceded this phenomenon. The following phenomenon can not be the cause of the given phenomenon. Thus, the cause always precedes the consequence"². In the opinion of Yu. O. Petrov the simultaneous existence of a cause and a consequence contradicts the very knowledge of causality itself which necessarily requires time difference of the cause and the consequence³. O. M. Plotnikov speaks up similarly to this. According to him "one of the properties of the cause-effect relationship is the determination of the cause and the consequences among themselves in the strict temporal dependence. In time the cause always precedes the consequence, in time the effect always comes after its cause"⁴. These four definitions are formulated as axioms, therefore a few is informed about the content of the preceding and following. A somewhat different way was chosen by V. P. Tugarynov who attributed to the signs of causal dependence that the cause always precedes the consequence, and considered causality as a temporal dependence. The less deep functional dependence contrasts with the causal dependence which does not use the time sign, and therefore does not indicate to the cause but only to the replace of interrelated equivalent quantities⁵. Thus, according to V. P. Tugarynov, the symmetrical functional dependence in this sense is contrasted with the asymmetric causality.

J. Rickaby, describing the different types of causality, considered in the works of F. Akvinskyi, noted the following: "It is necessary to say directly that the causes, which are introduced from potentiality to action, should be considered as such, entailing an effect *in fieri* (lat. – in the process forming) and *in facto esse* (lat. – in factual existence)"⁶. This concept supports cause-effect asymmetry and is seen as rather interesting, since it illustrates, first of all, the relation between known (that is, those that were previously observed) causes and consequences. Really, the fact that the consequence is now either in the process of forming, or in the final state may be told about only if from the previous experience it is known what should be the final result of the interaction of the components of the cause. In addition, the consequence in the process of forming mediates the event-cause with the consequence in the factual existence. J. Rickaby noted about this that "causality is simultaneous with its effect, not necessarily with the whole result, which is also named as a consequence, and the result and the effect are the same though in different as-

¹ See: Асмус В. Ф. Логика / В. Ф. Асмус. — М. : ОГИЗ, 1947. — С. 262.

² See: Строгович М. С. Логика / М. С. Строгович. — М. : Госполитиздат, 1949. — С. 294.

³ See: Петров Ю. А. Логическая функция категорий диалектики / Ю. А. Петров. — М. : Высш. шк., 1972. — С. 49.

⁴ See: Плотников А. М. Индуктивные методы установления причинной связи явлений // Формальная логика / А. М. Плотников ; под ред. И. Я. Чупахина, И. Н. Бродского. — Л. : Изд-во Ленингр. ун-та, 1977. — С. 179–180.

⁵ See: Тугаринов В. П. Избранные философские труды / В. П. Тугаринов. — Л. : Изд-во Ленингр. ун-та, 1988. — С. 142–143.

⁶ See: Rickaby J. General Metaphysics / J. Rickaby. — London : Longmans, Green and Co., 1921. — С. 331.

pects”¹. In addition, this position is explained by Kant’s view that “the majority of the existing causes in nature exist simultaneously with their consequences, and their temporal sequence is caused by the fact that the cause can not realize all its consequences in an instant”². So, the cause and the consequence in the process of forming are simultaneous in the sense that the cause has not yet ended its action and the investigation has not yet been finally formed but it is clear that the consequence in the process of formation and the completed consequence differ both quantitatively and qualitatively. A similar opinion is expressed by the modern researcher of the time problem R. Teichmann, according to whom “that, what makes A earlier with regard to B is the possibility of A to influence upon B, or, in other words, the very fact A makes it to be earlier B that A is simultaneous with some event that has the ability to influence B.... the impossibility of the existence of an event both (in general) before, and (in general) after another, is, conditionally speaking, the impossibility for the event to be able to influence another event, and to receive the impact of this other even”³.

Near the theory set forth by J. Rickaby, the idea reflected in the expression *cessante causa cessat effectus* (lat. – with the disappearance of the cause disappears and the consequence) is bordered. Temporary asymmetry is also characteristic for this causal construction, first, there is a termination of the causal effect, then – termination of the consequences development but not vice versa. Termination of the consequence upon termination of the cause does not mean the disappearance of the already existing result (changes that have occurred). It is only about stopping further causation.

The cause and effect are simultaneous. Not all philosophers agree with the following of the consequence after the cause. I. H. Fichte consistently stressed that “the events of the world are related with each other as causes and consequences ... consequences are absolutely simultaneous with the causes ... there is no sequence between the cause and the effect”⁴. Similar proposals were adduced by O. I. Vvedenskiy, who considered habitually to call the consequence by the term “the next phenomenon”, the cause – “previous phenomenon”, and the occurrence of the consequence together with the cause – “consecution” and, on this basis, he proposed to abandon the use of such terms. As examples there were cited physical experiments on the alleged simultaneity of heating of the metal and its expanding or compressing of the gas and increasing of its elasticity⁵. Thoughts on the simultaneity of interaction or instantaneity of momentum propagation are also found in the literature of the second half of the XX century. Physical examples of the simultaneity of the action of the cause and the existence of the consequences are

¹ See: *Rickaby J.* General Metaphysics / J. Rickaby. — London : Longmans, Green and Co., 1921. — C. 333–334.

² See: *Кант И.* Indicated work. — T. 3. — C. 268–269.

³ See: *Teichmann R.* The Concept of Time / R. Teichmann. — New York : St. Martin’s Press, 1995. — P. 133.

⁴ See: *Fichte J. G.* Foundations of Transcendental Philosophy / J. G. Fichte. — Ithaca : Cornell university press, 1992. — P. 368.

⁵ See: *Введенский А. И.* Логика как часть теории познания / А. И. Введенский. — Пг. : Тип. М. М. Стасюлевича, 1917. — С. 242.

given by D. Haskin (glow of the metal bar when a certain temperature is reached, the deflection of the voltmeter pointer when the position of the rheostat knob is changed, etc.)¹. A. I. Uimov believed that “the cause-push is simultaneous to the consequence – the beginning of the movement. This simultaneity may be illustrated by an example of bodies moving together. In this movement, leaving place by one body is accompanied with the simultaneous occupation of this place by another body”². It is clear that the application of the idea of the simultaneity of cause and effect to all events in the physical world leads to the fact that all events – the former, the present and the future – must occur at the same time and due to this the notion of time loses meaning at all. Together with this, it is impossible to completely reject the idea of simultaneity, and for the effect of the cause and manifestation of a part of the consequences because for some physical phenomena the cause and effect under certain conditions create the impression of simultaneity of manifestation, the emergence of which requires its own explanation.

As a result of the review of the concepts on which the cause and effect are simultaneous, it is necessary to agree with the point of view of H. Reichenbach, who, on the basis of the impossibility of propagating signal with a speed greater than the speed of light, proves that “two simultaneous events are arranged in such a way that the causal chain can not be stretched from one to another in any direction. Events, occurring at a given time in some distant country, can no longer feel influence from our part even with the help of radio signals. Conversely, they can not have any effect on what is happening here at this moment. Simultaneity means exclusion of causal relations”³. As it is seen, H. Reichenbach speaks on events which are simultaneous in the sense of a certain moment. But the events simultaneous in the sense that they arise, develop and stop in the intervals of time, which coincide partially or completely, require their causal explanation.

A forensic approach to the time sign of a cause-effect relationship. Taking into account available forensic studies on time⁴ and causality⁵, processing the time

¹ See: *Gasking D. Causation and recipes* / D. Gasking // Mind, New series. — Oxford University Press, 1955. — Vol. 64, Is. 256. — P. 479–480.

² See: *Уемов А. И. О временном соотношении между причиной и действием* / А. И. Уемов // Учен. зап. — Иваново : Изд-во Иван. гос. пед. ин-та, 1960. — Т. XXV, вып. I. — С. 31.

³ See: *Рейхенбах Г. Философия пространства и времени* / Г. Рейхенбах. — М. : Прогресс, 1985. — С. 166.

⁴ See, for example: *Мешков В. М. Криминалистическое учение о временных связях и отношениях при расследовании преступлений* : дис. ... д-ра юрид. наук : 12.00.09 / В. М. Мешков — М., 1995. — 382 с.; *Гусельникова Л. А. Теория и практика использования криминалистической теории о временных связях и отношениях при расследовании корыстно-насильственных преступлений* : автореф. дис. на соискание уч. степени канд. юрид. наук : спец. 12.00.09 «Уголовный процесс, криминалистика и судебная экспертиза; оперативно-розыскная деятельность» / Л. А. Гусельникова. — Калининград, 2009. — 18 с.

⁵ See, for example: *Соколовский З. М. Проблема использования в уголовном судопроизводстве специальных знаний при установлении причинной связи явлений* : автореф. дис. ... д-ра юрид. наук : спец. 715 «Уголовное право и уголовный процесс»; 717 «Криминалистика» / З. М. Соколовский. — Харьков,

signs of a cause-effect relationship is a new direction in Forensic Science. The proposed approach uses the following main provisions: firstly, the corresponding asymmetry is the relation of the event-cause and the event-consequence, that is, at the beginning there is a cause, followed by a consequence. Secondly, the interval of causation is introduced, because both the causal complex and the consequence in the form of traces require time for, respectively, interaction and formation. Thirdly, when applying the signs of time, a scale must be chosen, that is, the cause and effect should belong to the levels of causality with the same degree of generality.

The graphic form of the structure of the considered approach is depicted in the figure, and the application of the indicated provisions is seen as expedient to be discussed on the practical example of the plot from the verdict of the court: "S. being in the standing position, facing Yu., has got a TT gun from the belt, prepared in advance for the crime commitment with the ammunition loaded, deliberately, with the aim of killing, has pointed a gun barrel at the direction of Yu., and being at a distance of about one meter from the victim, he fired one shot from the gun into the abdominal region of Yu. Thus S. caused Yu. body injuries in the form of a penetrating gunshot wound to the abdominal region, which according to the conclusion of the forensic examination refers to the severe bodily harm as dangerous for life at the time of infliction and is in a causal relationship with the coming of death of Yu., who died during transportation to the hospital"¹. In the proposed plot the court examined the existing chain of causation. On the first link, there was a certain bodily injury to Yu., which lasted from the shot to the moment of stopping the ball in the victim's body, and on the second link there was a causation of death of Yu. which lasted from causing bodily injuries to the death of the victim, therefore both links have their separate and their common interval of causation. Though the time scale of this chain was chosen by the court primarily with a criminal-legal purpose, this level of generality of events is also of interest to criminalists on the basis of their own scientific subject of research, for example, it will be causally explained not just a shot but how and what was formed in the result of the shot. Let us distribute with the illustrative purpose among the blocks provided in the figure, the forensic objects and processes of causal interaction that are important for trace formation flowing out from the content of only the first causative link of the plot.

1968. — 28 с.; Жирютин В. И. Криминалистические методы установления причинности при расследовании преступных нарушений правил безопасности труда : автореф. дис. на соискание уч. степени канд. юрид. наук : спец. 12.00.09 «Уголовный процесс; судостроительство; прокурорский надзор; криминалистика» / В. И. Жирютин. — М., 1979. — 18 с.; Медведева С. Н. Криминалистические проблемы причинности в раскрытии и расследовании преступлений против жизни и здоровья : дис. ...канд. юрид. наук : 12.00.09 / С. Н. Медведева. — Краснодар, 2005. — 195 с.; Холина Е. А. Криминалистическая характеристика причинно-следственных связей при производстве судебных экспертиз : дис. ... канд. юрид. наук : 12.00.09 / Е. А. Холина. — Люберцы, 2011. — 230 с.

¹ See: Вирок Монастирищенського районного суду Черкаської області в судовій справі № 1-136/12 [Електронний ресурс]. — Режим доступу : <http://reyestr.court.gov.ua/Review/35294693>.

In the block “Components of the event-causes in interaction” under other equal conditions there are included: TT gun; cartridge; shooter; victim; relative position of the shooter and the victim, distance and direction of the shot. These components in this case interact as a single causal complex, but, if necessary, can be scaled and divided into more detailed causal complexes.

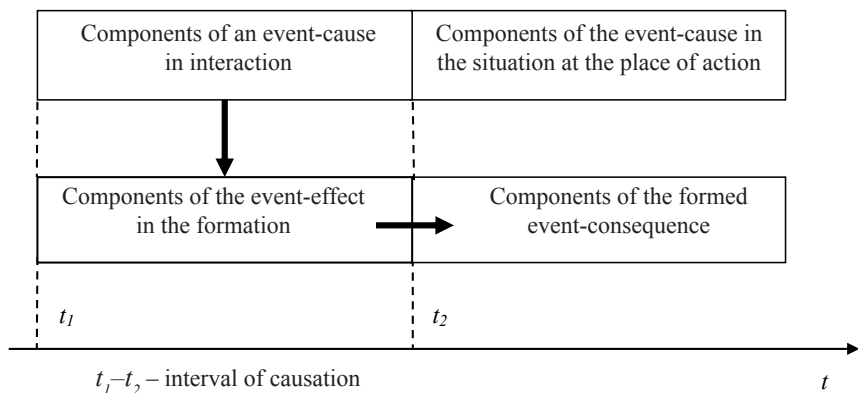


Figure. The temporal relation of event-cause and event-consequence.

The arrow between the blocks “Components of the event-causes in the interaction” and “Components of the event-effect in the formation” is the subject-matter scope of Criminalistics for studying the regularities of the trace formation mechanism, namely the relevant general and special provisions of Forensic Ballistics and Dactyloscopy, as well as some aspects of Forensic Medicine.

The block “Components of the event-effect in the formation” consists of immediate procedures for the formation of the results of various causative processes accompanying the shot, namely: the fatty substance of the fingers passes to the parts of the gun and reflects the drawing of the papillary lines; the components of the powder gases are left on the hands of the shooter; burned deposit precipitates in the gun; tracks from the areas and edges of the barrel canal grooves are traced in the form of a microrelief on the leading part of the bullet; the metal is crumpled into the capsule’s case and a microrelief of the mark is created from the striker’s firing point; a hole in the body of the victim is formed, the victim’s organs are subsequently traumatized when the bullet in the body moves during the formation of the wound channel of a certain configuration the final localization of the bullet in the body is performed. Each of these causal processes has its own interval of causation which can be scaled and more thoroughly investigated at appropriate causality levels, however, as the whole, causal processes of the event-effect in the formation are limited by the time interval causation $t_1 - t_2$.

The arrow between the blocks “components of the event-consequence in the formation and “Components of the formed event-consequence” represents the

subject sphere of Criminalistics for studying causal regularities of the existence of typical complexes of traces, in this case – typical traces of the use of firearms (the effect of a shot at a living person from a distance 1 m, ballistic objects at the scene of occurrence, the results of the shot on the shooter, dactyloscopic complex, etc.).

The block “Components of the formed event-consequence” represents the formed results of causal interaction of components of the causal complex that happened in the block “Components of the event-cause in the interaction”, namely: traces of powder gases on the hands of a shooter; burned deposit in the gun; traces of fingers on the gun; traces of the grooves areas on the bullet; traces on the capsule; diameter of the bullet hole in the body of the victim; the nature of metallization on the skin of the victim. Elements of the block “Components of the formed event-consequence” should be differentiated from the constitutives of the block “Components of the event-causes in the situation at the place of occurrence”¹.

The transition from the block “Components of event-cause in interaction” through the block “Components of event-consequence in formation” to the block “Components of the formed event-consequences” block takes place in accordance with the t -timeline direction. The interval of causation t_1-t_2 continues from t_1 , the time of the beginning of the interaction of the components of the cause event, to t_2 , – the time of completion of the interaction of the components of the cause event. During period t_1-t_2 there are numerous interactions between the elements of the causal complex of the event-cause, and the elements of the event-consequences are not yet fully formed. In the case of the first causal link of the plot under consideration, this interval covers the time from actions with pointing and pulling the trigger to stopping the bullet in the victim's body. At the moment t_2 , with the completion of causal interactions between the elements of the causal complex of the event-cause, a formed event-consequence begins to exist.

Thus, the defended approach to the temporal sign of a causal relationship in the Criminalistics consists of the following elements: 1) the asymmetry of the event-cause sequencing and the event-consequence, namely the cause precedes the effect and not otherwise; 2) the causal complex of the cause event is performed within the interval of causation, and the consequence requires time to be formed; 3) the time scale of the cause and the consequences should coincide in terms of the generality degree. As a perspective of further research, the temporal signs of a cause-effect relationship in Criminalistics can be indicated by the introduction of modern time theories to the establishment of the attribute of time of specific event-causes and event-consequences, as well as the formulation of the bases for counteracting errors in determining the temporal sequence in causality.

¹ In detail on this, see: *Великанов С. В.* Причинная дифференциация материальной обстановки на месте происшествия // Криминалистические чтения памяти проф. Г. И. Грамовича : материалы междунар. науч.-практ. конф., Минск, 21 дек. 2012 г. — Минск : Акад. МВД Респ. Беларусь, 2012. — С. 350–360.

**ЧАСОВА ОЗНАКА
ПРИЧИННО-НАСЛІДКОВОГО ЗВ'ЯЗКУ
В КРИМІНАЛІСТИЦІ**

Великанов С. В.

Розглянуто питання часової ознаки причинно-наслідкового зв'язку в криміналістиці. Опрацьовано проблематику асиметрії напрямку часу та причинності, запропоновано підходи до з'ясування послідовності й одночасності подій-причини та подій-наслідку в криміналістиці.

Ключові слова: асиметрія причинно-наслідкового зв'язку, асиметрія часового відношення, послідовність подій-причини та подій-наслідку, часова ознака причинно-наслідкового зв'язку.

**ВРЕМЕННОЙ ПРИЗНАК
ПРИЧИННО-СЛЕДСТВЕННОЙ СВЯЗИ
В КРИМИНАЛИСТИКЕ**

Великанов С. В.

Рассмотрен вопрос временного признака причинно-следственной связи в криминалистике. Изучена проблематика асимметрии направления времени и причинности, предложены подходы к выяснению последовательности и одновременности события-причины и события-следствия в криминалистике.

Ключевые слова: асимметрия причинно-следственной связи, асимметрия временного отношения, последовательность события-причины и события-следствия, временной признак причинно-следственной связи.

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**PROBLEMATIC ISSUES OF TAKING EVIDENCE
FROM KNOWLEDGEABLE PERSONS**

Separate questions of obtaining testimonies from knowledgeable persons (carriers of special knowledge) in criminal proceedings have been investigated. The shortcomings of law enforcement activity on procedural registration of such statements, which contradict the requirements of the current criminal procedural legislation, are revealed. Own proposals on introducing amendments to the Criminal Procedural Code of Ukraine are presented.

Keywords: Criminal Procedural Code of Ukraine, questioning, expert, specialist, competent witness, knowledgeable person.

Both practical employees and scientists quite often distinguished insufficient attention paid to the legal regulation of the specifics of the special knowledge use in the criminal process among the shortcomings of the Criminal Procedural Code of Ukraine of 1960. At the same time, despite the progressive

nature of the Criminal Procedural Code of Ukraine¹ (CPC of Ukraine), adopted in 2012, this normative-legal act also did not resolve the specified issues. This concerns, first of all, certain moments in the procedural formalizing of information obtained at the stage of pre-trial investigation or trial from an expert or specialist who was involved in investigative (search) or other procedural actions, as well as from knowledgeable persons (holders of special knowledge), who had not been previously involved in the criminal proceedings.

Analysis of the law enforcement practice shows that there is no single approach to the consideration of the specified issues. Thus, a significant number of practitioners of preliminary investigation bodies formalize the fact of receiving such information by interrogating carriers of special knowledge as specialists. The others believe that questioning such subjects as witnesses will in a greater extent correspond to the criminal procedural legislation in force. It should be noted that the indicated circumstances do not promote a single law enforcement activity and in some cases they may not consistent with the norms of applicable legislation. The complexity of this situation is evidenced by the presence of polar opinions and the absence of a unified position on this matter among scientists. The issues of using specialized knowledge in the criminal process have been given considerable attention by domestic scientists, in particular by O. O. Bondarenko, A. F. Volobuiev, I. V. Pyrig, V. D. Ponikarov, V. M. Revaka, V. V. Semenova et al. The specified subjects have also found its reflect on in the scientific works of such scientists as H. I. Hramovych, A. V. Dulov, Yu. O. Kalinkin, V. M. Makhov, O. V. Selina, I. M. Sorokotiahin, I. Ya. Foinytskyi. However, these researchers have not reached a general opinion on the features of obtaining testimonies from knowledgeable persons. In addition, their conclusions are made without taking into account the reformed domestic criminal procedural legislation.

Thus, *the purpose* of the article is to analyze the norms of the applicable CPC of Ukraine, revealing shortcomings of the legal regulation of the procedure for obtaining testimonies from carries of special knowledge, as well as the formulation of their own proposals for resolving disclosed problematic issues.

Of course, the importance of the competent persons participation in the criminal proceedings is difficult to overestimate. In particular, an expert conducts a study of objects, phenomena and processes that contain information on the circumstances of a criminal offense commission and gives an opinion on the issues that arise during criminal proceedings and belong to the sphere of his knowledge. A person with special knowledge and skills in the use of technical or other means may be involved in the criminal proceedings as a specialist for the purpose of providing advice during pre-trial investigations or judicial proceedings on the issues that require appropriate specialized knowledge and skills or for the purpose of providing direct technical assistance (photographing, formalizing schemes, plans, drawings, taking sampling for carrying out expertise, etc.).

In the process of involving these subjects, they often report information on individual circumstances that are relevant to the criminal proceedings. As a rule, these data are the position (opinion, vision) of the carries of special knowledge

¹ See: Кримінальний процесуальний кодекс України. — К. : Центр учбов. л-ри, 2012. — 254 с.

about certain objects, phenomena and processes and can be used by an investigator or judge both to solve organizational issues (for example, to determine the list of documents required for revision or an order of taking samples for expert examination, etc.), and tactical nature (for example, determining the order of conducting investigative (search) actions, weighing reasonableness of expert conclusions or testimonies of the participants in the criminal proceedings, etc.).

At the same time, it is often necessary to use such information of the carriers of special knowledge in the process of proof. Above indicated is interrelated with the question of “introducing” such information to the criminal process by an investigator or a judge, that is, with the procedure for their procedural formalizing.

As it was already mentioned, among scientists there is no common position on the possibility of interrogation of persons possessing special knowledge. In particular, such domestic researchers as V. V. Semenov, O. O. Bondarenko¹ recognize the possibility and feasibility of interrogation of knowledgeable persons. This position is shared by many other scientists, namely: H. I. Hramovych, A. V. Dulov, Yu. O. Kalinkin, I. M. Sorokotiahin, I. Ya. Foinytskyi.

At the same time, despite the recognition of the possibility of knowledgeable persons interrogation by overwhelming majority of scientists, among them there has not developed a unified opinion regarding defining procedural form of its conduct. In particular, such domestic scientists as A. F. Volobuiev, V. D. Ponikarov, V. M. Revaka consider that interrogation of comptrollers, specialists and other knowledgeable persons should be conducted according to the rules of witnesses interrogation². O. V. Selina does not agree with them because she distinguishes interrogation of an expert, a specialist-consultant and a knowledgeable witness among the forms of interrogation of knowledgeable persons³.

In contrast to these points of view, V. D. Arseniev, V. H. Zablotskyi and P. Repeshko state that knowledgeable persons can not be questioned at all, since the opinions of these individuals regarding both perceived and not directly perceived facts can not be the content of witnesses testimonies⁴. Sufficiently appro-

¹ See: *Семенов В. В.* Специальные знания в расследовании преступлений (содержание использования) : дис. ... канд. юрид. наук : 12.00.09 / В. В. Семенов. — К., 2006. — С. 144; *Бондаренко О. О.* Процессуальный статус осведомленных лиц та їх правовідносини з дізнавачем і слідчим у кримінальному судочинстві України : дис. ... канд. юрид. наук : 12.00.09 / О. О. Бондаренко. — Х., 2004. — С. 164.

² See: *Волобуєв А. Ф.* Проблемы методики расследования разграблений имущества в сфере предпринимательства. — Х. : Вид-во Ун-та внутренних дел, 2000. — С. 250; *Судебно-бухгалтерская экспертиза : учеб. пособие* / [В. Д. Поникаров, И. В. Ялдин, М. В. Стаматина и др.] ; под ред. В. Д. Поникарова. — Харьков : Арсис, 2002. — С. 99–100; *Ревака В. М.* Залучення фахівців до участі у кримінальному судочинстві / В. М. Ревака // Вісн. прокуратури. — 2003. — № 8. — С. 65–68.

³ See: *Селина Е. В.* Доказывание с использованием специальных познаний по уголовным делам / Е. В. Селина. — М. : Юрлитинформ, 2003. — С. 82.

⁴ See: *Арсеньев В. Д.* Использование специальных познаний при установлении фактических обстоятельств уголовного дела / В. Д. Арсеньев, В. Г. Заблоский. — Красноярск : Изд-во Красноярского ун-та, 1986. — С. 74; *Репешко П.* Участь специалиста в судовом розгляді кримінальної справи / П. Репешко // Право України. — 1999. — № 9. — С. 78–82.

priate, in our opinion, is the position of V. M. Makhov, who points out on the inadmissibility of questioning knowledgeable persons without proper regulation of this procedure in the law. He notes that the possibility of interrogation of such persons can be first of all justified by a sufficiently voluminous interpretation of the provision, according to which any person, about whom data is available that he knows or may be aware of the circumstances that are the subject to proof in the criminal proceedings. But, as the scientist justly says, this argumentation does not take into account that the witness is an eyewitness of the facts directly related to the case, and therefore such a person is irreplaceable. At the same time, this requirement does not apply to an expert or a specialist, since they are every person who is aware in a certain area of special knowledge¹.

In our opinion, when determining the forms and methods of formalizing information, provided by the carriers of special knowledge, we must first of all proceed from the provisions of the applicable Criminal Procedural Code of Ukraine.

In particular, with regard to experts, involved in criminal proceedings, the position of the domestic legislator is definite on this matter.

Thus, in accordance with Art. 69 of the Criminal Procedural Code of Ukraine an expert in criminal proceedings is a person who is a master in scientific, technical or other special knowledge, has a right in accordance with the Law of Ukraine "On Forensic Expertise" to carry out an expert examination and who is entrusted to fulfill a study of objects, phenomena and processes, containing information on the circumstances of a criminal offense commission and to give an opinion on the issues that arise during criminal proceedings and fall within the scope of his knowledge.

The responsibility of the expert, among the others, is also the duty to come to an investigator, prosecutor, court and give the answers to the questions during interrogation. This duty of the expert is detailed in Art. 12 of the Law of Ukraine "On Forensic Expertise", according to which a forensic expert is obliged at the request of a judge, a court, a person or a body which involved an expert, to give an explanation of the conclusion, issued by him; as well as in Art. 356 of the Criminal Procedural Code of Ukraine, according to which, upon the motion of a party in criminal proceedings, a victim or on his own initiative, the court has a right to call an expert for an interrogation to clarify the conclusion. An expert may be asked about availability of the special knowledge and skills on the issues under study (education, work experience, academic degree, etc.), related to the subject matter of the expertise; used methods and theoretical developments; sufficiency of the information, on the basis of which the conclusion was being prepared; scientific justification and the methods, by which an expert came to a conclusion; validity and correctness of application of the principles and research methods to the facts of the criminal proceedings; other issues concerning reliability of the conclusion.

So, it can be concluded that, in accordance with the applicable legislation, the expert's testimony must concern only his expert conclusion. The provision of

¹ See: *Махов В. Н. Использование знаний сведущих лиц при расследовании преступлений : монография / В. Н. Махов. — М. : Изд-во РУДН, 2000. — С. 260–268.*

such evidence should occur during his interrogation as an expert. At the same time, in view of the fact that any expert is a priori a specialist, in our opinion, it is inappropriate to restrict the provision of evidence by them solely by clarifying the expert conclusion. In the Criminal Procedural Code of Ukraine, it is advisable to formulate the provision on the possibility of the expert to express his position within his competence regarding the circumstances, relevant to the criminal proceedings, and the establishment of which requires the use of special knowledge.

In realizing the pre-trial investigation, it may be necessary to obtain additional information from the carriers of special knowledge, involved in the conduct of procedural actions as specialists. This information may be needed both to solve organizational issues (for example, to determine the list of documents required for revision or an order of taking samples for expert examination, etc.), and tactical nature (for example, determining the order of conducting investigative (search) actions, weighing reasonableness of expert conclusions or testimonies of the participants in the criminal proceedings, etc.).

At the same time, there is often a need for procedural formalization of such information, in particular about the specifics of the provision of technical assistance by a specialist (photographing, composing schemes, plans, drawings, taking samples for expertise, etc.).

In such cases investigators often interrogate such carriers of special knowledge as specialists, without taking into account the position of the domestic legislator, which has been unchanged for many years. Thus, in accordance with Art. 65 of the Criminal Procedural Code of Ukraine of 1960 the factual data, which has been the evidence in the criminal case, was established, among other things, by testimonies of a witness, victim, suspect, accused. Along with this, according to Art. 95 of the Criminal Procedural Code of Ukraine of 2012, the evidence is the information that is provided either verbally or in writing during questioning by a suspect, accused, witness, victim, expert concerning the circumstances, known by them in criminal proceedings that are relevant for this criminal proceeding.

So, if you compare these provisions with each other, you can see that the list of participants in the criminal proceedings, who have the right to testify under the current Criminal Procedure Code of Ukraine, has been expanded due to such carriers of special knowledge as experts. However, neither in the Criminal Procedural Code of Ukraine of 1960 nor in the applicable Criminal Procedural Code of Ukraine legislator did not provide specialists as the subjects of giving testimonies.

In Art. 95 of the CPC of Ukraine it is stated that the conclusion or opinion of a person, who gives a testimony, may be recognized by the court as the evidence only if such a conclusion or opinion is useful for clear understanding of the evidence (part thereof) and is based on special knowledge in the understanding of Art. 101 of this Code. Analysis of the content of these articles of the Criminal Procedural Code of Ukraine gives grounds to conclude that they apply exclusively to the experts.

In our opinion, the provisions of the Criminal Procedural Code of Ukraine, presented above, do not fully correspond to the requirements of nowadays, since a specialist, as well as the other mentioned participants in the criminal proceedings

may also know the circumstances that are relevant for the criminal proceedings. Considering the foregoing, Articles 71 and 95 of the Criminal Procedure Code of Ukraine require amendments.

Analysis of the provisions of the current CPC of Ukraine allows us to establish that along with the notion “testimony” the legislator uses the notion “explanation”. So, according to item 6 of part 3 of Art. 69 of the Criminal Procedural Code of Ukraine, an expert has the right to receive remuneration for the work performed and reimbursement of costs related with expertise fulfillment and calling to give explanations or testimonies in the event if carrying out of expertise is not an official duty of the person involved as an expert. As for the specialist, according to part 3 of Art. 71 of the Criminal Procedural Code of Ukraine, parties of the criminal proceedings are entitled during the course of a trial to file a petition for the involvement of a specialist or the use of his explanations and assistance.

It should be noted that unlike the notion “testimony”, the legislator did not provide a definition for the notion “explanations”. The possibility of carrying out this procedural action in general terms is stipulated in Art. 95 of CPC of Ukraine, according to which even the representative of the defense party can receive an explanation from the participants in criminal proceedings with their consent. Analysis of the domestic criminal procedural legislation allows us to conclude that the content of the explanation is quite similar to the one of evidence, but unlike the latter it is not a source of evidence. Taking into account the abovementioned, obtaining explanations from participants in the criminal proceedings, in particular from the carriers of special knowledge, is almost not used in the practice by the prosecution or by the court.

In addition, according to Art. 71 the Criminal Procedural Code of Ukraine a specialist may provide advice on the matters that require relevant specialized knowledge and skills. As practice shows, such consultations of specialists are provided at the stage of preparation for investigative (search) actions and are the means to increase their effectiveness. At that, the legislator also does not define both the content of the notion “consultations” and the procedure for the procedural formalization of their provision and the ways for their further use in the criminal proceedings. At the same time, analysis of the provisions of the current CPC of Ukraine allows us to conclude that such consultations of specialists, as well as explanations, are also not the sources of evidence. Some investigators try to “bypass” shortcomings of the current criminal procedural legislation, specified by us, by formalizing testimonies, provided by specialists (including their own reasonings and judgments about certain circumstances of the criminal proceedings) in the form of messages, comments, supplements as well as attachments to the investigative (search) and other procedural actions (except for interrogation) in which they were participants. In our opinion, such an approach does not contradict the current CPC of Ukraine and may take place, at least until the moment of solving the above mentioned problems at the legislative level. After all, in this way the information will be perceived by the court not as a testimony, but as a part of the content of the protocols of procedural actions, which, according to Art. 99 CPC of Ukraine are the documents, and hence – a source of evidence.

However, it remains actual for investigators to determine the ways of obtaining information from carriers of special knowledge who previously did not participate in the criminal proceedings, either as experts or as specialists for further use of the information, provided by them, in the process of proof. The solution of this situation, according to many scientists, is seen in the legislative consolidation of the possibility of interrogation of such persons as knowledgeable witnesses¹.

However, in our opinion, distinguishing of a new category of witnesses is not advisable from the etymological or procedural points of view. Thus, in accordance with Art. 65 of the applicable Criminal Procedural Code of Ukraine, a witness is an individual, who knows or may be aware of the circumstances that are subject to proof in the course of criminal proceedings and is called to give evidence. In their turn, the circumstances to be proved, are specified in Art. 91 of the Criminal Procedural Code of Ukraine, and they are not identical to information of a special nature that is relevant to the criminal proceedings and which is possessed by knowledgeable persons.

In addition, definition of such a category of participants in criminal proceedings as “knowledgeable witnesses” may create a false representation of their role in the criminal process, because they are not (and can not be) witnesses even in the expanded interpretation of this term.

We consider being expedient to supplement the current CPC of Ukraine with the provision on the possibility of obtaining testimonies from knowledgeable persons. The latter are any persons who possess scientific, technical or other special knowledge or skills in the use of technical or other means and are involved in the criminal proceedings as experts or specialists, or regarding circumstances that are relevant to the criminal proceedings, establishing of which requires the use of special knowledge.

Summarizing the above said, we can draw the following conclusions:

1. For the purpose of legislating the right of a specialist to give evidence to set forth part 1 of Art. 95 of the Criminal Procedural Code of Ukraine as follows: “Testimony is the information that is given in oral or written form during interrogation by a suspect, accused, witness, victim, expert and other participants in the criminal proceedings in respect of the circumstances, known to him, that are relevant to this criminal proceedings”.

2. In accordance with item 2 of part 5 of Art. 71 of CPC of Ukraine after the word “explanation” it is necessary to add the phrase “and testimony”.

3. To amend the CPC of Ukraine with the article:

“Article 227¹. Interrogation of a knowledgeable person

1. An expert should appear and give evidence on the explanation of the expert opinion issued by him at the request of a person or a body which has involved an expert, of a judge, a court.

2. A specialist should appear and give evidence about the specifics of his participation in the conduct of a procedural action at the request of a person or body which involved an expert, of a judge, a court.

¹ See: *Семенов В. В.* Indicated work. — С. 144; *Стахівський С. М.* Показання свідка як джерело доказів у кримінальному процесі : автореф. дис. на здобуття наук. ступеня канд. юрид. наук : спец. 12.00.09 «Кримінальний процес та криміналістика; судова експертиза» / С. М. Стахівський. — К., 1996. — С. 11.

3. If it is necessary to clarify the circumstances which are relevant for the criminal proceedings, and the establishment of which requires using special knowledge, anyone who has scientific, technical or other specialized knowledge or skills in the use of technical or other means may be questioned as knowledgeable person. The evidence, obtained in such a way, may be used in the process of proving only in the combination with other available evidence and they do not have self-evidentiary value”.

ПРОБЛЕМНІ ПИТАННЯ ЩОДО ОТРИМАННЯ ПОКАЗАНЬ ВІД ОБІЗНАНИХ ОСІБ

Фастовець В. А.

Досліджено окремі питання щодо отримання показань від обізнаних осіб (носіїв спеціальних знань) у кримінальному провадженні. Виявлено недоліки правозастосовної діяльності щодо процесуального оформлення таких показань, які суперечать вимогам чинного кримінального процесуального законодавства. Надано власні пропозиції стосовно внесення змін до Кримінального процесуального кодексу України.

Ключові слова: Кримінальний процесуальний кодекс України, допит, експерт, спеціаліст, обізнаний свідок, обізнана особа.

ПРОБЛЕМНЫЕ ВОПРОСЫ, КАСАЮЩИЕСЯ ПОЛУЧЕНИЯ ПОКАЗАНИЙ ОТ СВЕДУЩИХ ЛИЦ

Фастовец В. А.

Исследованы некоторые вопросы, касающиеся получения показаний от сведущих лиц (носителей специальных знаний) в уголовном производстве. Выявлены недостатки правоприменительной деятельности в отношении процессуального оформления таких показаний, противоречащих требованиям действующего уголовного процессуального законодательства. Даны собственные предложения по внесению изменений в Уголовный процессуальный кодекс Украины.

Ключевые слова: Уголовный процессуальный кодекс Украины, допрос, эксперт, специалист, сведущий свидетель, сведущее лицо.

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CIRCUMSTANCES SUBJECTED TO PROOF IN CRIMINAL PROCEEDINGS IN THE INVESTIGATION OF CRIMES CONNECTED WITH FIRES

The paper investigates the circumstances which should be proven in the criminal proceedings when investigating crimes related with fires. It is stated that in addition to general circumstances which characterize the fire event as a crime (place, time and so

on), such information should contain: the situation which preceded the fire; circumstances of the fire emergence and growth; situation that has been formed after the fire.

Keywords: circumstances subjected to proof; fact of proof, criminal proceedings, investigation of crimes, crimes related to fires.

Circumstances to be proved in the investigation of crimes in the structure of particular criminalistic techniques are of great importance. Knowledge of the subject of proving allows a person, which conducts an investigation, to plan promptly and carry out correctly and purposefully pre-trial investigation. It is especially important to know such circumstances in the investigation of the crimes related to fire, where the object of knowledge is a certain behavior of people, the mechanism of which is accompanied by the action of fire

It should be noted that from the moment of introduction of such its element as criminalistic characteristics of the crime into forensic technique of investigation of certain types of crime, opinions of scientists about the relationship and interdependence between the notions of criminalistic characteristics and the subject of evidence (the circumstances to be proved) have split. Some authors believe that the subject of proving is merged by criminalistic characteristic or it is its structural element¹. R. S. Bielkin approaches to this the question in another way, saying more categorically: "One of two things: either recognition of the necessity of criminalistic characteristics of crimes and then exclusion of the list of the above circumstances from the number of elements of a particular technique, or the denial of such a need and then saving the list; third solution, in our opinion, does not exist"².

We support the view of scientists who believe that the subject of proving and criminalistic characteristics of a particular type of crime – multi-faceted notions. We can not agree with the inclusion of the circumstances to be established, in the criminalistic characteristics of crime, – says Ie. I. Makarenko, – since the latter characterize not the criminal trespass itself, but the process of its investigation³. It can be specified – not the process, but the purpose of investigation, since, in fact, the investigation is directed to the study of all the circumstances of the criminal events that took place.

In our view, an opinion of I. F. Pantieliev on that the notion of proof subject belongs to the theory of forensic evidence and reflects needed totality of the es-

¹ See: Криминалистика : учебник / отв. ред. Н. П. Яблоков. — 2-е изд., перераб. и доп. — М. : Юрист, 2001. — С. 491; Возгрин И. А. Криминалистические методики расследования преступлений / И. А. Возгрин // Курс криминалистики : в 3 т. Т. II. Криминалистическая методика: методика расследования преступлений против личности, общественной безопасности и общественного порядка / под ред. О. Н. Коршуновой и А. А. Степанова. — СПб. : Юрид. центр Пресс, 2004. — С. 81.

² See: Белкин Р. С. Курс криминалистики : учеб. пособие для вузов / Р. С. Белкин. — 3-е изд., доп. — М. : ЮНИТИ-ДАНА : Закон и право, 2001. — С. 746.

³ See: Макаренко Е. И. Особенности расследования квартирных краж, совершаемых группой лиц : автореф. дис. на соискание уч. степени канд. юрид. наук : 12.00.09 «Уголовный процесс и криминалистика» / Е. И. Макаренко. — М., 1985. — С. 17.

sential circumstances to be established in this criminal case, is equitable. The specific criminalistic characteristics of crimes is an implement of forensic aspect of teachings on crime and is a collection of forensically significant data on that group of crimes. Between them there is a relationship, similar to the relationship of the theory of evidence and teachings on crime, but it is in no way characterized by the ratio of the part and the whole, and, especially, as identity. The subject of proving is not an element of criminological characteristics of crime¹, the same position is adhered by other authors². The circumstances to be proved, are the necessary element in the structure of a technique of investigation of certain categories of crimes. Their definition provides the investigation with purposefulness, and their determination allows you to properly evaluate events, to ensure completeness and comprehensiveness of investigation³.

The criminal-procedural law provides a list of circumstances to be proved, which is common to all categories of crimes, including those which are related to fires. The list of circumstances to be proved, is defined by Art. 91 of the Criminal Procedural Code of Ukraine, which states that in criminal proceedings the following is subject to proof:

- 1) the event of a criminal offense (time, place, method and other circumstance of criminal offense commitment);
- 2) guilt of the accused in the commission of a criminal offense, the form of guilt, the motive and purpose of criminal offense commitment;
- 3) the type and amount of the damage caused by a criminal offense, as well as the amount of the procedural costs;
- 4) circumstances, which affect upon the degree of gravity of the criminal offense, characterize the personality of the accused, aggravate or mitigate punishment, which exclude criminal responsibility or are the basis for the closure of criminal proceedings;
- 5) circumstances, which are the grounds for exemption from criminal responsibility or punishment;
- 6) the circumstances confirming that money, valuables and other property that are subject to special confiscation, were obtained as a result of criminal offense

¹ See: *Пантелеев И. Ф.* Криминалистическая характеристика преступлений // Криминалистика : учебник / под ред. И. Ф. Пантелеева, Н. А. Селиванова. — М. : Юрид. лит., 1984. — С. 369.

² See: *Колесниченко А. Н.* Структура и содержание методики расследования отдельных видов преступлений / А. Н. Колесниченко // Сов. криминалистика. Методика расследования отдельных видов преступлений / [В. К. Лисиченко, В. И. Гончаренко, М. В. Салтевский и др.] ; под ред. В. К. Лисиченко. — К. : Выща шк., 1988. — С. 15; *Матусовський Г. А.* Загальні положення криміналістичної методики розслідування злочинів / Г. А. Матусовський // Криміналістика: Криміналістична тактика і методика розслідування злочинів : підручник для студ. юрид. вузів і ф-тів / за ред. В. Ю. Шепітька. — Х. : Право, 1998. — С. 43; *Порубов Н. И.* Общие положения криминалистической методики / Н. И. Порубов // Курс криминалистики / И. С. Андреев, Г. И. Грамович, Н. И. Порубов ; под ред. Н. И. Порубова. — Минск : Вышэйш. шк., 2000. — С. 181; *Тищенко В. В.* Корыстно-насильственные преступления: криминалистический анализ : монография. — Одесса : Юрид. лит., 2002. — С. 210.

³ See: *Тищенко В. В.* Indicated work. — С. 210.

commitment and/or are the proceeds of such property, or were administered (used) for the inducement of a person to commit a criminal offense, for financing and/or material support of criminal offense or remuneration for its commission, or are the subject of criminal offense, including the one, related to illegal circulation or were found, manufactured, fitted or used as a means or tools of criminal offense commitment;

7) the circumstances, which are the basis for applying measures of criminal legal character to the legal entities.

The content of crimes related to the occurrence of fires, has certain features due to the specifics of this type of crime. In particular, availability of the very fact of the fire and its harmful effects are almost always obvious, but the fire may have criminal nature and may not have it. The main point, which indicates on the criminality of the fire, is the cause of its occurrence

From a legal point of view, the fire is uncontrolled burning beyond the special center that has emerged as a result of illegal, criminally punishable action of the person as a result of which there have come socially dangerous consequences. These consequences include causing physical harm to life and health of people and/or destruction or damage to property.

It seems that, one should attribute such data, which characterize: the situation that preceded the fire, the circumstances of the fire emergence and growth, the situation that has developed after the fire, to the circumstances that characterize the fire event as a crime, besides those that are specified in item 1 of Art. 91 of the Criminal Procedural Code of Ukraine (place, time, etc.).

The situation, which preceded the fire, should contain the following information:

1. Fire-technical characteristics of the object, on which the fire occurred (it must contain description of features of constructive-planning decision on the object, including the degree of fire resistance, its area, number of floors, number and relative positions of the premises, placing of lighting and electrical power networks, location of the gas and water supply systems, ventilation and air conditioning systems, etc.). This information, as a rule, should be reflected in the protocol of place of incident examination and in the appendixes thereto.

2. The presence of combustible substances and materials located on the fire object and in the combustion zone, – these factors influence upon emergence, speed and direction of combustion propagation, therefore it is necessary to establish the placements of locations, the number, nature and condition of such substances and materials. This information may be reflected in the Record of search and in the appendixes thereto, clarified during interrogation of persons, who have a direct relation to this object, established by studying documents, characterizing technological process and other features of the object.

3. Peculiarities of the technological process on the object – these data should characterize placement, nature and conditions of exploitation of various technological equipment and systems, and their involvement in the cause of the fire. These data are recorded in the protocols of search and interrogation of persons who have a direct relation to the object, and is confirmed by remote documentation which characterizes the work of this or that installation and so forth.

4. The events and circumstances immediately preceding the fire emergence – these additional circumstances or events that took place immediately before the fire, and in combination with the previously developed circumstances, have led to the fire. They are more or less long-acting local factors.

In order to find out the reasons that caused the fire emergence and its effects, in other words, the entire totality of conditions and circumstances which resulted in the fire occurrence, and which determined the nature and sizes of its consequences, it is necessary, first of all, with maximum accuracy to become aware of the specifics of local conditions, order, lifestyles, that is, the existing situation on the object for the period of its functioning. Only then there will develop an objective view of actions (inaction) of those or other individuals, which led to the creation of fire hazard conditions, on events and circumstances that caused ignition¹.

The circumstances of fire occurrence and development characterize the origin, development and liquidation of fire should contain the following information on such elements:

1. Place of the fire. Issues related to the definition of the crime commitment scene, along with the geographical data (city, street, etc.) revealing location of the object on which the fire has occurred, should characterize the place of the original emergence of combustion – the seat of fire². The place of crime commission on the categories of cases under study is a place of the initial occurrence of the fire as the crime is not the fire itself as a natural phenomenon, but – the actions of those or other individuals, which caused the emergence of burning, that is, in fact, a crime occurs in that place, which later became a hotbed of fire. As marks B. V. Megorskyi, “the lack of the data on the seat of fire in the proceedings of investigation, as a rule, leads to false conclusions about the cause of its emergence”³.

2. Time of the fire. This element of the subject of proving during investigation fires has some features because the fire as a criminal event occupies a certain, usually fairly long period of time. For a more complete characterization of crime, in our opinion, it is necessary to establish not only the time of the fire, but in some cases, the time of fire detection, the arrival time of the first fire units, the time of its liquidation. In principle, it is possible more detailed ascertainment of the temporal characteristics, as in that case when the fire protection units moved out for the fire extinguishing, these data are recorded and stored at the point of firehouse communication.

3. Direct cause of the fire. The fire cause is one of the most important evidence, describing the guilt of a particular person and explaining the circumstances of the fire emergence. The cause of the fire allows you to qualify a criminal case on this or that article of the Criminal Code of Ukraine.

4. Modus operandi of crime. The method should be proved by factual data obtained as a result of carried out investigative actions, provided by the law, as

¹ See: Мегорский Б. В. Методика установления причин пожаров / Б. В. Мегорский. — М. : Стройиздат, 1966. — С. 60.

² See: Пожежна безпека. Терміни та визначення : ДСТУ 2272-2006. — К., 1993. — П. 17.

³ See: Мегорский Б. В. Indicated work. — С. 128.

the way of committing crime is of great importance to determine the degree of public danger of the act and the offender personality. In the process of proving the method of committing the crime related to the fire, it is necessary to clarify the following questions: a) mechanism of burning emergence; b) means of arson and the sources of their origin (if it was arson) c) any violation of the rules of fire safety or technical malfunctions, related to the cause of the fire emergence; d) means and conditions that were used for intensive burning. Besides the technical side, such data allow to clarify the mental attitude of the guilty to the event that took place, and to its consequences, and may influence upon the degree of guilt gravity (for example, was there a fact of preparation to commit a crime or not). According to these data, we can determine the true purpose and motives of the crime action.

The situation, that has developed after the fire, includes information about the state of the object, where the fire has occurred, and the elements of its situation (characteristics of consequences of the fire, the state of the materials and equipment or their residues).

The totality of information about the situation, that preceded the fire, the circumstances of its origin and development, as well as about the situation, that has developed after the fire, allow to solve a number of legal issues. In particular, the guilt of a particular person in the commission of the crime and motives of the crime. In the process of proving the following circumstances are subjected to clarification:

a) Did a particular person committed intentionally or negligently the act for which criminal liability is provided, and was there or not a causal link between the act and the occurrence of the fire, as well as with the consequences came;

b) because the discussed crimes are committed both intentionally and negligently, you need to establish data, characterizing the mental attitude of a person to the destruction or to the damage to the property by the fire and to causing other harmful effects;

c) existence of the cause and effect relationship between the action of the person, causes of fire emergence and came consequences. To do this, you need to study the behavior of the guilty during the period of the formation and after elimination of the fire, the motive and the purpose of the crime. It is not sufficient to specify the motif in a general form, but it is necessary clarify, what exactly were promptings of the guilty.

In addition, there are established circumstances, affecting upon the degree and nature of responsibility of the accused, as well as other circumstances, which characterize his personality. For the objectivity and completeness of the investigation of cases on fires, you should investigate, are there mitigating or aggravating circumstances.

Mitigating: voluntary compensation of the damage caused or elimination of the damage caused; commission of a crime as a result of confluence of complex or personal circumstances; commission of a crime under the influence of threat or coercion, or by virtue of material, service or other dependence; commission of a crime by a pregnant woman; sincere repentance or giving oneself

up, as well as active assistance in disclosing of crime and other circumstances, that might be considered as mitigating responsibility (Art. 66 of the Criminal Code of Ukraine).

When investigating criminal cases, related to fires, the circumstances to be established, have a number of common issues, that need to be revealed during the investigation of any fire. However, a variety of objects on which fires occur, of circumstances which characterize a criminal event, and other peculiarities of a particular fire determine features of tactical tasks of the investigation in accordance with this or other crime composition.

ОБСТОЯТЕЛЬСТВА, ПОДЛЕЖАЩИЕ ДОКАЗЫВАНИЮ В УГОЛОВНОМ ПРОИЗВОДСТВЕ ПРИ РАССЛЕДОВАНИИ ПРЕСТУПЛЕНИЙ, СВЯЗАННЫХ С ПОЖАРАМИ

Колесников В. В.

Исследованы обстоятельства, подлежащие доказыванию в уголовном производстве при расследовании преступлений, связанных с пожарами. Указано, что к обстоятельствам, которые характеризуют событие пожара как преступление, кроме общих (место, время и т. д.), необходимо отнести и такие данные: обстановку, предшествующую пожару; обстоятельства возникновения и развития пожара; обстановку, сложившаяся после пожара.

Ключевые слова: обстоятельства, подлежащие доказыванию; предмет доказывания, уголовное производство, расследование преступлений, преступления, связанные с пожарами.

ОБСТАВИНИ, ЯКІ ПІДЛЯГАЮТЬ ДОКАЗУВАННЮ В КРИМІНАЛЬНОМУ ПРОВАДЖЕННІ ПРИ РОЗСЛІДУВАННІ ЗЛОЧИНІВ, ПОВ'ЯЗАНИХ ІЗ ПОЖЕЖАМИ

Колесніков В. В.

Досліджено обставини, які підлягають доказуванню в кримінальному провадженні при розслідуванні злочинів, пов'язаних із пожежами. Зазначено, що до обставин, які характеризують подію пожежі як злочин, крім загальних (місце, час та ін.), необхідно віднести й такі дані: обстановку, яка передувала пожежі; обставини виникнення та розвитку пожежі; обстановку, що склалася після пожежі.

Ключові слова: обставини, які підлягають доказуванню; предмет доказування, кримінальне провадження, розслідування злочинів, злочини, пов'язані з пожежами.

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FEATURES OF CARRYING OUT INVESTIGATORY INSPECTION IN THE PROCESS OF CRIMINAL BANKRUPTCY INVESTIGATION

The purposes and tasks of investigatory inspection of documents during investigation of crimes related with criminal bankruptcy are considered. The methods of investigation of both separate and several documents in the process of conducting investigatory inspection are determined. Typical types of documents that are subject to inspection and preliminary investigation during investigation of criminal bankruptcy are noted.

Keywords: investigatory inspection, criminal bankruptcy, methods of research, debtor, intellectual forgery, material forgery, financial and business transaction, specialist-economist, accounting documents.

In the process of investigating crimes related to criminal bankruptcy, as a rule, inspection of documents is most commonly carried out, in which the features of the economic activities of the debtor enterprise, the probability of financial and economic operations, its assets and liabilities, and suchlike are reflected.

Investigatory inspection as a generic term is a direct detection and investigation of objects that are relevant to the criminal case, their characteristics, properties, condition and relative location¹. Investigation of documents is a type of inspection as a stipulated investigatory action, in connection with which the general procedure of inspections is applied to it, and his task follows from the general tasks of inspection.

Scientists-criminalists recognize that in the cases of economic crimes the material traces of the crime are mainly contained in documents². The basic aspect of the question under consideration is a general legal definition of the notion of the document, which means that the document (from the Latin *Dokumentum* – evidence, proof of something) – a material object in which information about any facts that have occurred or are predicted, is recorded. In the judicial-investigative practice we distinguish the following types of documents: 1) written (texts, figures and other records); 2) graphic (drawings, figures, diagrams); 3) photo-documents; 4) film-, video-documents; 5) phono-documents. By its procedural nature written documents may serve as a written and material evidence. Documents – written evidence that has importance for establishing truth

¹ See: Криміналістика : учебник для вузов / [Т. В. Аверьянова, Р. С. Белкин и др.]. — М. : НОРМА – ИНФРА, 1999. — С. 549.

² See: Білоус В. В. Проблеми методики розслідування фіктивного підприємництва : дис. ... канд. юрид. наук : 12.00.09 / Білоус Василь Васильович. — Х., 2004. — С. 140–146.

in the case only due to its content (for example, the expert's conclusion, certificate of audit, etc.¹.

Inspection and preliminary investigation of documents in the cases related to criminal bankruptcy are no less important than the examination of the scene of event in the cases on “ordinary” crimes, since they allow carrying out correct organization and planning of further investigation. We agree with S. S. Cherniavskiy that the evidentiary basis of the investigation is various documents: accounting, banking, regulatory, contractual, registration, etc., their specific weight in the structure of all evidence is very high. From all types of inspection, the review of documents is the most specific procedural action, since no other investigatory action can give the investigator as much evidence as an inspection of documents².

The overall objective of the investigatory inspection of documents is: to determine the amount of evidential information recorded in the documents themselves in order to establish the truth in the criminal proceedings; to establish one or another data recorded in the documents, and which may be subsequently compared with other information; to establish the necessary number of documents for their further use as the objects for research in the process of scheduling forensic expertise (technical examination of documents, handwriting, accounting). According to the legal nature documents are divided into real and fake, and by the source of origin – official (passport, identity card, reference) and unofficial (letter, notebook, etc.). In a forged document, the content or particulars do not correspond to reality. In this case, falsification is of two types – intellectual or material. The intellectual forgery consists in drawing up the document correct in form and making, but such a document contains deliberately false information. It is impossible to establish the fact of intellectual forgery with the help of forensic expertise. Material forgery involves changing the content of a document by entering false information into it or by making a counterfeit document (that is, a partial or complete forgery). Material forgery is revealed with the help of technical and forensic research of documents³.

Documents – written evidence are not the object of criminalistic research and can be replaced in the case with copies and duplicates. We agree that the methods of collecting documents as sources of evidentiary information within the framework of the general criminalistic operation “Document” is a temporary access to objects and documents, search, inspection, provision of documents by individuals and legal entities on their own initiative or at the request of investigative bodies⁴.

¹ See: *Шепітько В. Ю.* Криміналістика. Енциклопедичний словник (українсько-російський і російсько-український) / В. Ю. Шепітько ; за ред. В. Я. Тація. — Х. : Право, 2001. — С. 71.

² See: *Чернявський С. С.* Злочини у сфері банківського кредитування (проблеми розслідування та попередження) : навч. посібник / С. С. Чернявський. — К. : Юрінком Інтер, 2003. — С. 102.

³ See: *Криміналістика : підручник для студ. юрид. спец. вищ. закл. освіти* / [В. М. Глібо, А. Л. Дудніков, В. А. Журавель та ін.] ; за ред. В. Ю. Шепітька. — К.: Вид. Дім «Ін Юре», 2001. — С. 126.

⁴ See: *Чернявський С. С.* Indicated work. — С. 103.

Providing temporary access to subjects and documents allows only to withdraw the necessary documents, but, as a rule, only official documents (for example, financial statements, balances, incoming and outgoing invoices, acts of inventory and audits and other documents, reflecting the movement of a debtor's assets and liabilities). During conducting search, so-called "rough records", unofficial records (calculations between criminals), documents containing unreconciled corrections, forged documents and suchlike are suppressed. Review and preliminary examination of seized documents allow to establish their true meaning, scope and reliability of one or another financial-economic operation, to compare the data of unofficial accounting with the data of official accounting reports, to determine their admissibility as evidence.

In our opinion, the success of investigating crimes, related to criminal bankruptcy, depends to a large extent on the ability of the investigator to conduct inspection of documents with a high quality, to establish the facts of intellectual forgery and material forgery. The review of documents in the investigation of criminal bankruptcy is advisable to conduct on the basis of the principle from the general to the particular, that is, from the name, external form of the document to its requisites, to investigate carefully the part that has or may be relevant to the investigation. The title of the accounting document depends on the ongoing economic operation and allows you to obtain information on the activities of the enterprise, on changes in funds, caused by economic processes.

Analysis of the investigative practice shows that in the process of investigating crimes related to criminal bankruptcy, it is necessary to establish the actual financial condition of the debtor (bankrupt), namely: its financial status prior to filing an official bankruptcy petition; the reality of the ability to fulfill the demands of creditors; illegality (intentionality) of financial-economic transactions that worsened the financial solvency of the debtor (for example, the conclusion of knowingly unprofitable civil-law transactions); probability of drawing up documents on sustainable financial insolvency; illegality (legality) of property alienation or property transfer to another possession, facts of concealment of property and property obligations; facts of falsification of documents, reflecting the actual financial and economic activities of the enterprise.

We should agree with the scientists-criminalists that the tasks of investigatory inspection of documents, and this is fully applied to the category of criminal proceedings under research, include: 1) clarifying the nature and purpose of the document; 2) analysis of the external form and condition of the document; 3) studying the content of the document; 4) analysis of its requisites; 5) studying of the materials of documents; 6) disclosure of indications on forgery of the document. But, in our opinion, the review of documents in the investigation of criminal bankruptcy must be carried out not only by taking into account the tasks of criminalistic nature, but and the tasks of accounting records by using methods of financial and economic analysis. In general, inspection and preliminary study of a separate document (especially an accounting records document) is carried out by using the method of research of a separate document¹,

¹ See: *Камлик М. І. Судова бухгалтерія : підручник / М. І. Камлик. — К. : Атіка, 2000. — С. 66.*

namely: document verification by form, normative verification, arithmetic verification

So, in the process of examining documents of an economic nature, it is necessary to apply methods of documentary verification that are subdivided into certain types depending on the inconsistencies that arise, namely: a) methods for identifying various inconsistencies or contradictions in the content of a separate document where formal, arithmetical and normative verifications are used; b) methods for disclosing inconsistencies in the content of several interrelated (conjugated) documents are carried out by using two methods: counter-checking and mutual control. The method for research of a separate document is used to identify contradictions in the content of the document between the separate data recorded in it, and also to determine authenticity of the document (the presence of all necessary requisites).

Inspection of the document by the form covers checking for completeness and correctness of filling details characterizing qualitative and quantitative aspects of the business transaction. The presence of unreasonable corrections¹, forgeries of document² (erasures, additions, etches, etc.), authenticity of signatures of the respective officials and materially responsible persons is checked. Normative verification consists in comparing the actual data with the established normatives, estimates, tariffs, rates, contained in this document. At the same time, the investigator needs to find out how correctly the document reflect the financial and business transactions that are formalized, whether it contains internal contradictions. S. S. Cherniavskiy recommends that when examining a document from the point of view of the contradictoriness of its content, we should compare various parts of it, compare quantitative and qualitative values, and clarify the objective possibility and the reality of the transactions, reflected in it. Studying contents of the document consists in three elements: identification of possible contradictions between the content of the document and the generally known facts or facts, established in the criminal case; identification of possible contradictions between the content of separate elements of the document and the contradictions between the content of various documents reflecting one transaction; comparison of different copies of the same document³.

During arithmetic verification of the data of the document, the correctness of total indicators both on a horizontal and on a vertical is established. As a rule, criminals in advance plan the commission of the action of deliberate bringing enterprise to bankruptcy, therefore there are cases when the data, reflected in a separate accounting document, do not include any contradictions, and at first glance, has the form of official and legal conducting of the financial-commercial transaction. At the same time, the comparison of the data from several documents

¹ See: *Дубоносов Е. С. Судебная бухгалтерия : курс лекций + учеб.-метод. комплекс* / Е. С. Дубоносов, А. А. Петрухин. — М. : Книж. мир, Мос. УМВД, 2005. — С. 54.

² See: *Настільна книга слідчого : [наук.-практ. вид. для слідчих і дізнавачів]* / [М. І. Панов, В. Ю. Шепітько, В. О. Коновалова та ін.]. — К. : Вид. Дім «Ін Юре», 2003. — С. 36.

³ See: *Чернявський С. С. Indicated work.* — С. 107.

reflecting those or other commercial transactions, may lead to the identification of inconsistencies (contradictions). To identify such inconsistencies, the methods of studying several documents, reflecting interrelated commercial transactions, namely: methods of counter-checking and mutual control are used¹. Therefore, when examining documents in the investigation of crimes of the category under research, it is necessary to use the methods of not only comparison of the data from several documents reflecting certain economic transactions, but also the methods of comparing the data of different accounting systems – commercial accounting, current (intercompany), statistical².

When investigating crimes related to criminal bankruptcy, the following is subject to inspection and preliminary investigation by using the methods of comparison:

1. Registration documents – application, constituent contract, statute, minutes of general meetings, registration certificate, certificates confirming opening of business codes, state license for conducting certain types of economic activities.

2. Organizational and authorization documents of the debtor enterprise (orders, directions, register of shareholders, minutes of general meetings of shareholders and meetings of the board of directors, administrative bodies of management, audit commissions, job descriptions and functional duties of officials of the debtor enterprise, who are responsible for the realization of the illiquid business transaction (the head, the head of the credit department, economists, lawyers, etc.), official lists of the relevant employees of the enterprise (managers, technologists, economists, etc.) and the positions that they occupy.

3. Accounting documents (documents reflecting the receipt and delivery of commodities and materials, settlement documents, that is, documents reflecting the payment for shipped material assets to the enterprise-supplier, accounting data and data of current (intercompany) and statistical records, documents, reflecting alienation of the property of the debtor, and documents, reflecting calculation for this property, etc.).

4. Reporting documents of the enterprise (legal case of the enterprise): financial reports; tax declarations and payments calculations to the budget; forms of state and departmental statistical and accounting reports of the enterprise on sectoral and departmental characteristics.

5. Documents of the controlling bodies which exercised financial and economic control over the economic activities of the enterprise-debtor (acts of tax inspections, checkups, inventories, counter checks, audits, analytical references and other documents of control and inspection over the financial and economic activities of the enterprise).

6. Documents confirming the nature and mechanism of relations of the enterprise-borrower with other business entities to fulfill the terms of the loan agreement, commodity loan, the terms of the concluded contracts, documents confirming debtor receivables, information on the status of creditor indebtedness of the debtor.

¹ See: *Камлик М. И.* Indicated work. — С. 67.

² See: *Атанесян Г. А.* Судебная бухгалтерия : учебник / Г. А. Атанесян, С. П. Голубятников. — М. : Юрид. лит., 1989. — С. 35–36.

7. Documents, confirming legality of property alienation (assets of the debtor enterprise): a book of records of institutions; the bank's message on the provision of the mortgaged property for rent by the borrower; income and expense documents on the alienation of mortgaged property, inventory acts on discarded or damaged property, an act of liquidation of fixed assets with the description of the causes of liquidation and such like.

8. Documents reflecting the procedure for repayment of obligations by the debtor: order-prescription for the bank to mark off the funds from the borrower's account or a payment order to pay the debt; additional agreement on prolongation of the terms of the loan agreement and on the increase of interest rates for the loan in the case of failure to repay the loan (interest) on time; letters on the impossibility of fulfilling obligations, etc¹.

9. Documents reflecting the bankruptcy procedure in the court: a claim for non-payment of the debt with the delivery confirmation and other documents of the pre-arbitral settlement of the dispute; an application to the court to declare the borrower to be a bankrupt and other documents of the bankruptcy arbitration case; documents on declaring a debtor to be a bankrupt: court decisions, arbitration decisions on the recognition of the debtor to be a bankrupt, decision of the liquidation commission, list of creditors, established by the court².

10. Documents confirming the presence or absence the debtor property and funds that can be directed to meet the requirements of creditors.

Some of the listed documents, as a rule, turn out to be still in the process of operative-search activity and, upon condition of ensuring lawfulness and reliability of the collection they can become a source of evidence.

Prime importance belongs to the rough records, scraps of documents, broken or damaged documents on property or illegal transactions with property and the assets of the enterprise-debtor. It is necessary to carry out the seizure and inspection of these documents with the use of general recommendations for conducting a search and inspection of premises and the use along with the technical-criminalistic tools and techniques.

In our opinion, when conducting inspection and preliminary examination of documents during investigation of crimes related to criminal bankruptcy, it is necessary to involve relevant specialists, especially an accountant specialist. The participation of an specialist-economist in the review of documents is necessary when there is a need to determine: the essence and nature of the performed economic transactions; a list of documents the inspection of which is required and which are embedded in the chain of realized transactions; a list of documents which are available in counterparties concerning the operation under investigation; probability of filling document (by form – completeness and correctness of registration and filling requisites, by content – legality of the transaction and

¹ See: *Чернявський С. С.* Indicated work. — С. 175–178.

² See: Про затвердження Положення про порядок проведення досудової санації господарських товариств, у статутних фондах яких державна частка перевищує 25 відсотків, та державних підприємств, щодо яких прийнято рішення про приватизацію : наказ Фонду держ. майна України від 12.10.2001 № 1865 [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/z0936-01>.

logical linkage with individual indicators, by qualitative characteristics – good or poor-quality¹); relevant methods of preliminary investigation of the documents during conducting inspection (method for studying a single document, methods for studying several documents reflecting a certain economic transaction or interrelated operations, methods for studying accountant data that reflect the movement of congenerical property²), the place of storage of the source documents, their second copies and their copies.

Therefore, during investigation of the indicated category of criminal cases, documentation, that is large in amount and belongs to the category of accounting and reporting, is subjected to inspection and preliminary research. In this case, as the practice shows, it is necessary to examine in detail all received documents with the participation of a specialist-economist and indicate their titles, requisites and other features that characterize the latter as material evidence, although it is quite possible, that in the future only one single payment order, a cash payment voucher or another accounting document will have evidential value. As O. P. Bushchan correctly notes, “participation of a specialist-accountant, commodity expert, economist during the seizure, search, inspection is obligatory as a guarantee that all necessary documents relating criminal case will be seized, and the conditions for keeping material evidence should be provided”.

ОСОБЛИВОСТІ ПРОВЕДЕННЯ СЛІДЧОГО ОГЛЯДУ В ПРОЦЕСІ РОЗСЛІДУВАННЯ КРИМІНАЛЬНОГО БАНКРУТСТВА

Марушев А. Д.

Розглянуто цілі й завдання слідчого огляду документів при розслідуванні злочинів, пов'язаних із кримінальним банкрутством. Визначено методи дослідження як окремого, так і декількох документів у процесі проведення слідчого огляду. Зазначено типові види документів, що підлягають огляду й попередньому дослідженню при розслідуванні кримінального банкрутства.

Ключові слова: слідчий огляд, кримінальне банкрутство, методи дослідження, боржник, інтелектуальна підробка, матеріальний підлог, фінансово-господарська операція, спеціаліст-економіст, бухгалтерські документи.

ОСОБЕННОСТИ ПРОВЕДЕНИЯ СЛЕДСТВЕННОГО ОСМОТРА В ПРОЦЕССЕ РАССЛЕДОВАНИЯ КРИМИНАЛЬНОГО БАНКРУТСТВА

Марушев А. Д.

Рассмотрены цели и задачи следственного осмотра документов при расследовании преступлений, связанных с криминальным банкрутством. Определены методы исследования как отдельного, так и нескольких документов в процессе проведения следственного осмотра. Указаны типовые виды документов, подлежащие осмотру и предварительному исследованию при расследовании криминального банкрутства.

Ключевые слова: следственный осмотр, криминальное банкрутство, методы исследования, должник, интеллектуальная подделка, материальный подлог, финансово-хозяйственная операция, специалист-экономист, бухгалтерские документы.

¹ See: Камлик М. І. Indicated work. — С. 20.

² See: Ibid. — С. 66.

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INVESTIGATION ON DRIVING TO SUICIDE: ISSUES OF ORGANIZATION AND PLANNING

The notion and the attributes of the category “organization of investigation”, the interrelation of the notions “organization” and “planning of pre-trial investigation” are analyzed. On the basis of the provisions of the law, subordinate normative-legal acts and scientific positions of scientists-criminalists, the structure of the organization of the investigation of driving to suicide and its planning, as well as the form of a plan for such investigation, were proposed.

Keywords: organization of investigation, planning of investigation, driving to suicide, plan of carrying out pretrial investigation, version.

The general problems of organizing investigation are widely covered in criminalistic literature. There are different approaches to the notion “organization of investigation”. M. I. Porubov notes that if the organization of investigation has its own subject, goals, objectives, methodology, principles and sources, it has the right to exist as a separate scientific branch of law¹. O. M. Larin offers a general definition for this notion as a rational choice, arrangement of forces, tools, and means available to an investigator, creation and use of optimal conditions for achieving objectives of the proceedings². L. O. Soia-Serko refers the structure of the investigative machinery, investigative jurisdiction, supervision over investigation, a complex of rights and duties of the investigator and other persons participating in the investigation, material support for the work of investigators and their servicing, organization of their labor to the organization of the investigation³. V. O. Konovalova asserts that the organization of investigation is planning, choice of investigative actions and operative-investigative means measures, their combination, the specifics of solving intellectual problems, the use of scientific and technical means, and saving of procedural means⁴.

¹ See: *Порубов Н. И.* Полвека с криминалистикой против криминала: записки старого криминалиста / Н. И. Порубов. — Минск : Тесей, 2007. — С. 215.

² See: *Ларин А. М.* Расследование по уголовному делу. Планирование, организация / А. М. Ларин. — М. : Юрид. лит., 1970. — С. 59.

³ See: *Михайлов А. И.* Научная организация труда следователя / А. И. Михайлов, Л. А. Соя-Серко, А. Б. Соловьев. — М. : Юрид. лит., 1974. — С. 8, 9.

⁴ See: *Коновалова В. Е.* К вопросу о принципах научной организации следственной деятельности / В. Е. Коновалова // Вопросы государства и права. — М., 1970. — С. 340–341.

Relations and correspondence of the organization of investigation and criminalistic technique are considered differently by scientists-criminalists. Thus, M. P. Shalamov considers organization of investigation to the content of criminalistic technique as a whole, without identifying it as a structural element of this section of Criminalistics¹.

At the same time, in criminalistic literature the principles of organizing investigation are sufficiently deeply elucidated. The need for organization of the investigator's work at a high level is emphasized by L. M. Karnieieva and V. I. Kliuchanskyi who name local system and specialization to be the basic principles of organizing investigation². The principle of optimal organization of the investigative action as a qualitative preparation for it is considered by A. V. Dulov and P. D. Nesterenko³.

In our opinion, the most expedient is interpretation of the notion "organization of investigation" as development of the plan of activities of local criminal justice agencies, interaction in the process of pre-trial investigation (between the investigator, operative personnel, specialists, experts), clear division of the responsibilities between the participators of investigation, qualified management over investigative-operative team or brigade, meetings of the investigative team, exchange of information and reporting on the results of the work of the investigative team and each investigator, needed working conditions, development and realization of the investigation plan and other organizational arrangements for the successful disclosure and investigation of the crime.

On the basis of achievements of Criminalistics, the structure of the organization of the investigation of driving to suicide can be represented as follows: 1) organization of obtaining initial information, institution of criminal case; 2) definition and specification of the objectives and the subject of investigation and proof; 3) identification of forces and means to achieve the objectives of the investigation; 4) its planning; 5) creation of optimal conditions for investigative and other actions; 6) mobilization of the participants of the investigation for the qualitative fulfillment of their functions; 7) organization of investigative actions and tactical operations; 8) coordination of the actions of the participants of the investigation; 9) interaction between investigative bodies and officials who take part in pre-trial investigation; 10) organization of detection of a suspect; 11) control over the content, timeliness, activity and effectiveness of all participants of the investigation⁴.

According to Art. 25 of the Criminal Procedural Code of Ukraine, criminal justice bodies are obliged within their competence to initiate pre-trial investigation: a) in each case of direct detection of signs of a criminal offense; b) in the case of receipt of an application (report) on suicide (hanging, drowning, falling

¹ See: *Шаламов М. П.* Некоторые проблемы советской криминалистики : монография / М. П. Шаламов. — М. : Юрид. лит., 1965. — С. 31.

² See: *Карнеева Л. М.* Организация работы следователя : метод. пособие / Л. М. Карнеева, В. И. Ключанский. — М. : Госиздатюридлит, 1961. — 128 с.

³ See: *Дулов А. В.* Тактика следственных действий / А. В. Дулов, П. Д. Нестеренко. — Минск : Высш. шк., 1971. — С. 18.

⁴ See: *Ibid.* — С. 153.

from a height, etc.), detection of a corpse with signs of violent death; c) in the case of disappearance of a person in the presence of circumstances indicating on the possibility of bringing to suicide. The duty of the investigator is to take all the measures, provided by law, to establish the event of the criminal offense and the person who committed it. First, the following problems are solved: was there a suicide or has an accident occurred; is this a murder, faked as suicide, are there facts pointing to the signs of the offense under Art. 120 of the Criminal Code of Ukraine.

Proper organization and planning of the investigation of suicide leads to its rapid and effective uncovering, which affects upon the elimination of difficulties in the investigation. The results of our survey, conducted among investigators of the Ministry of Internal Affairs of Ukraine, show that 57.5% of them experience difficulties in their work. To the question posed: "Do you consider it is appropriate to organize an investigation of crimes on driving to suicide?" – the following answers were received: yes – 92.8% of respondents, no – 7.2%¹.

When organizing investigation of bringing to suicide, the following should be taken into account: 1) the existence of interaction between various law enforcement bodies and specialists²; 2) proper provision of the investigator (prosecutor) with organizational, technical, organizational-tactical and organizational-methodical means of investigation.

The features of investigators interaction belong to the weighty components of the investigation organization. In the criminalistic literature various aspects of this interaction are considered. The complexity of the methods of bringing to suicide used by criminals and the establishment of a causal link between the suicide of the victim and the actions of the offender cause the need to pay serious attention to the interaction of the investigators. This is also evidenced by the results of the survey, conducted by ourselves, of the investigators of the Ministry of Internal Affairs of Ukraine, who pointed to the need for a comprehensive (92.3%) organization of investigative actions, organizational, technical and operational-search activities, and only 6.8% of respondents are convinced that this should be done separately.

In the course of the questioning separate investigators of the Ministry of Internal Affairs of Ukraine provided practical suggestions on improving pre-trial investigation of this type of crime, namely: high-quality collection of the case materials, improvement of the interaction of investigative and operative services at the stage of collection of the material evidence, documentation during investigation of the criminal cases of this category will help to improve investigative activities in the investigation of bringing to suicide.

The results of generalization, carried by ourselves, of the criminal cases instituted under Art. 120 of the Criminal Code of Ukraine, showed that the inves-

¹ The questioning of investigators of the Ministry of Internal Affairs of Ukraine was carried out during the action of the Criminal Procedural Code of Ukraine of 1960.

² See: Про організацію діяльності органів досудового розслідування Міністерства внутрішніх справ України : наказ М-ва внутр. справ України від 09.08.2012 № 686 (зі змінами та допов.) [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/z1770-12>.

tigation was conducted solely by the investigator – in 97% of the cases, by the investigative-operative group – only 3%, was not conducted at all by the investigative brigade or various investigators. To the question posed: “Is the work of the investigative-operative group necessary in the investigation of driving to suicide?” – the following answers were received: in all cases – 85.5%; there is no need – 13.1%; it is required if there is sufficient data indicating to the fact and is possible in separate cases – only 1.4%. From the conducted survey of investigators of the Ministry of Internal Affairs of Ukraine, we made a conclusion about the expediency of carrying out an investigation of bringing to suicide by investigative and operative groups that is related with the need of realizing the system of search actions to identify the sources of information.

It should be noted that the problem of interaction of the investigator with knowledgeable persons in the pre-trial stage of the investigation of driving to suicide was paid with insufficient attention. The results of the survey, conducted by us, of the investigators of the Ministry of Internal Affairs of Ukraine show that 51% of respondents schedule forensic expertise when investigating a crime under Art. 120 of the Criminal Code of Ukraine. According to the results of the generalization, carried out by us, of the criminal cases on driving to suicide, it was concluded that the interrogation of the expert took place only in 6% of the cases. But in the investigation of these crimes namely timely appointed and conducted forensic-medical, forensic-psychiatric, forensic-psychological and criminalistic expertise play an important role.

In the organization of the investigation on driving to suicide, it is necessary to take into account proper provision of the investigator (prosecutor) with: a) organizational-technical means of investigation; b) organizational-tactical means of investigation; c) organizational-methodical means of investigation.

Organizational-technical support of the investigator in the investigation of the crime under consideration is finite. We believe that it is necessary to develop an algorithm for the use of scientific-technical means in typical situations on driving to suicide by various subjects of the criminal-procedural and operative-search activities. At the stage of preparation for conducting an investigative action, such organizational issues as involvement of specialists and operational staff, forms of interaction between them, and the provision with necessary scientific and technical means should be resolved.

The question of providing an investigator with organizational-tactical means of investigating the crime stipulated by Art. 120 of the Criminal Code of Ukraine, lies in the fact that this category of crimes requires solving specific tactical tasks. In particular, V. Ye. Kornoukhov names such tactical tasks: a) “excluding suicide as a kind of death” (the system of evidence obtained in the course of resolving this problem, disproves the suicide and does not allow the suspect to refer to the circumstances that justify him); b) “proving the method and the motive on driving to suicide”¹.

¹ See: Курс криминалистики : Особенная часть. Т. 1: Методика расследования насильственных и корыстно-насильственных преступлений / отв. ред. В. Е. Корноухов. — М. : Юристъ, 2001. — С. 349, 361.

The problem of providing the investigator with the organizational and methodological means of investigation driving to suicide is in the lack of proper methodological recommendations for investigating crimes of this category that could duly help the investigator.

Some aspects of investigation planning were considered by separate scientists-criminalists. Thus, they defined: the notion and content of planning, its principles, types, conditions, tasks, stages, forms, etc. V. I. Hromov, for example, regards planning as a theory of investigating crimes, formed on the theoretical foundations of Criminalistics. S. O. Holunskyi outlines the goals, conditions and principles of planning and emphasizes on its specifics during investigation of various categories of criminal cases and at various stages of planning. He suggests the interpretation of the notion "planning" as a complex of interrelated stages, where the first is the advancement of investigative versions, the second is definition the range of those questions that need to be clarified in order to verify the versions for each of the proposed versions; the third – a list of the range of investigative actions necessary to achieve contemplated issues, the fourth – definition of the dates of fulfillment of each of the estimated investigative actions¹. O. M. Vasyliiev determines the planning of investigation as a method of investigating crimes on the basis of scientific principles consisting of systematic and purposeful collecting of evidence by using modern tactical techniques and scientific-technical means². V. O. Konovalova defines the planning of investigation as the program of the latter that can be imaginary or have a certain form³.

S. O. Holunskyi also has made an attempt to formulate the principles of planning. The scientist refers the following to the principles of investigation planning: 1) when planning, we always should proceed from an assessment of the political significance of the crime and an analysis of the socio-political situation in which it was committed; 2) the plan should be made so as to ensure the speed of collection of the main evidential material; 3) the plan should provide for the collection of the material which would give the answer to the question of the heptamorous Roman formula; 4) the whole investigation can be divided into two main parts, which can be conditionally called a general and a special investigation (before and after indictment to a specific person).

Sufficiently interesting position concerning the principles of planning of the investigation was proposed by O. N. Kolesnychenko. The scientist attributed distinction, propriety, dynamism to them, where: a) the principle of distinction is elimination of the sample, drawing up a plan according to the circumstances of the crime with taking into account its separate characteristics in each case; b) the principle of propriety – planning should proceed from concrete evidentiary information substantiating the elements of the plan with specific data which is

¹ See: Криміналістика. Техніка і тактика розслідування преступлений / [Н. А. Бобров, А. И. Винберг, С. А. Голунский, В. И. Громов и др.] ; под ред. А. Я. Вышинского. — М. : Юрид. изд-во НКЮ СССР, 1938. — С. 329–337.

² See: Васильев А. Н. Планирование расследования преступлений / А. Н. Васильев, Г. Н. Мудьюгин, Н. А. Якубович ; под ред. С. А. Голунского. — М. : Юрид. лит., 1957. — 199 с.

³ See: Коновалова В. Е. К вопросу о принципах научной организации следственной деятельности. — С. 125–142.

available for the investigator. The propriety of the plan ensues from argumentativeness of the versions as a necessary prerequisite for planning¹.

Planning of investigation assumes formulation of the ways and methods of the latter, when the circumstances subjected to clarification in the criminal case, are being established, the system of investigative actions and operative-search measures, their content, sequence and dates of fulfillment are determined².

It should be stressed that the planning of the investigation on driving to suicide was not paid with sufficient attention by scientists-criminalists. From this point of view, it should consist from analysis and evaluation of source information in the existing investigative situation, development of versions and organization of their verification, identification of the circumstances to be established.

Drawing up an investigation plan covers planning the sequence of separate investigative actions and their planning. So, when preparing for such investigative actions as interrogation, search, an investigator (prosecutor) plans their conducting, choosing the optimal methods of fulfillment. The planning of the investigation penetrates the whole activity of the investigator, and at the same time it is its organizing core³.

Advancement and verification of versions plays a decisive role and forms the basis of planning. Development of the doctrine on the investigative (criminalistic) version began with the definition of the very notion of "version". Thus, O. M. Vasyliiev characterizes the investigative version as an inductive conclusion of the investigator in the form of an assumption, based on factual data on the event of a crime and its separate circumstances that are subjected to verification according to the logical deduction rules⁴. O. M. Larin considers an investigative version as an integral idea that is constructed with the aim of establishing objective truth in the case as an image, bearing the function of a model of the circumstances, created by the imagination, and contains an admissible estimate of the available data that become an explanation of the latter and are expressed in the form of hypothesis⁵. R. S. Bielkin formulated the criminalistic version as a reasonable assumption about a separate fact or a group of facts that have or may have significance in the case, point to the presence of these facts and explain their origin, interrelation and the content in order to establish the objective truth. Ya. Peshchak defines the notion "investigative version" as the investigator's assumption, that is a reasonable collected material about the forms of rela-

¹ See: *Колесниченко А. Н.* Научные и правовые основы расследования отдельных видов преступлений : автореф. дис. на соискание уч. степени д-ра юрид. наук : спец. 717 «Криминалистика» / А. Н. Колесниченко. — Х., 1967. — 21 с.

² See: *Шепитько В. Ю.* Indicated work. — С. 154.

³ See: *Хань Г. А.* Теоретичні засади планування та організації розслідування злочинів : автореф. дис. на здобуття наук. ступеня канд. юрид. наук : спец. 12.00.09 «Кримінальний процес та криміналістика; судова експертиза» / Г. А. Хань. — Х., 2007. — 20 с.

⁴ See: *Васильев А. Н.* Планирование следствия и разработка следственных версий / А. Н. Васильев // *Вопр. сов. криминалистики* (Рефераты всесоюз. науч. совещания по криминалистике). — Алма-Ата : Казах. гос. ун-т, 1959. — С. 17–26.

⁵ See: *Ларин А. М.* От следственной версии к истине / А. М. Ларин. — М., 1976. — С. 29–33.

tions and causes of the separate (or the whole) phenomena of the event under investigation, as one of the possible explanations of the facts and circumstances of the case established till this time¹. V. O. Konovalova considers the investigative version to be the most significant for resolving the problems of the investigation than the expert, judicial and investigative ones, meanwhile and the search and expert versions are the most extensional and combining by the nature².

Advancement of investigative versions by analogy during investigation of crimes may lead to positive results. Sources of analogy in the creation of the version may be: a) operative and investigative data on the detected crimes similar in composition and methods of their commission; b) operational and investigative materials on the same type of undetected crimes; c) general theoretical provisions that are based on the generalization of the investigative practice and which allow you to outline a certain number of versions on the specific category of cases; d) theoretical knowledge and personal experience of the investigator in the investigation of crimes. An analysis of the method of crime commitment takes on great importance here, because the method is also a clear side of the crime, in which one can quickly find an analogy³.

In criminalistic literature there are formulated tactical rules for the advancement of versions, their classification, their significance in the investigation of crimes, there is also noted their role as the main tool of criminalistic and procedural cognition. The problem of the criminalistic versions classification was considered by separate scientists-criminalists. Thus, R. S. Bielkin proposed the following classification of criminalistic versions: 1) by the subject of advancement – versions of investigators (their type – search), operatively-search, judicial, expert; 2) by scope – general and separate; 3) by the degree of certainty – typical and specific⁴. H. V. Artsyshevskiy divides investigative versions on: a) verifying – depending on whether at the time of their advancement there are the data which allow to suspect a particular person; b) search – if there is no such data; c) intermediate, final – depending on whether the investigator's proposed assumption covers all or part of the basic circumstances that are subjected to proof, etc⁵. The following is attributed to the classification of criminalistic versions by O. F. Rekhovskiy: by content (single), by the degree of concreteness (typical and specific), by the probability (low-probable and high-probable), by the degree of construction (the first priority and subsequent)⁶.

¹ See: *Пешак Я.* Следственные версии. Криминалистическое исследование / Я. Пешак. — М. : Прогресс, 1976. — С. 132.

² See: *Коновалова В. Е.* Версия : концепции и функции в судопроизводстве : монография / В. Е. Коновалова. — Х. : Изд. Н. Н. Вапнярчук, 2007. — С. 72–78.

³ See: *Коновалова В. Е.* О роли логики в построении следственных версий // Учен. записки. — Вып. 16: Вопросы уголов. права, уголов. процесса и криминалистики. — Х. : Харьк. юрид. ин-т, 1962. — С. 103–110.

⁴ See: *Белкин Р. С.* Indicated work. — С. 484, 493.

⁵ See: *Арцишевский Г. В.* Выдвижение и проверка следственных версий : монография / Г. В. Арцишевский. — М. : Юрид. лит., 1978. — С. 20.

⁶ See: *Реховский А. Ф.* Проблемы криминалистической версии : автореф. дис. на соискание уч. степени канд. юрид. наук : спец. 12.00.09 «Уголовный процесс;

Along with investigative (criminalistic) versions the scientists distinguish the typical ones which have a different nature of origin and the factual base of formation. O. V. Synchuk considers that typical versions occupy a special place because they arise on the basis of the data reflected in the criminalistic characteristics, that is used in the organization and planning of the investigation resulting in an optimal set of investigative actions and the optimal order of their fulfillment with the aim of influencing upon the emerging investigative situation ¹.

A typical version is an informational model in which positive knowledge based on observations and generalizations, are reflected, providing the most probable explanation of the crime event as a whole or its individual sided regarding particular investigative situations. Formation of typical versions may occur: a) in a traditional way – on the basis of the data of the generalized nature, including provisions of Criminalistics and the results of the judicial-investigative practice and b) innovative – on the basis of use of statistical research methods and primarily due to revealing and use of probabilistic and correlation links between the elements of the criminalistic characteristics of a particular type of crime.

The results of the survey, conducted by us, of the investigators of the Ministry of Internal Affairs establish that the investigative versions intrinsic to the investigation on driving to suicide may be as follows: 1) there was a driving to suicide (71.5%); 2) there was a suicide of the victim (41.2%); 3) an accident event has occurred (35.3%); 4) another crime was committed (24.9%); 5) a false statement was received and no crime has occurred (9%); 6) the version on the motive for the commission of the crime and the person, who drove a victim to suicide, and who was interested in the death of the victim (0.9%).

Versions on driving to suicide have their own specific features and can not cover only the traditional list of versions. Depending on the personality of the victim, personality of the offender, mechanism of the crime commitment, they may be modified. Data of source material analysis has a certain value for any version, which helps to form it. Thus, according to the elements of the criminalistic characteristics the investigative versions on driving to suicide may be divided into several types: 1) version on the essence of the event that has occurred; 2) versions towards the victim; 3) version towards the offender.

After determining possible versions in the case under investigation, the investigator (prosecutor) should draw up a written investigation plan. Its composition is the beginning of the investigator's organizational work on the case. During investigation, it is necessary to use the form of the written plan, which reflects: 1) investigative versions; 2) circumstances to be clarified; 3) investigative actions and operational-search activities; 4) dates of their fulfillment; 5) executors; 6) notes. The relationship between the victim and the suspect is the central issue of the investigation plan (an indication of the objective side of this crime is a

криміналістика, судова експертиза, оперативно-розшукова діяльність» / А. Ф. Реховский. — Свердловск, 1989. — С. 11.

¹ See: Синчук О. В. Типові версії в структурі криміналістичної методики : автореф. дис. на здобуття наук. ступеня канд. юрид. наук : спец. 12.00.09 «Кримінальний процес та криміналістика; судова експертиза; оперативно-розшукова діяльність» / О. В. Синчук. — Х., 2010. — С. 9.

suicide or a victim attempt on it and the establishing of a causal link between the actions of the guilty and the consequences that have occurred).

In the process of investigation on driving to suicide, one should proceed from the subject of proof in the criminal case. Let us further list the circumstances to be clarified in these cases: a) the circumstances of the crime event; b) the time, place and situation of the crime; c) the personality of the sufferer (victim); d) the personality of the offender; d) the mechanism on driving to suicide; e) the presence (absence) of indications to of staging; f) the method of committing suicide; g) the presence or the absence of a suicide note.

Thus, when organizing an investigation on driving to suicide, we must take into account: 1) the existence of interactions between various law enforcement agencies and specialists; 2) proper provision of the investigator (prosecutor) with organizational, technical, organizational-tactical and organizational-methodical means of investigation.

РОЗСЛІДУВАННЯ ДОВЕДЕННЯ ДО САМОГУБСТВА: ПИТАННЯ ОРГАНІЗАЦІЇ ТА ПЛАНУВАННЯ

Керик Л. І.

Проаналізовано поняття та ознаки категорії «організація розслідування», взаємозв'язок понять «організація» та «планування досудового розслідування». На підставі положень закону, підзаконних нормативно-правових актів і наукових позицій учених-криміналістів запропоновано структуру організації розслідування доведення до самогубства та його планування, а також форму плану такого розслідування.

Ключові слова: організація розслідування, планування розслідування, доведення до самогубства, план проведення досудового розслідування, версія.

РАССЛЕДОВАНИЕ ДОВЕДЕНИЯ ДО САМОУБИЙСТВА: ВОПРОСЫ ОРГАНИЗАЦИИ И ПЛАНИРОВАНИЯ

Керик Л. И.

Проанализированы понятие и признаки категории «организация расследования», взаимосвязь понятий «организация» и «планирование досудебного расследования». На основании положений закона, подзаконных нормативно-правовых актов и научных позиций ученых-криминалистов предложена структура организации расследования преступлений по доведению до самоубийства и его планирование, а также форма плана такого расследования.

Ключевые слова: организация расследования, планирование расследования, доведение до самоубийства, план проведения досудебного расследования, версия.

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MODELING CRIME EVENT DURING INTERROGATION OF WITNESSES

The process of modeling crime event during interrogation of witnesses is studied. The features of crime event reproduction by a witnesses and perception of it by an investigator during interrogation are considered. It is substantiated that the result of modeling crime composition is dependent on each participant of the investigative (search) action.

Keywords: criminalistic tactics, modeling crime event, interrogation of witnesses, process of forming witnesses testimonies.

As the investigative practice shows, a significant part of undetected crimes is conditioned by insufficient ability of the investigator to receive, detect, evaluate and use information that is informed by witnesses. Particularly important and psychologically difficult task is obtaining reliable testimonies, separating imprecise, incomplete, misrepresented or false information from them during conducting investigative (search) actions (especially interrogation) and modeling crime event on the basis of the received testimonies.

Separate problems of interrogation of witnesses have been the subject of research by such scientists as A. M. Aleksieiev, V. P. Bakhin, R. S. Bielkin, V. Ye. Bohinskyi, O. M. Vasyliiev, N. I. Havrylova, H. H. Dospulov, V. O. Konovalova, S. Ya. Rozenblit, V. Yu. Shepitko, M. L. Yakub and others, but some aspects of this problem have not been considered.

Therefore, the problems of modeling crime event at the stage of reproducing testimonies, in our opinion, require additional study.

In the psychology reproduction is defined as a process of memory which consists in actualization of the previously perceived material by “receiving” it from the long-term memory and transferring it to the operational one¹. Reproduction is a process that consists in the restoration and reconstruction of the actualized memory content. It is associated with mental actions which perform reconstruction of the reproduced material (changing of the plan, rearranging, reconstruction of the material, etc.). Due to the belongingness of modeling (reconstruction) to this process, it is impossible to interpret it only as a process of remembering apart from thinking, speech, human attitudes. In fact, a person never reproduces the content of the memory in the form in which it was remembered².

¹ See: Коновалова В. О. Юридична психологія : акад. курс : підруч. для студ. юрид. спец. вищ. навч. закл. / В. О. Коновалова, В. Ю. Шепітько. — К. : Ін Юре, 2004. — С. 212.

² See: Бедь В. В. Юридична психологія : навч. посібник / В. В. Бедь. — К. : Каравела ; Львів : Новий світ-2000, Магнолія плюс, 2003. — С. 60.

During interrogation, the witness informs not directly perceived information but his memories of the perceived, his mental model, what has been preserved in the memory¹. Reliable reproduction of such information is not limited only by the memory. In the formation and preservation of ideal traces all mental processes, states and properties of the personality are involved. Since the traces are in the mind of a person then you can only take information about them with the help of the thinking processes of the person who observed a definite event. A characteristic feature of the ideal traces is that during their reproduction there is no mirror image of what was happening but only an approximate reproduction of the phenomena, events, objects and their properties².

During reproduction, the previously perceived information is not only reflected but also is formed since the lingual formalization of the meaning content forms the content itself. Opinion is an integral part of the process of reproduction, specifying, generalizing, systematizing, reprocessing and reconstructing the content³.

Therefore, in the very essence of reproduction its reconstruction is included as a result of mental processing⁴. Reconstruction as a qualitative sign of reproduction is manifested in various forms (deductions and conclusions, various kinds of rearrangements, changes, etc.).

In its psychological nature, it is the result of an unwitting but directed work of thought within reproduction⁵. An essential feature of active reproduction is a conscious attitude to what is reproduced: reproduction is recognized by the subject through its relation to the past that he reproduces; hence the intent for the accuracy, for the correct, adequate presentation. Due to all this, reproduction is transformed into a conscious reconstruction of the past, in which an important role is played by mental activity, comparison, inference, verification. Memory and thinking that reproduce the past, are indirectly united by means of inferences in this process into one whole, interpenetrating into each other⁶.

Reproduction is an arbitrary, intentional restoration of images, often accompanied by involuntary, associative memories – the exclusion from the long-term memory of images of the past, which are mentally localized in time and space. Memories are always associated with certain experiences of one or other events, which bring subjective intrusions into the process of reproduction.

In his practice, the investigator inevitably deals with the phenomena of reconstruction and distortion of the reproduced material. At the same time, the in-

¹ See: Дулов А. В. Судебная психология : учебник / А. В. Дулов. — [2-е изд., испр. и доп.]. — Минск : Выш. шк., 1975. — С. 310.

² See: Берназ В. Д. Психические следы как объект исследования криминалистики / В. Д. Берназ // Актуальні проблеми держави та права. — 2003. — Вип. 20. — С. 110–114.

³ See: Суворова Л. А. Идеальные следы в криминалистике / Л. А. Суворова. — М. : Юрлитинформ, 2006. — С. 72.

⁴ See: Рубинштейн С. Л. Основы общей психологии / С. Л. Рубинштейн. — СПб. : Питер, 2005. — С. 278.

⁵ See: Ibid. — С. 280.

⁶ See: Ibid.

dividual reconstruction of the material while preserving and reproducing it, may manifest itself in: distortion of the content of the initial material; erroneous concretization, detailing; replacing of one content with another, similar content; unification of unmatched elements and separation of the related elements; displacement or transfer of individual elements of the initial event¹.

Obtaining reliable model of the crime composition during interrogation primarily depends on the mutual understanding between its participants. Psychologists distinguish empathy and reflection among the basic mechanisms of mutual understanding.

In general, the reflexive phenomenon has three main meanings:

1) philosophical and methodological reflexio – knowing, conceptualization by science of itself, its subject and method; 2) individual-psychological reflexio – self-knowledge, self-consciousness of a person. The investigator's high responsibility presupposes increased self-control, thoughtful decision-making, understanding of his personal capabilities, precise self-organization, and consequently, control of reflexion; 3) socio-psychological reflexio – staging yourself in the place of another person and reasoning for another person. Namely in this sense reflexion is used in judicial psychology².

Here are the results of questionnaires and interviews of investigators of the prosecutor's office, Ministry of Interior Affairs and Security Service of Ukraine – in their answers to the question: “What do you mean by reflexive control?” 23.2% of the respondents indicated that it is a two-way act of directed influence based on imitation of thinking and actions of the interrogated; 21.2% believe that this is a process in which the investigator puts himself into the place of the interrogated and, analyzing his actions, draws up conclusions from his own feelings; 2.8% noted another³. Thus, the results of questioning and interviewing investigators showed that a significant number of practitioners (21.2%) misunderstood the essence of the reflexive control. As M. I. Panov and V. Yu. Shepitko justly noted, the investigator should not imagine how he acted himself on the place of the criminal, but should, taking into account his psychophysiological features and social status, imagine his actions⁴.

During interrogation, an investigator should use reflexive thinking, that is, taking into account intellectual, emotional, volitional qualities, psychic features and states of the interrogated, to foresee the course of his thinking processes, final conclusions and decisions regarding future interrogation and those evidences, which, in the opinion of the interrogated, may be used by the investigator.

¹ See: *Лебедев И. Б.* Основы психологии для сотрудников правоохранительных органов : учеб. пособие / И. Б. Лебедев, В. Ф. Родин, В. Л. Цветков. — М. : Щит-М, 2005. — С. 405, 406.

² See: *Прикладная юридическая психология : учеб. пособие для вузов / под ред. А. М. Столяренко.* — М. : ЮНИТИ-ДАНА, 2001. — С. 469, 470.

³ See: *Колеснікова І. А.* Тактика виявлення та нейтралізації добросовісних помилок у показаннях свідків : монографія / І. А. Колеснікова ; за ред. В. Ю. Шепітька. — Х. : Вид. агенція «Апостиль», 2014. — С. 74, 75.

⁴ See: *Панов Н. И.* Рефлексивное управление при допросе / Н. И. Панов, В. Ю. Шепитько // Юрид. вестник. — 1999. — № 4. — С. 97.

Imitating, reproducing thinkings of the interrogated, his conclusions and a possible line of conduct during interrogation, the investigator chooses the most effective ways of using information and evidence which are available in the criminal proceedings¹.

Some scientists consider that the need for reflexive control arises when the purpose and tasks which were set by the investigator for the prospective interrogation, do not coincide with the goals and tasks of the interrogated². Given that reflexive thinking and control includes processes such as penetration of a person to the phenomenon of another's consciousness, cognition of it by a human and imaginary "modeling" of these phenomena³, it is observed necessary to assert that reflexive control also takes place in conflict-free situations during interrogation when the aims of the investigated and interrogated coincide and are aimed at establishing truth in the criminal proceedings, but due to the objective or subjective reasons, witnesses or other participants in the process give doubtful testimonies. In this regard, we propose to distinguish four situations of interrelation of the results of the reflexive thinking of the investigator and the interrogated: 1) the results of the reflexive thinking of the investigator and the interrogated do not correspond with each other's actions; 2) the investigator partially envisages the course of the thinking process of the interrogated; 3) the interrogated partially envisages the course of the investigator's thinking process; 4) the investigator and witness partially envisage the course of the thinking process of each other.

The process of reproduction during interrogation consists in expressing thoughts by an interrogated. The ability to express their thoughts (verbally or in writing) is individual for each person (the levels of intelligence, educational and cultural levels, language training, etc. are on importance). Emotional state of the interrogated, temperament and character, suggestibility, predisposition to fantasy influence upon the formation of evidences at the stage of reproduction. So, in the process of reproducing event, the interrogated person is in a certain psychic state (emotional tension, fear, frustration, etc.) which is required to take into account by the investigator during interrogation⁴.

Some scientists attribute the following to the psychological factors influencing upon reproduction of the event: 1) individual characteristics: a) the level of intellectual development; b) word stock; c) features of memory; 2) situation of interrogation: a) emotional state; b) presence of outmen in the cabinet, etc.⁵

¹ See: Криминалистика : учебник / под ред. Н. П. Яблокова. — [3-е изд., перераб. и доп.]. — М. : Юрист, 2007. — С. 490.

² See: Богинский В. Е. Система тактических приемов допроса подозреваемого : автореф. дис. на соискание уч. степени канд. юрид. наук : спец. 12.00.09 «Уголовный процесс; судоустройство; прокурорский надзор; криминалистика» / В. Е. Богинский. — Х., 1980. — С. 12.

³ See: Коновалова В. Е. Допрос: тактика и психология / В. Е. Коновалова. — Х. : Консум, 1999. — С. 18.

⁴ See: Коновалова В. О., Шенитько В. Ю. Indicated work. — С. 213.

⁵ See: Тимченко А. В. Прикладная психология в практике правоохранительной деятельности (в схемах и таблицах) : учеб. пособие / А. В. Тимченко, В. Е. Христенко. — Харьков : Одиссей, 2004. — С. 225.

A negative factor which disturbs in reliable reproduction of information, perceived at the scene of incident is the time that has elapsed from the moment of the criminal incident to the time of interrogation: the larger it is the greater is the probability of errors. Although due to the fact that a certain amount of time has elapsed since the moment of perception of the criminal incident event, reminiscence may occur during reproduction of the testimony. It can also be accompanied with good faith errors occurrence in the modeling of the crime scene on the part of the witness because of "fantastic layers".

In this case, memory distortions are associated with weakening ability to distinguish between one's own and another's, that, what the witness perceived in reality, and what he heard or read in the future. With multiple iteration of such memories, their complete personification arises when the witness naturally and organically considers other people's thoughts as his own, recalls the details of the incident which, in reality, were not perceived at the scene of incident¹.

Problems in the modeling of crime event by witnesses may also arise because of availability of mental illnesses felt by them. Thus, the mental activity of a patient with a pathopsychological syndrome is characterized by the following features: violation of selectivity in the selection of analytical and synthetic criteria for comparison, generalization, classification, concretization and abstraction. Mental activity is generally unproductive. There is a low rate and mobility of the associative process, or, conversely, too high rate of association, mentions to random attributes. The witness is almost incapable to use notions, to make deductions.

Patients with endogenous depressive syndrome demonstrate slow rate of thinking processes, is observed, their level of generalizations is observed to be lowered. Inertia of thinking, tendency to persevere are often manifested. Endogenous manic syndrome is characterized with accelerated type of thinking, and, as a result, there is an acceleration of associative processes. Thoughts are constantly changing, many ideas are emerging. Patients with oligophrenic pathopsychological syndrome demonstrate decrease in the level of generalization; disorder of the thinking dynamics due to the slowing down of the course of thinking operations, inertia; weakening of the motivational component of thinking; violation of thinking criticalness. Patients can not distinguish significant features and compare them. When comparing, attention is focused on random external features, and significant ones are ignored. Patients with endogenous-organic syndrome demonstrate decrease in the rate of the associative process, banality of associations; reduction in the level of generalization; tendency in detailing and perseveration².

Separate consideration requires the study of the features of modeling crime composition by underage witnesses since the criminal procedural law does not determine the age at which a child can stand as a witness in the criminal proceedings.

¹ See: Радугин А. А. Психология : учеб. пособие для высш. учеб. завед. / А. А. Радугин. — М. : Центр, 2001. — С. 164.

² See: Медицинская психология : конспект лекций / [сост. С. Л. Соловьева]. — М. ; СПб. : Сова, 2004. — С. 28–118.

Scientists have repeatedly stressed that an underage should be interrogated if the level of his mental development, in the opinion of a psychologist, allows him to perceive, remember and reproduce the data relevant to the criminal proceedings¹.

Ability of a person to express his own thoughts is particularly important in giving evidence. This ability for each person is individual and depends on his cultural level, intellect, vocabulary². Thus, a three-year-old child knows about 1000 words, most of which he understands but does not use in his own language. Some words are used not in their true meaning but in accordance with the family traditions, so the speech of underages directly depends on the family vocabulary. However, even with a high culture of speech, the difference between what the interrogated thought and what he told the investigator is possible³.

During reproduction of the perceived information the speech of the underages, including preschool age, does not form a single meaningful whole, so that it can be fully understood only on its basis. So, in his narrative, an underage or generally does not name an object which he means, or in most cases he replaces them with pronouns ("he", "she", "they"), and it is not clear to whom he refer to with these pronouns⁴. In addition, in the narrative underages use such words as "there", "thither", "this" which requires additional clarification on the part of the investigator⁵.

During interrogation in addition to the facts (actions) that were perceived by underage he/she can tell the phrases or individual words that were spoken by the criminal at the time of the crime commitment. In this case, the correct understanding of the content of the heard by the interrogated, as well as the exact delivering of it has vital importance for clarifying the circumstances of the criminal proceedings⁶. In some cases, the child can not reproduce the contents of what he has heard, although he can determine how it was said: calmly, rudely, menacingly⁷.

Juveniles have psychological characteristics that negatively affect upon the completeness and accuracy of the reflection of the circumjacent: the features of

¹ See: *Закатов А. А.* Психологические особенности тактики производства следственных действий с участием несовершеннолетних : учеб. пособие / А. А. Зака-тов. — Волгоград : ВШ МВД СССР, 1979. — С. 133.

² See: *Когутич І. І.* Криміналістика : курс лекцій / І. І. Когутич. — К. : Атіка, 2008. — С. 396.

³ See: *Руководство для следователей : учеб. пособие / Р. С. Белин, И. В. Виноградов, Г. Г. Зуйков и др.] ; отв. ред. В. В. Найденов, П. А. Олейник.* — [2-е изд., перераб.]. — М. : Юрид. лит., 1981. — Ч. 1. — С. 344.

⁴ See: *Вікова психологія / [за ред. Г. С. Костюка].* — К. : Рад. шк., 1976. — С. 120.

⁵ See: *Скичко О. Ю.* Тактико-психологические основы допроса несовершеннолетних свидетелей и потерпевших на предварительном следствии : монография / О. Ю. Скичко ; под ред. В. И. Комиссарова. — М. : Юрлиинформ, 2006. — С. 89.

⁶ See: *Алексеев А. М.* Психологические особенности показаний очевидцев / А. М. Алексеев. — М. : Юрид. лит., 1973. — С. 34, 36.

⁷ See: *Коченов М. М.* Психология малолетних свидетелей : метод. пособие / М. М. Коченов, Н. Р. Осипова. — М. : ВНИИПП, 1984. — С. 16.

his temperament and character, suggestibility and fantasy¹. The tendency to suggestive influence as one of the peculiarities of unsound mind of underages is explained by the absence of a critical attitude to the phenomena observed by them and sufficiency of the experience for their correct estimation. Sometimes a single push is sufficient to ensure that the fuzzy images, created by the imagination of the interrogated, unreal and void, were embodied in his consciousness into the facts that he tries in good faith to tell as a reality². Underages, trying to provide thorough testimonies to the essence of the posed questions, complete omission of perception and memorization with fantasy formations. Thus, the interrogated does not decide to name individual signs of the person, the subject that he saw in connection with the events with respect to the criminal offense, informs the investigator only with the species and generic features of this object, at the insistent suggestion of the investigator to name the specifying signs, can describe the individual signs prompted him by fantasy³. Children allow errors in assessing spatial parameters of objects (their dimensions, remoteness) and especially the time intervals⁴.

Testimony of witnesses is a double process of modeling crime: firstly, a certain fragment of the reality in the mind of the interrogated, and secondly, the received message about this event in the mind of the investigator, then it will be transferred to the protocol, that is, as a "reflection of what that has been reflected" It follows that adequacy of the testimony to the reality is directly dependent on both the mental activity of the witness (perception, memory, etc.) and on the activity of the person conducting the investigation⁵. So, the characteristic feature of the process of reproduction of the perceived information is that not only an interrogated person but also an investigator are involved in it. Hastiness, inattention, partiality of the investigator, interest in one version may prevent him from correct understanding, remembering and reproducing testimony in the interrogation report; correct modeling of the events of the crime during the conduct of the investigative (search) action.

The problem in the modeling of the crime event may arise from either one or the other part during interaction of the investigator and the interrogated. Communicative impact as a result of information exchange is possible only when the person, sending information (witness) and the person who perceives it (investigator) have a unified system of coding and decoding, this means: "everyone should speak the same language". Only assignment of the uniform system of words meanings (that is, embedding of the same meaning and content) ensures that parties can understand each other. Since people may disclose the essence of the same

¹ See: Коновалова В. О., Шенітько В. Ю. Indicated work. — С. 187.

² See: Винберг А. И. Криминалистика : учеб. для юрид. шк. / А. И. Винберг, Б. М. Шавер. — [IV изд., доп.]. — М. : Госюриздат, 1950. — С. 174.

³ See: Черных Э. А. Психологические основы допроса несовершеннолетних свидетелей и предъявления им для опознания на предварительном следствии / Э. А. Черных // Учен. зап. — М. : ВЮЗИ, 1968. — Ч. 1. — Вып. XVII. — С. 71.

⁴ See: Скичко О. Ю. Indicated work. — С. 91.

⁵ See: Как избежать пытки: психология допроса и защита граждан / авт.-сост. П. Баренбойм. — [4-е изд., стереотип.]. — М. : Юстицинформ, 2004. — С. 38.

words in different ways (the reason is in the specifics of the social situation, political or age views of the parties)¹, this will cause the appearance of bona fide errors on the part of the witness in understanding the questions and on the part of the investigator when assessing testimony.

The desire and the need for you to be understood correctly require the investigator ability to speak the language available to the interlocutor. This can be expected in having large vocabulary, possessing ability to adapt his language to the topic which is being discussed and to the intellectual level of the interlocutor. It is always necessary to think about how the question will be perceived, to check it during interrogation, to achieve the full mutual understanding².

Errors in modeling crime event on the part of the investigator may also arise when witnesses' testimonies are registered. The process of drawing up a protocol is of great importance for establishing reliable information in the criminal proceedings although in practice its psychological complexity is often underestimated. This process is regulated by the general requirements to the protocols of investigative actions, and the psychological feature is that conversions of oral speech into written ones are usually performed not directly by a witnessed but indirectly: the interrogated oral message is reinterpreted by the investigator, related with information obtained from other sources, highlighting the data which are important for the criminal proceedings, then they are presented in writing on behalf of the witness in the first person, although recorded "as told to", that were primarily addressed to the person, being conducting interrogation. So, the danger lies in the fact that the investigator can incorrectly and inaccurately render the information to the protocol which were well understood in the verbal communication³.

Such typical drawbacks may be distinguished in the interrogation protocol as a way of recording verbal information: 1) the protocol does not reflect the details of the dynamic tactical-logical and emotional state of the participants in the investigative action; 2) incompletely reflects the level of literacy, the nature of commanding language, communication techniques by the participants and the like; 3) it is voided of the visibility and dynamism of the picture of the investigative action⁴. M. P. Yablokov rightly notes that with the aim of the most complete and accurate registration of the testimony, it is necessary to conduct interrogation on individual episodes, stages, in addition audio and video recording (filming) helps to avoid misrepresentations and losses of information during interrogation and procedural registration of its results⁵. Sound recording allows you to analyze not only the facts reported by the interrogated, but also the conditions, methods and means of obtaining such information. Listening to the phonogram makes it possible to verify what the interrogated said, how he was talking, in reply to which content and form of the question a certain statement has followed. Therefore, it allows us to evaluate the event of the crime which was modeled during investigative (search) action.

¹ See: *Радугин А. А.* Indicated work. — С. 16.

² Как избежать пытки: психология допроса и защита граждан. — С. 25.

³ See: *Ibid.* — С. 39, 40.

⁴ See: *Суворова Л. А.* Indicated work. — С. 134, 135.

⁵ See: *Криминалистика : учебник / под ред. Н. П. Яблокова.* — С. 517.

After the interrogation is completed, the recorded phonogram should be provided to the interrogated for listening, which will help to revive additional details of the event in the witness's memory which he forgot to inform, or to reveal false statements about the event by the interrogated himself, which turn around the content of the testimony, and, accordingly, promptly correct them¹ and to create a reliable model of the criminal offense.

Summarizing the above, we note that for successful modeling of the crime event during interrogation, it is necessary to take into account the peculiarities of the intrusions appearance in the testimonies of the interrogated at the stage of reproduction, which directly depend on: 1) temperament, character, age characteristics of the witness and other individual psychological traits; 2) his vocabulary; 3) the level of intellectual development; 4) memory features of the interrogated; 5) psychic state of the witness during interrogation (emotional tension, fear, etc.); 6) time that has elapsed since occurrence of the criminal offense to the reproduction of the perceived information during interrogation; 7) pathological defects of the psychics of the interrogated.

МОДЕЛЮВАННЯ ПОДІЇ ЗЛОЧИНУ ПІД ЧАС ДОПИТУ СВІДКІВ

Колеснікова І. А.

Досліджено процес моделювання події злочину під час допиту свідків. Розглянуто особливості відтворення події злочину свідком та сприйняття її слідчим під час допиту. Обґрунтовано, що результат моделювання події злочину залежить від кожного учасника слідчої (розшукової) дії.

Ключові слова: криміналістична тактика, моделювання події злочину, допит свідків, процес формування показань свідків.

МОДЕЛИРОВАНИЕ СОБЫТИЯ ПРЕСТУПЛЕНИЯ ВО ВРЕМЯ ДОПРОСА СВИДЕТЕЛЕЙ

Колесникова И. А.

Исследован процесс моделирования события преступления во время допроса свидетелей. Рассмотрены особенности воспроизведения события преступления свидетелем и восприятия его следователем во время допроса. Обосновано, что результат моделирования события преступления зависит от каждого участника следственного (розыскного) действия.

Ключевые слова: криминалистическая тактика, моделирование события преступления, допрос свидетелей, процесс формирования показаний свидетелей.

¹ See: Скичко О. Ю. Indicated work. — С. 89.

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INNOVATIVE DIRECTIONS OF MODELING PERSONALITY OF UNKNOWN CRIMINAL IN THE ACTIVITY OF CRIMINAL JUSTICE AUTHORITIES

The innovative directions of modeling personality of an unknown criminal are considered. An attempt was made to clarify the essence of such innovative directions, used in the activities of criminal justice authorities. The theoretical foundations of the use of innovative approaches in the modeling of the person of an unknown criminal in the activities of the criminal justice authorities are determined.

Keywords: modeling of personality of an unknown criminal, psychological profile, forensic psychological examination, DNA analysis, forensic genetic examination.

Socio-economic transformations, taking place in Ukraine, require carrying out scientific researches aimed at formation of innovative foundations for the criminalistic provision of the activity of criminal justice authorities. Counteraction to crimes in a great extent depends on the level of development of researches in the field of criminal law, as well as on the possibility of using modeling method in establishing personality of an unknown criminal and preventing from continuation of his criminal activities.

The method of modeling in the activity of criminal justice authorities is used when direct investigation of facts is impossible. It presents a process of constructing and studying objects, phenomena, actions or events in order to establish the causes of their origin and existence, relations between them, and also provides the relevant subject with the opportunity to select and realize acceptable techniques for constructing certain models during investigation of the criminal offense.

Thus, the modern direction in modeling of an unknown criminal personality is the use of psychological knowledge to construct an ideal (mental) model of such a person. In this case, the use of psychology data in the construction of the model of an unknown criminal personality is possible in two cases: 1) when conducting out-expert psychological researches; and 2) during carrying out forensic psychological expertise.

Modeling personality of an unknown criminal in the course of psychological researches is the construction of an ideal model by a specialist-psychologist or forensic expert-psychologist which reveals his psychological properties, explains the nature of the behavior, illuminates such characteristics that reflect the attitude of the personality of an unknown criminal to the actions (inaction),

performed by him, to the encirclement and to himself during the crime commitment, as well as before and after its commitment.

Modeling personality of an unknown criminal in the conduct of out-expert psychological researches is characterized as a contactless psychodiagnosis of the criminal, the result of which is the creation of a model of the personality of an unknown criminal, that should be reflected as a psychological profile¹. There are separate stages in constructing model of an unknown criminal personality, among which we define:

1) general assessment of crime. At this stage, the criminological and criminological characteristics of the committed crime are provided, specific data on it are compared with the accumulated information on the similar crimes², and there are also analyzed previously committed (detected and undetected) similar crimes in order to reveal the signs of seriality;

2) comprehensive assessment of the characteristics of the place where the crime was committed ("crime scenes"). Such an investigative action as the inspection of the scene is important at this stage, in some cases – a corpse, that is conducted under the general rules provided by the applicable criminal procedural legislation. Lawyers point out to the special importance of photomapping and video recording³, annexes to the protocol of such inspection – the plans and schemes of the terrain and the corpse location. We also stress that it is desirable for the person involved as a specialist in drawing-up a psychological profile to be present during the inspection of the place of event.

In the absence of such an opportunity, the specialist is provided with the necessary materials of the criminal proceedings (necessarily with the photos and video recordings of the scene of incident) with the purpose of detailed study and revealing information important for drawing up a psychological profile. Experienced specialists in creating a psychological profile when examining a corpse may previously provide information on the attitude of the offender to the victim (sufferer) on the pose of the corpse: hate to the victim, contrition, jealousy and so forth;

3) a comprehensive analysis of the personality of the victim (sufferer). Such an analysis should be carried out taking into account victimological aspects and be based on the information on his personality traits, properties, characteristics.

¹ See: *Алексейчук В. І. Огляд місця події : тактика і психологія : монографія* / В. І. Алексейчук. — Х. : Вид. агенція «Апостіль», 2011. — 232 с.; *Боков С. Н. Использование психологического портрета при раскрытии и расследовании преступлений* / С. Н. Боков // 50 лет в криминалистике. К 80-летию со дня рождения Р. С. Белкина : материалы междунар. науч. конф. — Воронеж, 2002. — С. 55–58; *Шепітько В. Ю. Соціально-психологічні характеристики особи злочинця в криміналістиці: проблеми використання типології та можливостей моделювання* / В. Ю. Шепітько // *Вибрані твори / Избранные труды*. — Х. : Вид. агенція «Апостіль», 2010. — С. 548–556.

² See: *Боков С. Н. О психолого-криминалистическом портрете преступника* / С. Н. Боков // *Воронежские криминалистические чтения* : сб. науч. тр. — Воронеж : Изд-во Воронеж. гос. ун-та, 2003. — Вып. 4. — С. 79.

³ See: *Образцов В. А. Выявление и изобличение преступника* / В. А. Образцов. — М. : Юрист, 1997. — С. 256.

In the process of the analysis of the victim (sufferer) personality we should take into account his gender, age, education, place of work, position held, all places of residences, studies, recreation, characteristics of family ties, circle of acquaintances and friends, physical description (considerable attention is paid to appearance and clothing), marital status, financial status, physical and mental health, the use of alcohol, toxic or narcotic substances for non-medical purposes, personal interests, changes in lifestyle¹. Such a detailed analysis of the information about the victim is necessary to advance versions of the motives of an unknown criminal and his possible future victim²;

4) evaluation of the results of investigative actions and operational-search activities. At the stage under research, there is occurred an evaluation of the collected information obtained during interrogation of witnesses, eyewitnesses, in some cases sufferers, results of conducting special expert studies. It is considered that the evaluation of the results of investigative and operative-search actions is based on the availability of the maximum possible information on investigated crime in the officials of criminal justice authorities³;

5) evaluation of the conclusions of forensic-medical and other types of expertise. At this stage particular importance belongs to the analysis of the conclusion of the forensic-medical examination of the corpse, as well as the results of additional laboratory (chemical, biological) studies, since during the investigation of the corpse at the place of its detection the actual data on injuries are established and can be directly observed.

Conducting forensic-medical examination helps to determine the time and cause of death, allows establishing tools and methods of killing. The study of such bodily injuries may contribute to establishing sex of the killer, his profession, professional habits, and skills. In some cases localization of infliction of bodily injuries may provide additional information about the attitude of an unknown criminal to the victim;

6) development of the psychological profile of an unknown criminal with the identification of the main individual psychological characteristics, which is carried out with the purpose to limit the circle of suspects. This stage involves drawing up psychological profile by a specialist (or by a group of specialists). On the basis on the analysis of the criminal proceeding materials, their own observations (in the case of involvement of a specialist when inspecting the scene of an incident or other investigative actions) the data, characterizing the offender personality are identified. The most common information that can enter into the structure of the psychological profile are: a) general description of an unknown criminal and the dominant motivations of his behavior; b) individual features of this person (habits, inclinations, skills, etc.); c) age of an unknown criminal; d) area of residence; district of the place of work, service, study; f) description of the place of

¹ See: *Боков С. Н.* О психолого-криминалистическом портрете преступника. — С. 79–80.

² See: *Баронін А. С.* Психологічний профіль вбивць : посіб. з кримін. психол. та криміналістики / А. С. Баронін. — К. : Вид. ПАЛИВОДА А. В., 2001. — С. 21.

³ See: *Боков С. Н.* О психолого-криминалистическом портрете преступника. — С. 80–81.

probable staying; g) level of education and professional qualifications; h) type of occupation; i) features of origin, immediate environment and personal life; j) marital status; k) presence or absence of children; l) attitude towards certain types of activity (service in the army, sports, work with children, etc.); m) presence of previous convictions; n) presence of mental or other pathologies; o) anthropological and dynamic characteristics of the person (type of appearance, physique, mimicry, etc.)¹;

7) proposals and recommendations for the criminal justice authorities based on the creation of a psychological profile². The use at this stage of such methods as analysis and synthesis is an important integral part since in order to identify the basic psychological (in particular, behavioral) characteristics of an unknown criminal, the existing information about the crime and the person of an unknown criminal should be divided into separate components, detailed studied and comprehended.

Creation of a psychological profile during out-expert psychological researches involves construction of an ideal model of the personality of an unknown criminal which makes it possible to clarify: 1) the motives of criminal behavior (committing criminal offense, that is, satisfaction by the criminal of his needs) – hostility, revenge, self-interest, etc.; 2) intellectual abilities of an unknown criminal personality; 3) volitional properties of an unknown offender personality (strong-willed, decided, lacking initiative); 4) aggressiveness; 5) spontaneity in the process of committing criminal offense. At the same time, the peculiarity of out-expert psychological researches is that they are conducted within the framework of a specific criminal procedure before scheduling forensic expertise. In this case in the opinion of V. Yu. Shepitko in the course of carrying out investigative inspection and other investigative actions it is advisable to invite the specialists in the field of psychology in order to create a psychological profile of an unknown criminal personality which will be an ideal model, constructed by a specialist, and a well-grounded “hypothesis” in respect of the person who committed the crime³.

Another new direction in modeling personality of an unknown criminal is the use of the results of forensic genetic examination (DNA analysis data). Unlike the construction of ideal (mental) models which are created with the help of information of psychological nature, the model of the personality of an unknown criminal is built on the basis of information obtained from traces of a person of biological origin at the crime scene.

It is believed that the information obtained in the course of investigation of objects of biological origin (molecular genetic identification analysis which is carried out within the framework of forensic genetic examination) is the most

¹ See: Папкин А. И. Психологический портрет преступника: понятие, виды, методика составления / А. И. Папкин, А. И. Анфиногенов // Право и юрид. психология. — М., 1995. — № 1. — С. 6–14.

² See: Боков С. Н. Использование психологического портрета при раскрытии и расследовании преступлений. — С. 55–58.

³ See: Шепитько В. Ю. Проблемы использования специальных психологических знаний в следственной деятельности / В. Ю. Шепитько // Вибрані твори / Избранные труды. — Х. : Вид. агенція «Апостіль», 2010. — С. 506.

accurate in the evidentiary value. In particular, the objects of genetic material (DNA), as I. M. Horbulynska notes, are any excretions of the human body or the parts of his tissues and organs. The sources of DNA include: biological fluids (blood, semen, saliva, etc.) in the liquid state or in the form of spots on various objects; hair; fragments of tissues of a human body (skin elements, muscle fragments, separate bones and their fragments, teeth), etc¹. It should be noted that modern methods of investigating traces of biological origin are also aimed at identifying and extraction fat and scent traces.

The most effective way to model an unknown criminal person is the use of information obtained when performing genetic research in the investigation of serial killings and serial rape-murders, especially those that have been committed for a long time.

Some scientists note that proper systematization of consideration of information on such crimes and provision of access to it for search and operative staff at any time is important herewith. In such consideration it is advisable to include information on earlier studies and expertise, as well as their results. In this case, access to such databases should also be available to the employees of expert services, forensic medical examination².

Let us note that the task of forensic genetic examination is not only identification of the source of origin of biological traces but also comparative analysis and establishment of relations between objects of biological origin seized during inspection of various crime scenes. During performance of forensic genetic examination there are studied specific genetic markers (polymorphic DNA loci), information about which should be recorded and systematized in criminalistic registrations for further use by means of comparative analysis in the investigation of crimes.

The peculiarity of performance of forensic genetic examination is that such studies can be carried out with a minimum amount of human biological material. As some scientists have noted, criminals are predominantly trying to destroy the traces of their presence at the scene (for example, they wash the traces of blood with water, burn or wash clothes with traces of blood, etc.); the bodies of victims from violence are detected after a considerable period of time from the moment of disappearance, which reduces the possibility of identifying biological material suitable for research (for example, destruction of blood traces due to putrefactive processes of the soft tissues of a corpse, etc.)³. In this connection D. O. Umanskyi

¹ See: Горбулинская И. Н. Особенности назначения и производства судебно-медицинской экспертизы вещественных доказательств биологического происхождения при расследовании преступлений / И. Н. Горбулинская // Известия Алтайского гос. ун-та. — 2007. — Вып. 2(54). — С. 40.

² See: Бахин В. П. Систематизация сведений о серийных сексуальных преступлениях как условие их эффективного раскрытия / В. П. Бахин, С. С. Чернявский, Е. В. Александренко // Вісн. криміналістики. — 2011. — № 1(15). — С. 9.

³ See: Горбулинская И. Н. Indicated work. — С. 40; Дяченко Н. М. Основні етапи розвитку молекулярно-генетичної експертизи в державному науково-дослідному експертно-криміналістичному центрі МВС України / Н. М. Дяченко // Криміналіст. вісн. — 2011. — № 1(15). — С. 166.

points out that “in most cases when committing unlawful actions, the microscopic traces of the victim’s blood are kept on the clothes and shoes of criminals, on the objects with which they beat, and on the contrary – the micro-traces of the criminal’s blood remain on the victim’s belongings. The search should be carried out in specific places, and such micro-traces should be seized by special methods with using special techniques. Most often, micro-traces of blood are localized in places that are difficult to clean or wash: on the seams, laps of pockets, clasps, under buttonholes, on the inner surface of the cuff; on shoes – on relief elements of the sole, inner side of laces, rings, buckles, seams”¹.

Conducting a molecular-genetic examination makes it possible to establish “belongingness of traces of biological origin to a particular person with a high degree of probability; belongingness of traces to a particular person from different places of the incident; the presence of biological traces of each participant of the event in the cases when traces are formed by mixing; identity of residues in the cases of dismemberment of a corpse; identification of victims of disasters when close relatives are alive”².

It should be noted that detection of even a small spot of blood allows carrying out genetic researches aimed at identifying a person. So, the results of the study of sperm DNA, which is found on the victim, his clothes, allow one to get categorical conclusions about commitment of a group of murders by the same person. At the same time, comparative analysis of genetic information from the scene of incidence with the data contained in automated information databases makes it possible to draw the following conclusions: to establish a single source of origin of biological traces and objects from places of undetected committed murders; to perform identification of the personality of a criminal by biological traces found during the inspection of the place of incidence; to identify the person of unidentified corpses. The principle of search should be based on a cross-comparison of DNA profiles between all banks of DNA data³.

Some scientists note that “the possibilities of molecular-genetic expertise in uncovering and investigation of crimes are extremely high. The generalization of world scientific information allows us to conclude that in the future it will be possible to establish phenotypical personality characteristics (growth, color of eyes and hair, etc.) according to the specific DNA profile that which may be especially important for preliminary investigation”⁴.

However, among the problems of using DNA information databases to establish and identify the personality of an unknown criminal, the questions about the lack of regulatory provision and regulation of the formation and functioning of such databases remain unsolved. Thus, creation of a computer data bank on the established DNA profiles of biological material which are seized from the crime scene (mainly they are murders and sexual assassination), provides establishment

¹ See: Уманський Д. О. Судово-медична ідентифікація особи за допомогою дослідження геномної ДНК у цитологічних препаратах, приготовлених з мікрослідів крові / Д. О. Уманський // Укр. мед. альманах. — 2012. — Т. 15, №4. — С. 101.

² See: Дяченко Н. М. Indicated work. — С. 169.

³ See: Горбулинская И. Н. Indicated work. — С. 40, 42.

⁴ See: Дяченко Н. М. Indicated work. — С. 169.

of the departmental assignment of such information systems, the qualifications of persons entitled to conduct DNA research and formation of such systems, establishing the circle of persons entitled to access such information, their rights and responsibilities.

Thus, as of today, modeling is an effective and perspective method for investigating crimes. The use of this method by the criminal justice authorities when establishing personality of an unknown criminal promotes not only to the determination of his psychological characteristics, motives, but also biological and anatomical features. Systematization and matching data on such a person makes it possible to put forward versions, determine the circle of suspects and the alleged victims of the next crime, its geographical location.

ІННОВАЦІЙНІ НАПРЯМИ МОДЕЛЮВАННЯ ОСОБИ НЕВІДОМОГО ЗЛОЧИНЦЯ В ДІЯЛЬНОСТІ ОРГАНІВ КРИМІНАЛЬНОЇ ЮСТИЦІЇ

Гетьман Г. М.

Розглянуто інноваційні напрями моделювання особи невідомого злочинця. Здійснено спробу з'ясувати сутність таких інноваційних напрямів, що використовуються в діяльності органів кримінальної юстиції. Визначено теоретичні засади використання інноваційних підходів під час моделювання особи невідомого злочинця в діяльності органів кримінальної юстиції.

Ключові слова: моделювання особи невідомого злочинця, психологічний профіль, судово-психологічна експертиза, ДНК-аналіз, судово-генетична експертиза.

ИННОВАЦИОННЫЕ НАПРАВЛЕНИЯ МОДЕЛИРОВАНИЯ ЛИЧНОСТИ НЕИЗВЕСТНОГО ПРЕСТУПНИКА В ДЕЯТЕЛЬНОСТИ ОРГАНОВ УГОЛОВНОЙ ЮСТИЦИИ

Гетьман Г. Н.

Рассмотрены инновационные направления моделирования личности неизвестного преступника. Предпринята попытка установить суть инновационных направлений, которые используются в деятельности органов уголовной юстиции. Определены теоретические основы использования инновационных подходов в процессе моделирования личности неизвестного преступника в деятельности органов уголовной юстиции.

Ключевые слова: моделирование личности неизвестного преступника, психологический профиль, судебно-психологическая экспертиза, ДНК-анализ, судебно-генетическая экспертиза.

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ENGAGEMENT OF EXPERTS AND SCHEDULING FORENSIC EXAMINATION UNDER INVESTIGATION SAFETY RULES VIOLATIONS WHEN PERFORMING WORKS WITH HEIGHTENED DANGER

The peculiarities of the use of special knowledge in the process of investigation of the specified category of crimes are considered, they consists in narrow directed specifics of violations of safety rules during execution of works with in-creased danger. A range of issues to be clarified during carrying out certain examination is outlined. Their variability is noted depending on the work performed, the type of negative consequences and other elements of the criminalistic characteristics of crime. Scheduling forensic medical and forensic engineering-technical examination on labor protection, mining-technical, construction-technical and technical examination of documents in the aspect of the raised problematics is examined.

Keywords: examination, Criminal Procedural Code, investigation technique, safety rules violation when performing works with heightened danger.

One of the perspective directions of improving efficiency of organization of criminal proceedings and the investigation as a whole should be considered the use of the expert practice. The peculiarities of the use of special knowledge in the investigation of violation of labor protection rules is the narrow directed specifics of safety rules violations in the process of performing works with increased danger which is conditioned by the list of issues requiring resolving as well as by the variability of such a list, depending on the work performed, the type of negative consequences and other elements of the criminalistic characteristics of crime. For example, when investigating violations of safety rules during performing works at an altitude with negative consequences in the form of bodily injuries, the necessity in carrying out engineering-technical expertise on labor protection, construction-technical expertise, and forensic-medical examination is arising.

The technique of expert studies in the proceedings on violations of safety rules during performing works with heightened danger is based on the general methodology of forensic expertise and consists from such stages:

- 1) preparatory (preliminary study);
- 2) basic research (analytical, comparative, synthesizing stages);
- 3) final (preparation of the conclusion ¹).

According to the legislation in force, forensic expertise represents the study of material objects, phenomena and processes, containing information on the

¹ See: *Шляхов А. Р.* Структура экспертного исследования и гносеологическая характеристика выводов эксперта-криминалиста / *А. Р. Шляхов* // Тр. ВНИИСЭ. — М.: ВНИИСЭ, 1972. — Вып. 4. — С. 44–98.

circumstances of the case which is in the proceedings of the preliminary investigation bodies or the court by an expert on the basis of special knowledge¹.

Taking into account available statistical data on generalization of the forensic-investigative practice, we can state that the most common types of forensic expertise which take place in the investigation of safety rules violations during performing works with heightened danger are: forensic engineering-technical expertise on labor protection (100%); forensic mining-technical expertise (14.66%); forensic medical examination (94%); forensic construction-technical expertise (2.58%); forensic technical examination of documents (2.58%).

Forensic engineering-technical expertise on labor protection. It is scheduled on the basis of techniques of the general theory of forensic expertise and special scientific knowledge in the field of industrial and agricultural productions with the purpose of revealing causal dependencies and facts about activity or inactivity of employees and officials in the course of normal functioning of the enterprise and in the event of an emergency situation, non-observance with labor and production disciplines, non-compliance with the requirements of normative-legal acts on labor protection and operating documentation, violation of technological processes, technical condition of buildings, structures, communications, transport, control devices, machinery, mechanisms, equipment, instruments and other tools of labor; means of anti-damage collective and individual protection.

The object of this expertise are the traces of representation in the form of material and materialized sources of information contained in the materials of the criminal proceeding regarding emergency situation and which are examined by experts (material evidence, fragments of the scene, samples, buildings, facilities, sites, service lines, ways and means of production, systems of operation, control and protection, documents, etc.)².

Relying on the achievements of scientists regarding forensic engineering-technical expertise in the field of labor protection and life safety, we can outline the range of issues (tasks) to be clarified during the conduct of this expertise:

- determination of the causes and circumstances, severity degree of the material and technical consequences of safety rules violations;
- identification of the causes of the technological process failure;
- determination of the compliance of actual operating conditions of machines, mechanisms and equipment with the requirements of normative-technical documentation, their technical condition and suitability for performing specific technological and technical operations;
- establishment of the subject's qualifications adequacy to the nature of the work performed;
- identification of shortcomings of organizational and technical nature in the production process;

¹ See: Про судову експертизу : Закон України від 25.02.1994 №4038-XII // Відом. Верхов. Ради України. — 1994. — №28. — Ст. 232.

² See: Кривченко Ю. О. Теоретичний базис судової інженерно-технічної експертизи в галузі охорони праці та безпеки життєдіяльності / Ю. О. Кривченко, Л. Г. Бордюгов, І. М. Марченко // Теорія та практика судової експертизи і криміналістики : зб. наук. праць. — 2012. — Вип. 12. — С. 334.

- determination of compliance of working conditions with safety regulations;
- identification of circumstances that contributed to occupational injuries;
- establishment of natural or other phenomena that could cause occurrence of the event (including the human factor);
- establishment of the compliance of the behavior of persons involved in the event with the requirements of legislative acts on labor protection.

This indicated list of issues to be clarified is rather conditional, and in a specific situation it may be expanded with inclusion of those issues which are relevant for the realization of the proceedings.

Correctness of the questions formulation, as well as their list, should solve the maximum number of problems, requiring the use of special knowledge. However, the specifics of carrying out works with increased danger and the complexity of normative regulation of the work is one of the reasons for neglecting formulation of the necessary number of questions to the expert by the investigator.

Thus, in the proceedings No. 50110186 the investigator limited himself by only two questions:

1. Does this case belong to an industrial injury?

2. Are there any violations of the legislation on labor protection in the actions of the officials of KhF Private JSC “U. F. C.” (ХФ ПрАТ «У. Ф. Сі») on May 16, 2011, are they in causal link with the industrial injury?¹

In its turn, the following questions were raised on the decision of the forensic experts in the proceedings No. 51100028:

- Which from the technical point of view is the direct cause of the employment accident that has happened with the victim?

- Do the specified works, entrusted to the victim on April 19, 2010, belong to the works with increased danger, including those in which it is necessary to issue an order-admission?

- Did the qualification of the victim respond to the work performed?

- Was the work on dismantling pump properly organized?

- Violation of which normative documents on labor protection and safety precautions did it lead to an accident?

- Who of the employees, including the officials of the enterprise, has violated requirements of the safety and labor protection regulations that led to the considered employment accident?²

The essence of the *mining-technical expertise* as a procedural action lies in the investigation for the criminal proceedings of the circumstances of the event at a mining enterprise, which led to the death of people or causing damage to their health, or to other consequences that were carried out in accordance with the law by persons knowledgeable in mining.

The need of introduction of such an expertise is stipulated by a significant number of emergencies (technical accidents, employment accidents) in coal mines,

¹ See: Висновок судової інженерно-технічної експертизи з охорони праці та безпеки життєдіяльності № 7490 від 19.08.2011 : архів прокуратури Харківської області за 2011 р.; спр. № 50110186.

² See: Архів Орджонікідзевського районного суду м. Харкова за 2012 р.; спр. № 1-262/10.

which are usually caused by a human factor, often have a complex and lengthy nature and are accompanied in many cases by human casualties against the background of enormous economic and environmental losses.

Such expertise is grounded on several base sciences and adapts a number of provisions in the theory of mining, mechanics, engineering psychology, systems theory and management, electrotechnics to the needs of forensic expertise¹.

The task of the indicated expertise may be combined into such groups:

- finding out causes and circumstances of technogenic accidents at a mining enterprise, and determining severity degree of material and technical consequences;
- establishment of technical causes of technological process violations;
- determination of the condition of mining mechanisms and their suitability for performing specific technical operations;
- detection of defects in mining mechanisms, technical causes and the time of their occurrence;
- establishment of adequacy of the qualification of the subject of the technological process to the nature of the work that has been performed by him;
- definition of objective possibility of performing certain actions in the given technical conditions;
- identification of shortcomings of organizational and technical nature in the production process of the mining enterprise;
- determination of the compliance of working conditions at the mining enterprise with the safety technique requirements².

The other authors also supplement this list with such typical tasks: establishment of the circumstances that contributed to the emergence of occupational disease, industrial traumatism or an accident at the enterprise; determining the sequence of phenomena that led to an emergency; establishing the quality of the used materials, instruments and their safety in the conduct of a particular type of mining works; determination of natural or mining-geological phenomena that could have caused the occurrence of the event, and also whether the human factor played any role in its occurrence; assessing adequacy of the actions of the persons involved in the event in the specific production situation³. Forensic mining-technical expertise is mandatory in the investigation of violations of safety regulations during performing works in the mining industry, that is, in mines or mining camps.

Forensic medical examination according to the statistical data obtained during generalization of the judicial-investigative practice was conducted in 94.3% of the proceedings under Art. 272 of the Criminal Code of Ukraine in cases of bodily injury infliction or coming of death. A characteristic feature for bodily injuries, inflicted in the production environment, is the special gravity of the latter since the force, acting in such a case, usually substantially exceeds the

¹ See: *Експертизи у судочинстві України : наук.-практ. посібник / за заг. ред. В. Г. Гончаренка та І. В. Гори. — К. : Юрінком Інтер, 2015. — С. 302, 303.*

² See: *Бордюгов Л. Г. Зміст предмета судової гірничотехнічної експертизи / Л. Г. Бордюгов // Проблеми правознавства та правоохоронної діяльності : зб. наук. праць. — Донецьк : Донец. ін-т внутр. справ. — 2004. — Вип. 1. — С. 224–226.*

³ See: *Експертизи у судочинстві України. — С. 305.*

strength of the person. The nature of such a damage by parts of machines is different and depends on the construction features of the machines and the mechanism of injury. Most often there are hits by machine parts, components which fly away as well as falling into mechanisms which are rotating, collision with in-production vehicles, falling from height, etc. The main task of forensic expertise of occupational injuries is the establishment of a technical (material) cause of injury on the basis nature and features of injuries. Significant complications in the investigation of accidents in some manufactures urge investigators to clarify difficult questions about the mechanism of injury, the time of death, the tool which caused the damage, the pose in which was the sufferer and so forth by means of expertise.

At the same time, the investigator should be aware that for the proper forensic medical diagnosing of occupational accidents, the results of inspection of the place of incidence with the participation of a forensic expert are of significant importance, though he, unfortunately, is not nowadays involved in the conduct of this investigative (search) action. During forensic medical examination, the corpse of the victim is examined, there are recorded the injuries and their localizations which led to the death (fall from height, traumatic injuries as a result of contact with mechanisms, etc.). In the process of forensic medical examination, the questions regarding the causes of death, the presence and localization of injuries, the presence of signs of alcohol or narcotic intoxication and others are traditionally raised.

Forensic medical examination should be attributed to the category of urgent investigative (search) actions, it is performed immediately after receipt of an application of the commission of the criminal offense and at the beginning of the criminal proceedings.

In the criminalistic literature, the scientists proposed various variations of questions that can be formulated to the expert during investigation of accidents at work. As I. A. Kucherkov notes if the event is related with the death of the sufferer then at the discretion of forensic medical examination it is expedient to formulate the following questions:

- Which are bodily injuries, what are their number and location, severity degree?

- When did the death come?

- When were the bodily injuries inflicted that resulted in death?

- What is the cause of the death?

- Was a victim before receiving bodily harm in the state of alcoholic, narcotic or toxic intoxication?

- What is the mechanism of bodily injuries infliction that resulted in death?

- Could bodily injuries be caused in the circumstances specified in the decision on scheduling examination?

- What is the time remoteness of injuries (coming death)?

- Were the injuries inflicted during lifetime or posthumously?

- Could the victim make any actions after getting injured?

- By what were the bodily injuries inflicted that caused death?

- If several injuries were detected on the corpse then what is the sequence of their infliction?

- What is the blood group of the victim?
- What was the pose of the victim at the time of death and was it changed after the death?
- What was the number and strength of the hits which caused injuries?
- Had the victim an illness or physical disability that prevented his admission to work during which he died?¹

With the help of forensic medical examination, one also clarifies out: a) the presence of industrial poisonous substances in the organism of the injured, as a result of which he could lose control over his actions or lose consciousness; b) the presence of pathological changes in the human body which under the influence of sudden changes in the environment (atmospheric pressure, temperature-humidity regime and others) could cause deviations from the norms of his psychophysiological state; c) the presence of predisposition for neuropsychic manifestations of the victim².

Forensic construction-technical expertise belongs to the class of engineering-technical expertise with which it is possible most definitely to establish the quality of construction and repair work performed at all stages of construction, their compliance with construction norms and the contract and also the quality and quantity of used construction materials and their compliance with the specified in the construction documentation³.

The competence of experts includes resolving the following tasks:

- referring products to the construction manufacture;
- technical analysis of structures, products and materials, construction works of a certain class, kind, type, form, group performed (being performed);
- determination of the cost of construction objects and works being performed; the price of real estate objects of industrial, residential and urban spheres;
- establishment of compliance of production of construction manufacture; production of manufacture of construction structures, items, details and materials with the normative-technical requirements;
- determination of the causes, conditions, circumstances and mechanism of the emergency, accidents on construction;
- determination of the presence of a partial or a full loss of functional, operational, consumer, aesthetic properties and safety properties by the production of the construction manufacture;
- establishment of the compliance of the actions of the participants of the event (emergency, accident at the construction), as well as the persons responsible for the proper conducting and safety of the conditions of the production process with the special rules;

¹ See: Кучерков И. А. Расследование преступных нарушений правил безопасности при проведении строительных работ : дис. ... канд. юрид. наук : 12.00.09 / И. А. Кучерков. — М., 2003. — С. 137, 138.

² See: Таран О. В. Експертизи у справах про злочини, пов'язані із порушенням вимог законодавства про охорону праці / О. В. Таран // Вісн. Верхов. Суду України. — 2011. — № 4(128). — С. 46.

³ See: Експертизи у судочинстві України. — С. 283.

- determination of the possibility of changing functional purpose, overall dimensions, number of storeys and other characteristics of buildings, structures and constructions¹.

The following questions are posed on the decision of forensic construction-technical expertise in the processes of violation of rules when performing construction works that did not cause accidents with people, but were related with the occurrence of other grave consequences:

- Is there a properly approved project of construction works and other necessary project-cost documentation?

- Was it is timely composed and approved; if not, didn't it affect upon the quality of the work which entailed grave consequences?

- Was the project of the construction works correctly composed; if not, then which mistakes were made and by which were they caused?

- Was the quality of construction works and building materials in compliance with the project of construction works and other imposed requirements; if it was not, then did the admitted deviations affect upon the cause of the event under investigation and in which way?

The questions that are put on the decision of the forensic construction-technical expertise in the cases on violation of safety rules that led to accidents with people are much more diverse and can be as follows:

- Were the conditions for admission to work of the victim and other persons involved in the accident, obeyed, in particular, did they get the necessary training and instructions?

- Did the organization of employee training, the level of knowledge of construction rules, operating rules for construction machinery and other rules necessary for admission to the work performed correspond to the appropriate requirements? (In particular, the question may arise whether the requirements of the quality of training, instructions, attestation, examinations meet the requirements).

- Were the victims provided with special clothing, shoes, safety belts and other personal protective equipment, were they used correctly?

- Did other working conditions (lighting, ventilation, temperature, etc.) meet the requirements?

- Did the warning signs correspond to the requirements for the protection of dangerous places?

- Does the project for the production of works provide measures aimed at ensuring safety for persons engaged in construction? Did these measures meet the necessary requirements?

- Did the order of works fulfillment when an accident occurred, correspond to the requirements of the project of works organization and to the instructions?²

The subject of *forensic technical expertise of documents* are the facts, having significance for the criminal proceedings, related to making documents, identifi-

¹ See: *Бутирын А. Ю.* Теория и практика судебной строительно-технической экспертизы / А. Ю. Бутирин. — М. : Городец, 2006. — С. 9, 10.

² See: *Махов В. Н.* Расследование преступных нарушений правил при производстве строительных работ / В. Н. Махов, В. А. Образцов, К. Т. Чернова. — М. : ВНИИПП, 1979. — С. 77, 78.

cation of the materials of documents and means of their making, established on the basis of special knowledge in the field of technical-criminalistic research of documents, in this case special knowledge is based on the data of forensic technique, physical-technical, chemical and technological sciences¹. The range of issues, solved by the forensic technical expertise of documents is quite broad and multifaceted. It depends on those tasks that need to be solved in the process of researching the given object (document or part thereof).

The object of forensic technical expertise of documents when investigating violations of safety rules during execution of works with heightened danger are:

- the statute and the collective agreement of the enterprise;
- orders and directions on creation of an organizational unit on the issues of labor protection and preventive measures for labor protection; orders for employment appointment and assigning duties to observe safety rules; job descriptions, regulations and instructions on safety precautions;
- acts on the attestation of workplaces;
- contracts and primary documentation for the conduct of training and annual testing of knowledge on the occupational safety and health;
- orders to carry out instrumental control of machines and registers of technical condition and machine safety records; authorized orders to carry out works (including provided by special normative-legal acts);
- registers of recording introductory instructions on occupational safety and protection of workers labor; documentation, containing information on granting personal protective means;
- transport letters for the transportation of security guards from a certain location for the purpose of their mounting and so on.

Thus, it can be summarized that involvement of experts and carrying out forensic examinations are an important means of collecting evidence during pre-trial investigation of violations of safety rules during execution of works with heightened danger. In addition, involvement of experts plays an important role in preventive work, so the issue of expert preventionism remains topical.

ЗАЛУЧЕННЯ ЕКСПЕРТІВ І ПРИЗНАЧЕННЯ СУДОВИХ ЕКСПЕРТИЗ ПРИ РОЗСЛІДУВАННІ ПОРУШЕНЬ ПРАВИЛ БЕЗПЕКИ ПІД ЧАС ВИКОНАННЯ РОБІТ ІЗ ПІДВИЩЕНОЮ НЕБЕЗПЕКОЮ

Спасенко К. О.

Розглянуто особливості використання спеціальних знань у процесі розслідування зазначеної категорії злочинів, що полягає у вузькоспрямованій специфіці порушень правил безпеки під час виконання робіт із підвищеною небезпекою. Окремлено коло питань, що підлягають з'ясуванню під час проведення певних експертиз. Відзначено їх варіативність залежно від виконуваних робіт, виду негативних наслідків та інших елементів криміналістичної характеристики злочину. Досліджено призначення су-

¹ See: Назначение и производство криминалистических экспертиз : пособие для следователей и судей / [Л. Д. Беляева, Ю. Ц. Вол, Ю. Ф. Воронин и др.] ; отв. ред.: Г. П. Аринушкин, А. И. Винберг, А. Р. Шляхов. — М. : Юрид. лит., 1976. — С. 75.

дово-медичної й судових інженерно-технічної експертизи з охорони праці, гірничо-технічної, будівельно-технічної, технічної експертизи документів в аспекті порушеної проблематики.

Ключові слова: експертиза, Кримінальний процесуальний кодекс, методика розслідування, порушення правил безпеки під час виконання робіт з підвищеною небезпекою.

ПРИВЛЕЧЕНИЕ ЭКСПЕРТОВ И НАЗНАЧЕНИЕ СУДЕБНЫХ ЭКСПЕРТИЗ ПРИ РАССЛЕДОВАНИИ НАРУШЕНИЙ ПРАВИЛ БЕЗОПАСНОСТИ ПРИ ПРОИЗВОДСТВЕ РАБОТ С ПОВЫШЕННОЙ ОПАСНОСТЬЮ

Спасенко К. А.

Рассмотрена особенность использования специальных знаний в процессе расследования указанной категории преступлений, которая заключается в узконаправленной специфике нарушений правил безопасности во время выполнения работ с повышенной опасностью. Очерчен круг вопросов, подлежащих выяснению во время проведения определенных экспертиз. Отмечена их вариативность в зависимости от выполняемых работ, вида негативных последствий и других элементов криминалистической характеристики преступления. Исследовано назначение судебно-медицинской и судебных инженерно-технической экспертизы по охране труда, горнотехнической, строительно-технической, технической экспертизы документов в аспекте затронутой проблематики.

Ключевые слова: экспертиза, Уголовный процессуальный кодекс, методика расследования, нарушение правил безопасности во время выполнения работ с повышенной опасностью.

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PROBLEMS OF DRAWING-UP CRIMINALISTIC CHARACTERISTICS OF CRIMES RELATED WITH NON-PAYMENT OF WAGES

Criminalistic characteristics of crimes related with nonpayment of wages, its elements are considered. An information model of this category of crimes which will make it possible to improve and raise the quality of investigation is provided.

Keywords: wages (salary), criminalistic characteristics, place and time of crime commitment, personality of offender, personality of victim, subject of a criminal assault, method of crime.

The right of every citizen on timeous receiving remuneration for work and social benefits is enshrined in Articles 43 and 46 of the Constitution of Ukraine. However, in practice, wages are not always paid on time in enterprises that leads to an increase in payroll indebtedness and negatively affects upon the status of social tension in society. This concerns both public and private entities. Similar tendencies have been spread in connection with the economic crisis.

The term “criminalistic characteristics of crime” was proposed in the mid-sixties of XX century. O. N. Kolesnychenko, who developed the following definition: “criminalistic characteristics of crimes is the system of data about criminally significant signs of crimes of a certain type that reflects determinate relations between them and serves for building and verifying investigative versions for solving basic tasks of the investigation”¹.

In the opinion of H. A. Matusovskyi, the criminalistic characteristics of crimes has a such definition: “a system of generalized data on certain congeneric typical signs of the subject of these actions, motivation of his criminal behavior, the subject of infringement, the situation, criminal methods and consequences that are important for detecting and uncovering crimes by criminalistic means, ways and methods”².

M. V. Salteviskyi noted that the criminalistic characteristics is an informational model that consists of typical features of a specific type (group) of crimes³.

A. A. Eisman pointed out that the criminalistic characteristics is a standard list of circumstances that need to be established⁴.

We agree with the opinion of O. Yu. Holovin about the significance of the criminalistic characteristics of crimes which is important both for its general theory, theoretical provisions of its individual parts, and for the practice of crimes investigation. It is a natural, determinate result of the long accumulation, study and systematization of criminalistic significant features of crimes, that has been begun by H. Hross, I. N. Yakymov, V. I. Hromov, S. A. Holunskyi and other scientists-criminalists.

Criminalistic characteristics is one of the important and basic theoretical and practical sources of obtaining criminalistic significant information about different types of crimes⁵. Today, the issues of definition, composition of elements and significance of criminalistic characteristics of crimes are disputable.

We believe that in the structure of the criminalistic characteristics of crimes related with non-payment of wages, it is necessary to distinguish the following elements:

- the subject of infringement;
- the situation of crime commitment;
- the method of committing crime;

¹ See: Советская криминалистика. Методика расследования отдельных видов преступлений / [В. К. Лисиченко, В. И. Гончаренко, М. В. Салтевский и др.] ; под ред. В. К. Лисиченко. — Киев : Выща шк., 1988. — С. 30.

² See: Матусовский Г. А. Экономические преступления: криминалистический анализ / Г. А. Матусовский. — Харьков : Консум, 1999. — С. 51.

³ See: Специализированный курс криминалистики (для слушателей вузов МВД СССР, обучающихся на базе среднего специального юридического образования) : учебник. — Киев : НИИРЮ Киев. высш. шк. МВД СССР, 1987. — С. 310.

⁴ See: Эйсман А. А. О содержании понятия криминалистической характеристики преступления / А. А. Эйсман // Криминалистическая характеристика преступлений. — М., 1984. — С. 99–108.

⁵ See: Головин А. Ю. Частные криминалистические методики: проблемы структуры и качества / А. Ю. Головин // Криміналіст першодрукуваний. — 2013. — № 7. — С. 67–74.

- the personality of the offender;
- the personality of the sufferer;
- traces of crime in a broad sense.

Subject of infringement. The Constitution of Ukraine guarantees the right of every citizen to receive timely remuneration for work (Art. 43). Realization of this constitutional right of citizens is regulated by “The Protection of Wages”¹ Convention of the International Labor Organization, the Law of Ukraine “On Labor Remuneration”, the Code of Laws on Labor, other legislative and normative acts.

In accordance with Art. 1 of the Law of Ukraine “On labor remuneration”: “Salary is a remuneration calculated, as a rule, in monetary terms, which the employer pays to the employee for the work performed by him under an employment contract. The amount of wages depends on the complexity and conditions of the work performed, professional and business qualities of the employee, the results of his work and economic activities of the enterprise”².

Wages have the following structure: basic wages, additional wages, other encouraging and compensation payments.

The basic salary is a reward for the work performed in accordance with the established labor standards (norms of time, out-turn, servicing, job duties). It is established in the form of tariff rates (salaries) and piece rates for workers and salaries for officials. Additional wages are the remunerations for work beyond established standards, for labor successes and ingenuity and for special conditions of work. It includes fringe benefits, increases, guarantee and compensation payments provided by the applicable legislation; bonuses related with the performance of production tasks and functions.

Other encouraging and compensation payments include payments in the form of remuneration based on the results of the work for the year, bonuses on the special systems and regulations, payments under grants, compensatory and other monetary and material payments not provided by existing legislation or which are realized over the norms specified in these acts.

The question concerning the nature of payments is debatable. P. P. Andrushko believes that the subject of the crime may be not only payments made regularly in dates determined by law, but also nonrecurrent. The opposite position is held by M. I. Melnyk, who, in particular, indicates, that the composition of the crime under Art. 175 of the Criminal Code of Ukraine, takes place only in the case of the said non-payment more than one month. I. O. Zinchenko at all does not include payments that are nonrecurrent in nature, into the subject of this crime. According to S. Ya. Lyhova, the position of M. I. Melnyk and I. O. Zinchenko is erroneous, because the public danger of this act consists in the fact that non-payment of material resources leads to concrete material damage to the person

¹ See: Конвенція Міжнародної організації праці «Про захист заробітної плати» 1949 р. № 95, ратифікована Верховною Радою УРСР 4 серпня 1961 р. [Електронний ресурс]. — Режим доступу : http://zakon2.rada.gov.ua/laws/show/993_146.

² See: Про оплату праці : Закон України від 24.03.1995 № 108/95-ВР // Відом. Верхов. Ради України. — 1995. — № 17. — Ст. 121.

and this harm does not depend on the fact whether regular or nonrecurrent is such a payment¹. We consider that the subject of crime is any payment, entitled to be received by a person.

On the territory of Ukraine, the following forms of payment of wages are provided: by currency notes which have a legitimate circulation in the territory of Ukraine; bank checks in the procedure established by the Cabinet of Ministers of Ukraine as agreed with the National Bank of Ukraine; paying in kind.

Currency notes are the notes of value which replace a certain quantity of precious metals in circulation. Paper banknotes, currency notes of Ukraine – hryvnia – are the notes of the National Bank of Ukraine².

The Customs Code of Ukraine (Art. 4) has established: the currency of Ukraine – currency notes in the form of banknotes, treasury notes, coins and other forms in circulation that are the legal circulating medium in the territory of Ukraine, and also those which are withdrawn from circulation or being withdrawn from it, but are the subject to exchange for banknotes in circulation; foreign currency – foreign banknotes in the form of banknotes, treasury notes, coins in circulation that are the legal circulating medium in the territory of the relevant foreign state, as well as withdrawn from circulation or being withdrawn from it, but are the subject to exchange for banknotes in circulation³.

Summarizing the aforesaid, it can be noted that the subject of crimes related with non-payment of wages are the currency notes (means), bank checks, natural form of payment for job.

Situation of crime commitment. The situation of this category of crimes includes data on the place and time of its commitment.

Since the subject of the specified crime is special, in most cases the place of the crime commitment is the workplace of employers and accounting workers. Accounting employees are criminally liable under Art. 175 of the Criminal Code of Ukraine only as abettors (organizers, instigators, accomplices).

In accordance with the Methodical Recommendations of the Ministry of Labor of Ukraine, the workplace of an employee is characterized by the presence of a fixed zone, technical means (basic production and non-productive assets, instruments, devices, equipment) or their combinations necessary for the production of products, providing services, fulfilling works or statute functions. Classification of workplaces is carried out in accordance with by belongingness, degree of mechanization, term of performance⁴.

¹ See: *Лихова С. Я.* Злочини у сфері реалізації громадянських, політичних та соціальних прав і свобод людини і громадянина (розділ V Особливої частини КК України) : монографія / С. Я. Лихова. — К. : ВПЦ «Київський університет», 2006. — С.547.

² See: *Шепітько В. Ю.* Криміналістика: словник термінів / В. Ю. Шепітько. — К. : Вид. Дім «Ін Юре», 2004. — С. 25.

³ See: Митний кодекс України : Закон України від 13.03.2012 № 4495-VI // Відом. Верхов. Ради України. — 2012. — № 44–48. — Ст. 552.

⁴ See: Методичні рекомендації щодо визначення робочих місць : протокол М-ва праці України від 21.06.1995 № 4 [Електронний ресурс] — Режим доступу : <http://ua-info.biz/legal/basexi/ua-rmwfq.htm>

The place of crime commitment is very important since it represents itself as a means of cognition of other elements of the criminalistic characteristics such as the way of committing crime, typical traces of crime, offender personality.

The question on date for non-payment of wages is debatable. Thus, I. O. Zinchenko points out that under non-payment of wages and other payments it is necessary to understand incomplete or untimely payment. The same opinion is held by M. I. Melnyk and P. P. Andrushko. This position, in opinion of S. Ya. Lyhova, which we share, is not quite correct, given that Part 1 of Art. 41 of the Code of Ukraine on Administrative Offences provides for administrative liability for the violation of terms of wages payment, as well as for paying it in not a full amount¹.

In addition, the question of partial non-payment, which leads to the general non-payment of wages, the amount of which exceeds its monthly amount, is ambiguous. In S. Ya. Lyhova's opinion, terminology "more than one month" should be "bound" not only with the date (period) of non-payment of the earned assets but also with their size (amount).

The *method of committing crime* is characterized by groundless non-payment. The crime is formed according to Art. 175 of the Criminal Code of Ukraine, if non-payment: 1) is groundless; 2) takes place within a certain period. From the practice of forensic economic expertise, the main methods of non-payment of wages are:

- non-payment with banknotes that have a legal circulation in the territory of Ukraine; non-payment with bank checks; non-payment in kind. Being faced with inability of making timely payments, enterprises often turn to in-kind payments, that is, pay off debts to employees with goods or services in the amount that exceeds 30% of the monthly wage;

- non-payment to workers called-up for the compulsory military service, military service at conscription during mobilization; non-payment to employees who are on probation; non-payment of wages at dismissal.

In connection with the situation in the east of Ukraine, related to the forced military service, military service at conscription, there have been increased cases of non-payment of salaries to this category of employees, for whom, according to the legislation, the workplace and the average wage are preserved.

In addition, very often when hiring, probation is established in order to verify the employee's adequacy, the wages are not paid in practice, and the worker is dismissed because of mismatch with the position held. There are cases of non-payment of wages to employees upon dismissal, called "fines" by the employer, which are not stipulated by the legislation of Ukraine;

- non-accounting and non-payment of wages; accounting and non-payment of wages (calculated, but not received wages in the specified period);

- non-payment associated with non-purpose use of assets set for payments, stipulated by law; non-payment, related with spending assets in order to support the enterprise activity.

In most cases, heads of economic entities are forced to spend assets for manufacturing for the sake of the further existence of enterprises, preventing the

¹ See: *Лухова С. Я.* Indicated work. — С. 548.

threat of bankruptcy, and although the payment of wages is a priority payment, but in some cases, its realization will not only make it possible to fully pay off workers, but also will lead to the closure of enterprises, mass layoffs and, as a result, to the increase in the level of unemployment. Despite the fact that the legislator does not distinguish spending assets to support the activities of enterprises as a mitigating circumstance, the investigative authorities increasingly apply to the expert institutions with questions about appropriateness of spending assets for production needs with a view of further gradual repayment of arrears in wages.

The personality of the criminal. The subjects of non-payment of wages according to the judicial practice are:

- heads of the enterprise, institution or organization regardless of the form of the ownership. The head performs management over collective on the principles of undivided authority or collegially. The administrative-legal and functional status of the head is ensured by the legality of the appointment or election of the head and is retained from the moment of taking office to the termination of the performance of the assigned duties;

- a person who temporarily performs job duties of the head in the presence of legal grounds;

- employers-natural persons: private notaries, lawyers and other persons whose professional activity is subjected to state registration and/or licensing in accordance with the applicable legislation;

- employers who hire employees to perform work in a personal household;

- employers who employ employees for technical assistance in literary and other creative activities;

- employers who hire employees to provide services for members of his family;

- employers in realizing private practice not for profit;

- citizens, engaged in entrepreneurial activities;

- heads of peasant (farmer) households.

The question of the subject of the crime of non-payment of wages is also debatable.

In the opinion of P. P. Andrushko and M. I. Melnyk, the citizen-entrepreneur is not a subject of non-payment of wages, and the groundless payment of wages by an entrepreneur to persons whose wage labor he uses, as well as by a citizen, who concluded an agreement to perform a certain work, is a gross violation of the labor agreement.

The opposite opinion on this issue belongs to S. Ya. Lyhova, with whom we agree and consider that if a person works for a citizen-entrepreneur under an employment contract, then such a citizen-entrepreneur may be the subject of non-payment of wages since he performs the functions of the head and he has the same duties in regard to wage-employees, as well as other heads of the enterprise, institution, organization¹.

At the same time, we do not share the opinion of S. Ya. Lyhova, who considers that the subjects of non-payment of salaries are not the heads of banking

¹ See: *Лухова С. Я.* Indicated work. — С. 558.

institutions and their branches by means of which salaries are paid directly since the specified subjects are not provided with administrative-legal and functional status in respect of the sufferers¹.

The suffered person is an individual, an employee. The following persons have the right to receive wages in Ukraine: citizens of Ukraine; foreign citizens; persons without citizenship.

Obligatory feature of the sufferer is the legal right to receive remuneration for work, namely the existence of labor relations on the basis of an employment agreement (contract) with enterprises, institutions, organizations of all forms of ownership and management as well as with individual citizens.

The traces of crime are the material traces which arise in the process of carrying out activities of enterprises, institutions, organizations of all forms of ownership and management. Material traces are contained both in written documents and in personal computers and other information carriers.

According to the encyclopaedic dictionary, the document (from the Latin *dokumentum* – evidence, proof of something) is a material object in which information about any facts that have occurred or have been assumed, is recorded².

Thus, in crimes related to nonpayment of wages, traces are formed and stored in the following documents:

- collective agreements;
- administrative documents of enterprises, institutions (organizations);
- time-sheets of using work time;
- personal cards of employees;
- settlement and payment statements;
- statements for the payment of money, expense cash orders, cash books;
- bank payment documents and information (registers) for the distribution of wages and other payments;
- statistical report “Report on Labor”, financial statements and other documents.

Summarizing the aforesaid, it should be noted that the subject of crimes related to non-payment of wages are currency notes (assets), bank checks, natural form of payment for labor. The method of committing crime is characterized by groundless non-payment of wages.

The subject of crime is the head of an enterprise, institution or organization regardless the form of ownership or a natural person. The victim person is an employee who has a legal right to receive the specified payment. The situation of this category of crimes includes data on the place and time of the crime. The crime traces are material traces, contained both in written documents and in information carriers.

The criminalistic characteristics is a detailed informational model on the considered category of crimes and allows improving and increasing effectiveness of investigating crimes related to non-payment of wages.

¹ See: *Лихова С. Я.* Indicated work. — С. 559.

² See: *Шепітько В. Ю.* Криміналістика. Енциклопедичний словник (українсько-російський і російсько-український) / В. Ю. Шепітько ; за ред. В. Я. Тація. — Х. : Право, 2001. — С. 71.

**ПРОБЛЕМИ РОЗРОБЛЕННЯ
КРИМІНАЛІСТИЧНОЇ ХАРАКТЕРИСТИКИ ЗЛОЧИНІВ,
ПОВ'ЯЗАНИХ ІЗ НЕВИПЛАТОЮ ЗАРОБІТНОЇ ПЛАТИ**

Сабадаш І. В.

Розглянуто криміналістичну характеристику злочинів, пов'язаних із невилпатою заробітної плати, її елементи. Надано інформаційну модель цієї категорії злочинів, яка дасть можливість удосконалювати та підвищувати якість розслідування.

Ключові слова: заробітна плата, криміналістична характеристика, місце та час учинення злочину, особа злочинця, особа потерпілого, предмет злочинного посягання, спосіб злочину.

**ПРОБЛЕМЫ РАЗРАБОТКИ
КРИМИНАЛИСТИЧЕСКОЙ ХАРАКТЕРИСТИКИ ПРЕСТУПЛЕНИЙ,
СВЯЗАННЫХ С НЕВЫПЛАТОЙ ЗАРАБОТНОЙ ПЛАТЫ**

Сабадаш И. В.

Рассмотрены криминалистическая характеристика преступлений, связанных с невыплатой заработной платы, ее элементы. Представлена информационная модель этой категории преступлений, которая даст возможность совершенствовать и повышать качество расследования.

Ключевые слова: заработная плата, криминалистическая характеристика, место и время совершения преступления, личность преступника, личность пострадавшего, предмет преступного посягательства, способ совершения преступления.

GENERAL PROVISIONS OF FORENSIC EXAMINATIONS

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LEGAL REGULATION OF FORENSIC EXAMINATION IN CASES ON ADMINISTRATIVE OFFENCES: CURRENT STATE AND DEVELOPMENT PROSPECTS

The norms of the Code of Ukraine on Administrative Offenses regarding participation of an expert in the consideration of cases are analyzed. The omissions in the regulation of issues in the process of consideration of cases administrative jurisdiction are determined, and proposals on directions of their elimination are presented.

Keywords: forensic examination, administrative process, expert participation in the consideration of cases on administrative offences, forensic expert status.

One of the most important means in establishing truth in the cases on administrative violations is judicial expertise. As the court practice shows, explanations of persons, participating in the case, are quite often contradictory, and only by scheduling and conducting forensic examination, it is possible to establish those or other circumstances of the case requiring application of special knowledge that should be correspondently evaluated by the court.

As M. V. Dzhaferova aptly notes, one of the conditions for a comprehensive and fair consideration of administrative cases during collection and analysis of evidence is the widespread use of special scientific and technical knowledge from different areas. An effective form of their use in administrative court proceedings is forensic examination since involvement of experts – specialists in a particular field of science, art, technology or crafts – provides an opportunity to comprehensively and fully clarify the circumstances of the case and resolve the matter on the merits¹. N. V. Shakhman correctly asserts that the role of the expert in the proceedings on administrative offenses has recently increased. For example, it is possible, and sometimes even necessary, to involve an expert in resolving the issue of the offender's criminal capacity; involvement as experts – zoologists or ornithologists is advisable when considering cases of deliberate killing animals listed in the Red Book.

¹ See: *Джафарова М. В.* Окремі види експертиз в адміністративному судочинстві України / *М. В. Джафарова* // *Право і безпека*. — 2013. — № 1. — С. 57.

Participation as experts – specialists in the field of metrology, commodity and manufacturing technology in the cases on administrative violations in the field of standardization, product quality, metrology, trade, etc. is required¹.

This list may be supplemented with administrative offenses related to drinking alcoholic, low-alcoholic drinks in places prohibited by law or appearing in public places under the influence of alcohol intoxication, the responsibility for which is provided by Art. 178 of the Code of Ukraine on Administrative Offenses (hereinafter – CUAO), because in order to prove the offender's guilt, it is necessary to determine the degree of alcoholic intoxication, that is impossible without the use of special knowledge².

At the same time, despite the importance and urgency of the issue, the provisions of the applicable legislation of Ukraine, regulating the procedure for conducting forensic examination in the administrative process are incomplete. Certain aspects of this problem were considered in the works of such specialists as O. Z. Hladun, M. V. Dzhafarova, A. V. Ivanov, M. A. Sambor, N. O. Smilyk, N. V. Shakhman, and others. The purpose of this article is to analyze the current state of the legal regulation of forensic examination in the Code of Ukraine on Administrative Offenses and determine the directions for improving legislation. To achieve this goal, as it's observed, the necessary is an analysis of the norms of the CUAO concerning participation of an expert in the administrative proceedings; determination of omissions in the regulation of issues of forensic examination in the Code of Ukraine on Administrative Offenses, development of proposals for the elimination of the determined shortcomings.

In Art. 246 of CUAO there are defined two kinds of the subjects, delivering decisions on the cases on administrative offenses: courts and other authorized bodies (officials). This norm clearly specifies that the procedure of the proceedings in the cases on administrative offenses by bodies (officials) authorized to hear cases on administrative offenses as in district, district in city, city or city-district courts are determined by this Code and other laws of Ukraine. As we can see, there is an apparent requirement to regulate the procedure for considering these cases precisely by applying CUAO. However, there are not always sufficient grounds to assert that it is fulfilled in a full amount. This concerns omissions in legal regulation in CUAO and in the norms concerning forensic examination.

In general, such a definition, as a forensic examination, is not contained in the CUAO. However, this Code includes some norms concerning participation of an expert in the consideration of the cases on administrative offenses although it is not sufficient of them. It is quite logical and understandable that the possibility of performing expert studies and using their results during decisions-making in the cases on administrative offences depends upon comple-

¹ See: *Шахман Н. В.* Проблема проведення експертизи у справах про адміністративні правопорушення / Н. В. Шахман // *Держава і право*. — 2010. — № 47. — С. 239.

² See: *Самбор М. А.* Окремі питання правового регулювання участі експерта у справах про адміністративні правопорушення / М. А. Самбор, Н. О. Смілик // *Юрид. наука*. — 2014. — № 1. — С. 57.

teness and quality of the legal regulation of the issues of initiation, grounds and conditions for performing expertise, determination of the range of subjects entitled for their performing, requirements for formalizing results, resolving issues of payment for the cost of forensic expertise and others. In a certain way the issue of appointing and conducting forensic examination in the administrative proceedings has got progress in connection with the adoption of the Law of Ukraine "On Forensic Expertise"¹. However, in CUAO it did not find its full reflection.

Consequently, the effectiveness of using the expert's conclusion, which, according to Art. 251 of CUAO is one of the sources of proofs when considering cases on administrative offenses, decreases. O. Z. Hladun on this occasion quite rightly notes that the actual issues of improving mechanism of administrative proceedings is the procedure for collecting the relevant evidence by authorized subjects, since it is practically not settled by acting CUAO. In this regard, in CUAO there should be provided detailed procedure for scheduling examination, the order procedure for recognizing certain items to be physical evidence, criteria for determining relevance, admissibility and sufficiency of the evidence in the case². Complementing this opinion, let us note that it is necessary to solve not only these but also other topical issues in the appointment of forensic examination and expert participation in the consideration of cases on administrative offences. The opinion of M. A. Sambor and N. O. Smilyk that the current Administrative Code has substantially outdated, is quite justified, in particular with regard to making on proceedings administrative offenses. As it is seen from the norms of the current CUAOs, the latter practically does not contain clear provisions on the procedural order of involving expert into the participation in the case on an administrative offense, at the legislative level there is an urgent need to define a more precise procedural status of the expert in these cases and determine the procedure for involving expert in carrying out the necessary studies in the cases on administrative offenses³.

Let us analyze the provisions, being presented in the CUAO, on scheduling forensic examination. Let us note that such provisions are in a separate section, de-voted to the persons participating in the case on the administrative offence. In this section, two articles 273, 275 regulate the rights and duties of a forensic expert and the procedure for reimbursement of expenses for performing a forensic examination. The analysis of these articles provisions allows us to state about incompleteness of settling order for performing forensic examination. This concerns, on the one hand, a number of issues, the decision of which is necessary for performing a forensic examination (who has the right to initiate an examination, who and on what grounds and criteria involves a forensic expert, in what form the expert gives a conclusion, etc.). On the other hand, it is neces-

¹ See: Про судову експертизу : Закону України від 25.02.1994 №4038-XII [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/4038-12>.

² See: Гладун О. З. Проблемні аспекти провадження у справах про адміністративні корупційні правопорушення / О. З. Гладун // Вісн. Вищ. ради юстиції. — 2013. — №3. — С. 40.

³ See: Самбор М. А., Смілик Н. О. Indicated work. — С. 55, 58.

sary to solve the issues that are settled in CUAO, but at present they do not now fully correspond to the needs of practice. For example, among the duties of an expert in part 2 of Art. 273 of CUAO, only two are defined: 1) to appear on the call of the body (official); 2) to give an objective conclusion on the questions posed to him. CUAO provides nothing concerning the duties to perform a full unbiased investigation, to come on call of the body (official) who appointed a forensic examination to clarify the conclusion of the forensic expert, the expert's duty to report on the impossibility of coming at the summons of the court, the expert's right for initiative, etc.

As N. V. Shakhman notes, such omissions are eliminated by analogy with criminal procedural legislation. In connection with the existence of shortcomings in the administrative legislation of Ukraine experts are simply compelled to be guided by the provisions that are allocated in the Criminal Procedural Code of Ukraine¹. So, using analogy of criminal procedural law, forensic examination in the cases on administrative offences is scheduled by issuing an appropriate court resolution, M. A. Sambor and N. O. Smilyk note.

The matter is that CUAO does not provide such kinds of decisions, and, as a whole, does not provide the ways of issuing preliminary and current decisions during the proceedings on administrative offenses, in particular, on suspension of the consideration of the case, assignment of the case for consideration, transfer of the consideration of the case, satisfaction or rejection of the petition, and, finally, on involvement of an expert to carry out an appropriate action². It is clear that such a state of affairs regarding legal regulation of forensic examination in CUAO is unsatisfactory. We consider that in CUAO it is necessary to settle the issue of appointing and conducting forensic examination. Among them, you should pay attention to the following.

Firstly, we need to provide the notion of forensic examination and highlight the principles of forensic-expert activity in the administrative process. For example, N. V. Shakhman proposes in the most general interpretation under examination to understand researches and solutions of any questions requiring knowledge in science, technology, art and professional craftsmanship with the help of specialists³. We believe that it will be more appropriate to state in CUAO the definition of forensic examination, which is contained in Art. 1 of the Law of Ukraine "On Forensic Expertise".

Secondly, CUAO should be complemented with types of forensic examination, proceeding from the fact that among the classification criteria (organizational-procedural, scientific-methodical and others)⁴, to choose a one – by a procedural attribute. When selecting categories of forensic examination by a procedural attribute, it is advisable to pay attention to such their varieties as comprehensive and commission forensic examination, having decided the issu-

¹ See: *Шахман Н. В.* Indicated work. — С. 239.

² See: *Самбор М. А., Смілик Н. О.* Indicated work. — С. 55.

³ See: *Шахман Н. В.* Indicated work. — С. 239.

⁴ See: *Янчук О. Ю.* Судова експертиза в адміністративному судочинстві / О. Ю. Янчук // Вісн. Акад. адвокатури України. — 2009. — №2. — С. 145.

es of powers of the chairman of the expert commission: who, in what a form does him appoint, noting that he has no advantage over other members of the commission when resolving the issues raised¹.

Thirdly, there is a need to define more clearly the requirements for a forensic expert. A number of requirements for specialists who intend to obtain (or confirm) qualifications of a forensic expert are defined in item 1 of section V of the Standing Order on Expert-qualification Commissions and Attestation of Forensic Experts². Such requirements include availability of the relevant higher education, an educational and qualification level of at least the specialist of a person, passing training (probation) by him, acquirement of the knowledge on theoretical, organizational and procedural issues of forensic examination and methodological provisions, practice of their application in the relevant expert specialty. In our opinion, the basic requirements for a forensic expert should be defined in CUAO.

Fourthly, there is an objective need for a more precise settlement of the rights and duties of the forensic expert, including resolving the issues of self-withdrawal, the obligation to notify on the impossibility of coming because of reasonable excuse, the right to refuse to give the conclusion because of reasonable excuse and others. When considering the issue of establishing duties of an expert, in our opinion, one can not ignore the fact that Articles 185³, 185⁴ of CUAO refer to the composition of such offenses as malicious evasion of a forensic expert to come to the court or pre-trial investigation bodies. Provided that the relevant duty is provided in Art. 273 of CUAO these compositions of administrative offenses will correspond with the procedural norm. Regarding the provision of “maliciousness” of non-appearance, it requires clarification of the reasons, the form of the message about the impossibility of arrival due to reasonable excuse and so forth.

In addition, it is necessary to regulate the grounds and the order procedure for the participation of a forensic expert in the consideration of the cases on administrative offences, including the need to resolve the issues: who, in what form (summons or others) invites an expert to participate in the consideration of cases on administrative offences; who, in what form is entitled to initiate consideration of the issue of involving an expert; who and by what criteria involves a forensic expert; the issue on the expert attachment, etc. During settlement of the grounds and procedure for the expert's participation in the consideration of cases on administrative offences, special attention should be paid to the need to resolve the issues of the conflict of interest, the inability of the expert to participate in the case on administrative offences. It is possible to support A. V. Ivanov's proposal to outline additionally the circumstances in which the expert is subjected to disqualification by providing an article on circumstances eliminating the possibility of participation of a forensic expert in the case of an administrative offences in CUAO of the following content: “An expert can not participate in proceedings on administrative offenses if he is a relative of the person in respect of whom

¹ See: Джафарова М. В. Indicated work. — С. 60–61.

² See: Про затвердження Положення про експертно-кваліфікаційні комісії та атестацію судових експертів : наказ М-ва юстиції України від 03.03.2015 № 301/5 // Офіц. вісн. України. — 2015. — № 17. — С. 468.

the proceedings are being carried out, his defence counsellor or representative, the relative of the official in whose proceedings the case is under consideration, other circumstances that give grounds to consider that the expert is personally directly or indirectly interested in the outcome of the case”¹.

Finally, there is a need to define the forms and requirements for the formalizing of the results of research in the conclusion of a forensic expert. In CUAO there should be provided the general requirements for this document: the written form and the structure. Special attention, in the opinion of M. V. Jafarova, deserves the procedure for issuing the conclusion on the results of a comprehensive examination. In the introductory part such a conclusion should contain data on the head of the commission (leading expert); on other expertise if their results were used to resolve issues posed for a comprehensive examination and were provided as input information for a comprehensive forensic examination. Researches, being conducted by individual experts, should be described in the relevant sections of the research part with the names of experts. In addition, generalizations and evaluations of research results are recorded in the synthesizing section of the research part of the conclusion of forensic experts. In the joint conclusion of the experts who participated in the comprehensive examination, the following data should be provided: 1) which namely researches and in which amount did each expert perform; 2) which facts relevant to the resolution of the case were established by each of the experts; 3) which conclusions did each expert receive as a result of a comprehensive examination².

Considering the foregoing, the following conclusions may be drawn up: a more precise procedure for performing examinations should be defined in the CUAO. We consider the practice when numerous omissions are filled in analogy with the criminal procedural law, not to be acceptable.

Among the directions of improvement of the CUAO, the following should be especially emphasized: the settlement of the concept, procedural types of forensic examinations and the principles of forensic expert activity, namely the status of the forensic expert (possibly in the section on persons who take part in cases of administrative violations), the procedure for attracting him challenge, drive and other issues, the requirements for registration of the results of expert research (possibly in the section on evidence in cases of administrative violations).

ПРАВОВЕ РЕГУЛЮВАННЯ СУДОВОЇ ЕКСПЕРТИЗИ В СПРАВАХ ПРО АДМІНІСТРАТИВНІ ПРАВОПОРУШЕННЯ: СУЧАСНИЙ СТАН І ПЕРСПЕКТИВИ РОЗВИТКУ

Клюєв О. М.

Проаналізовано норми Кодексу України про адміністративні правопорушення щодо участі експерта в розгляді справ. Визначено прогалини в регулюванні питань

¹ Іванов А. В. Експерт у провадженні у справах про адміністративні правопорушення : автореф. дис. на здобуття наук. ступеня канд. юрид. наук. : спец. 12.00.07 «Адміністративне право і процес; фінансове право; інформаційне право» / А. В. Іванов. — Х., 2009. — С. 10–11.

² See: Джафарова М. В. Indicated work. — С. 61.

у процесі розгляду справ адміністративної юрисдикції, наведено пропозиції щодо їх усунення.

Ключові слова: судова експертиза, адміністративний процес, участь експерта в розгляді справ про адміністративні правопорушення, статус судового експерта.

ПРАВОВОЕ РЕГУЛИРОВАНИЕ СУДЕБНОЙ ЭКСПЕРТИЗЫ ПО ДЕЛАМ ОБ АДМИНИСТРАТИВНЫХ ПРАВОНАРУШЕНИЯХ: СОВРЕМЕННОЕ СОСТОЯНИЕ И ПЕРСПЕКТИВЫ РАЗВИТИЯ

Клюев А. Н.

Проанализированы нормы Кодекса Украины об административных правонарушениях, касающиеся участия эксперта в рассмотрении дел. Определены пробелы в регулировании вопросов в процессе рассмотрения дел административной юрисдикции, представлены предложения по их устранению.

Ключевые слова: судебная экспертиза, административный процесс, участие эксперта в рассмотрении дел об административных правонарушениях, статус судебного эксперта.

UDC 343.14

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ON COMPULSORY ORDERING OF FORENSIC EXAMINATIONS IN CRIMINAL PROCEEDINGS

The problem of compulsory ordering of forensic examinations in accordance with domestic and foreign legislation is considered. It is shown that, taking into account the needs of practice and development of forensic examinations, the most expedient is the formulation of the procedural norm with general requirements that determine the cases of compulsory involvement of an expert.

Keywords: forensic examination, criminal proceedings, compulsory ordering, criminal procedural law.

The expert's conclusion is the source of objective criminal-relevant information obtained on the basis of the use of special knowledge. Performing expertise is a means of ensuring objectivity, completeness and comprehensiveness of both pre-trial investigation and judicial proceedings, guaranteeing protection of a person against an unfounded charge. The use of special knowledge of forensic experts in criminal proceedings is an integral and important part of both practical activities in the formation and evaluation of evidence and its criminal procedural form.

One of the theoretical and practical problems of conducting forensic examinations is choosing grounds for obligatoriness of their appointment. Domestic and foreign scholars devoted to this issue their researches in the field of general

theory of State and Law, Criminal, Criminal-procedural Law, Criminalistics, Forensic Expertise and Forensic Psychiatry, in particular: V. D. Arseniev, R. S. Bielkin, A. I. Vinberg, L. Ye. Vladymyrov, V. H. Honcharenko, H. I. Hramovych, A. V. Dulov, V. Ya. Dorokhov, O. O. Eisman, P. S. Elkind, A. I. Yelistratov, Yu. H. Korukhov, M. V. Kostytskiy, V. K. Lysychenko, P. A. Lupinska, P. I. Liubliński, V. M. Makhov, M. M. Mikheienko, V. T. Nor, Yu. K. Orlov, A. Ya. Paliashvili, M. Ya. Sehai, M. S. Spasovych, M. S. Strohovych, I. Ya. Foinytskiy, S. A. Sheifer, M. Ye. Shumylo and others. As the analysis of special literature, domestic and foreign legislations shows, this problem is far from the final solution. In many cases lawyers only state obligatoriness of scheduling examinations with reference to the relevant articles of the Criminal Procedural Code without disclosing criteria for obligatoriness. At the same time, it is also pointed out that the need to conduct forensic examinations in the criminal cases is not limited to the variant, listed in the legislation as compulsory for scheduling. Therefore, it was concluded that the need to schedule examinations in investigative or judicial practice is diverse, plentiful and takes into account the specific features of a particular case.

The purpose of the paper is to determine the grounds for compulsory scheduling forensic examinations in Ukraine, countries of the near abroad and the formulation of a general criterion that would determine the cases of compulsory involvement of an expert in the criminal proceedings.

In accordance with Art. 242 of the Criminal Procedural Code of Ukraine (hereinafter – CPC), the investigator or the prosecutor schedule an expertise at his own discretion if there is a necessity in it except for the cases when the law provides for its compulsory scheduling. In the process of proving this means that the circumstances, listed in Part 2 of Art. 242 of CPC, may only be established with the help of such a source of evidence as the expert's conclusion. The legislator has introduced the category of compulsory forensic examinations, without obtaining the results of which in certain cases, any criminal proceeding as a cognitive-evidential process can not be considered to be completed and excludes the possibility of adopting a final legal decision. Compulsory scheduling expertise in accordance with Part 2 of Art. 242 of the applicable CPC does not differ greatly from CPC of Ukraine of 1960 and includes: 1) determining causes of death; 2) determining severity and nature of bodily injuries; 3) determination of the mental state of the suspect in the presence of information that cast doubt on his sanity, limited sanity; 4) determining age of the person, if it is necessary to resolve the issue on possibility of bringing him to criminal liability and in another way it is impossible to obtain this information; 5) determination of the sexual maturity of the victim in the criminal proceedings in relation to the crimes provided by Art. 155 of the Criminal Code of Ukraine. On May 13, 2014 Law of Ukraine No. 1261-VII has introduced the sixth item on compulsory scheduling and performing expertise for “determining amount of material damage, harm of non-property nature, and harm to the environment, caused by a criminal offense”. This novation speaks to the expansion of guarantees on observance of the rights of the sufferer, as the matter concerns damages from the committed crime which should be compensated by the offender.

The list of cases of compulsory scheduling expertise is extended by the resolutions of the Plenums of the Supreme Court of Ukraine (hereinafter – SCU). The absence of an expert conclusion in the materials of criminal proceedings – one of the compulsory sources of evidence when deciding on the person's culpability or innocence, gives grounds to believe that the investigation was unilaterally and biased in violation of the criminal procedural law, and therefore the verdict is subjected to reversal. Such provisions are contained in the resolutions of the plenums of SCU:

– “On judicial practice in cases of crimes in the sphere of trafficking narcotic drugs, psychotropic substances, their analogues or precursors”: in order to establish the type, name and properties of the narcotic drug, psychotropic substance, analogue of such a drug, substance or precursor, their origin, means of manufacture or processing, as well as belongingness of narcotic-contained plants, special knowledge is required, in criminal trials on this category there must necessarily be an expert conclusion on these issues¹;

– “On judicial practice in cases of embezzlement and other illegal handling with weapons, ammunition, explosives, explosive devices or radioactive materials”: in order to decide whether the relevant items are weapons, ammunition, explosives, explosive devices or radioactive materials there must be necessarily performed an expertise²;

– “On the practice of applying legislation on cases of crimes of underages by courts of Ukraine”: if there is information that an underage is mentally retarded, a forensic psychological and psychiatric examination should be appointed to resolve the issue of the presence or absence of retardation in psychic development of an underage, on the extent of such a lag, on the establishment of the conditions of his general development with the aim of clarifying the question of whether an underage could fully understand the significance of his actions and to what extent he could manage them³;

– “On the practice of applying legislation on crimes against safety of production by courts of Ukraine”: in cases where scientific, technical or other special knowledge is required to resolve certain issues during criminal proceedings, the court should appoint an expertise⁴;

¹ See: Про судову практику в справах про злочини у сфері обігу наркотичних засобів, психотропних речовин, їх аналогів або прекурсорів : постанова Пленуму ВСУ від 26.04.2002 №4 (із змінами, унесеними згідно з постановою Пленуму ВСУ від 18.12.2009 №16, п. 2) [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws/show/v0004700-02>.

² See: Про судову практику в справах про викрадення та інше незаконне поводження зі зброєю, бойовими припасами, вибуховими речовинами, вибуховими пристроями чи радіоактивними матеріалами : постанова Пленуму ВСУ від 26.04.2002

³ See: Про практику застосування судами України законодавства у справах про злочини неповнолітніх : постанова Пленуму ВСУ від 16.04.2004 №5, п. 7 [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws/show/va005700-04>.

⁴ See: Про практику застосування судами України законодавства у справах про злочини проти безпеки виробництва : постанова Пленуму ВСУ від 12.06.2009 №7, п. 3 [Електронний ресурс]. — Режим доступу : <http://zakon4.rada.gov.ua/laws/show/va007700-09>.

– “On judicial practice in cases of crimes against life and health of a man”: in order to determine the causes of death, severity and nature of injuries, scheduling expertise is compulsory. For clarification, was the act made in the state of heat passion, the court should appoint a psychological and psychiatric examination¹;

– “On judicial practice in cases of crimes against property”: the amount of property that has been captured by the guilty person has as a result of the crime commitment is determined by the retail (purchase) prices that existed at the time of the crime commitment, and the amount of compensation for the damage caused by the crime – by correspondent prices when resolving the case in the court. In the absence of the specified prices for property, its value may be determined by performing an appropriate expert examination²;

– “On judicial practice in cases on crimes against sexual freedom and sexual inviolability of the person”: in order to determine the nature of the impact on the body of a sufferer of medical drug, narcotic drugs, poison, toxic or other highly toxic substances, the use of which could lead to a helpless state, a corresponding expertise should be scheduled³;

– “On the practice of consideration by courts of criminal cases on the manufacture or sale of counterfeit money or securities”: the question whether the banknotes or state securities are counterfeit, which method of counterfeit was used in doing so, were not earlier banknotes or state securities with similar signs of counterfeiting the subject of criminalistic research, etc., should be resolved with the help of criminalistic expertise⁴;

– “On the practice of applying legislation on cases on certain crimes against road safety and operation of transport, as well as on administrative offenses in transport by the courts of Ukraine”: when in order to solve questions, arising in the case of a crime against road safety or operation of transport, special knowledge is required, the court should schedule an expertise⁵.

¹ See: Про судову практику в справах про злочини проти життя та здоров'я особи : постанова Пленуму ВСУ від 7.02.2003 № 2, п. 27 [Електронний ресурс]. — Режим доступу : <http://zakon4.rada.gov.ua/laws/show/v0002700-03>.

² See: Про судову практику у справах про злочини проти власності : постанова Пленуму ВСУ від 06.11.2009 № 10, п. 25 [Електронний ресурс]. — Режим доступу : <http://zakon4.rada.gov.ua/laws/show/v0010700-09>.

³ See: Про судову практику у справах про злочини проти статеві свободи та статеві недоторканості особи : постанова Пленуму ВСУ від 30.05.2008 № 5, п. 5 [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws/show/v0005700-08>.

⁴ See: Про практику розгляду судами кримінальних справ про виготовлення або збут підроблених грошей чи цінних паперів : постанова Пленуму ВСУ від 12.04.1996 № 6, п. 6 [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws/show/v0006700-96>.

⁵ See: Про практику застосування судами України законодавства у справах про деякі злочини проти безпеки дорожнього руху та експлуатації транспорту, а також про адміністративні правопорушення на транспорті : постанова Пленуму ВСУ від 23.12.2005 № 14 (із змінами, унесені згідно з постановою Пленуму ВСУ від 19.12.2008 № 18, п. 19) [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws/show/v0014700-05>.

The question of compulsory scheduling expertise is differently resolved in the countries of the near abroad. From 14 of former Soviet republics (with the exception for Ukraine) in the CPC of Georgia, Lithuania and Estonia there are no provided such situations at all. In other countries the norm on the compulsory scheduling expertise does not exists in the CPC.

Among the circumstances which are established exclusively by expert examination in all CPC there are specified the cause of death, the severity of injury (harm to health), the age of the suspect, his mental state. However, other grounds for compulsory performing expert examination differ from Art. 242 of CPC of Ukraine. They are defined as follows:

- the possibility of correct perception and description by the witness of the circumstances to be established in the criminal case (Articles 264.2, 140.0.1–140.0.4 of the CPC of the Republic of Azerbaijan, Art. 108 of the CPC of the Republic of Armenia, Art. 271 of the CPC of the Republic of Kazakhstan, Art. 200 of the CPC of the Kyrgyz Republic, Art. 195 of the CPC of the Republic of Latvia, Art. 143 of the CPC of the Republic of Moldova, Art. 209 of the CPC of the Republic of Tajikistan, Art. 288 of the CPC of the Republic of Turkmenistan, Art. 173 of the CPC of the Republic of Uzbekistan);

- the possibility of correct perception and description of the circumstances by the victims to be established in the criminal case (Articles 264.2, 140.0.1–140.0.4 of the CPC of the Republic of Azerbaijan, Art. 108 of the CPC of the Republic of Armenia, Art. 228 of the CPC of the Republic of Belarus, Art. 271 of the CPC of the Republic of Kazakhstan, Art. 200 of the CPC of the Kyrgyz Republic, Art. 195 of the CPC of the Republic of Latvia, Art. 143 of the CPC of the Republic of Moldova, Art. 196 of the CPC of the Russian Federation, Art. 209 of the CPC of the Republic of Tajikistan, Art. 288 of the CPC of the Republic of Turkmenistan, Art. 173 of the CPC of the Republic of Uzbekistan);

- the age of the victim (Articles 264.2, 140.0.1–140.0.4 of the CPC of the Republic of Azerbaijan, Art. 108 of the CPC of the Republic of Armenia, Art. 228 of the CPC of the Republic of Belarus, Art. 271 of the CPC of the Republic of Kazakhstan, Art. of the CPC of the Kyrgyz Republic, Art. 195 of the CPC of the Republic of Latvia, Art. 143 of the CPC of the Republic of Moldova, Art. 196 of the CPC of the Russian Federation, Art. 209 of the CPC of the Republic of Tajikistan, Art. 288 of the CPC of the Republic of Turkmenistan, Art. 173 of the CPC of the Republic of Uzbekistan);

- the physical condition of the suspect, accused, when there is doubt about the ability to defend independently his rights and legitimate interests in the criminal process (Art. 228 of the CPC of the Republic of Belarus, Art. 271 of the CPC of the Republic of Kazakhstan, Art. 143 of the CPC of the Republic of Moldova, Art. 196 of the CPC of the Russian Federation, Art. 209 of the CPC of the Republic of Tajikistan, Art. 288 of the CPC of the Republic of Turkmenistan, Art. 173 of the CPC of the Republic of Uzbekistan);

- the mental and physical condition of a person who may have been subjected to torture, humiliating or degrading treatment (Article 143 of the CPC of the Republic of Moldova);

- pregnancy or the fact of its artificial termination (Art. 195 of the CPC of the Republic of Latvia, Art. 173 of the CPC of the Republic of Uzbekistan);

- the fact of entering into sexual relations (Art. 195 of the CPC of the Republic of Latvia, Art. 173 of the CPC of the Republic of Uzbekistan);
- authenticity of money and securities; ascertainment of narcotic substances, psychotropic substances and precursors (Art. 195 of the CPC of the Republic of Latvia, Art. 173 of the CPC of the Republic of Uzbekistan);
- the identity of the deceased if an exhumation of the corpse has been carried out; ascertainment of weapons, ammunition or explosives (Art. 195 of the CPC of the Republic of Latvia);
- the mental state of the suspect, accused at the age of over eighteen years in the investigation of the crime against the sexual inviolability of a minor under the age of fourteen, to decide whether or not he has a sexual preference disorder (pedophilia) (Art. 196 of the CPC of the Russian Federation);
- the mental or physical state of the suspect, accused, when there is reason to believe that he is ill for drug addiction (Art. 196 of the CPC of the Russian Federation);
- the necessity and the possibility of treatment of persons suffering from venereal and other infectious diseases, chronic alcoholism and drug addiction (Art. 173 of the CPC of the Republic of Uzbekistan)
- technical causes of explosions, disasters and other extraordinary events (Art. 173 of the CPC of the Republic of Uzbekistan).

It is interesting to note that the CPC of the Republic of Azerbaijan, the Republic of Armenia, the Republic of Belarus, the Kyrgyz Republic, the Republic of Latvia, the Russian Federation, the Republic of Tajikistan, the Republic of Turkmenistan provides an exhaustive list of such situations while in the CPC of the Republic of Kazakhstan, the Republic of Moldova, the Republic of Uzbekistan, in addition to the cases listed, it is stated that scheduling and performing expertise is compulsory if it is necessary to establish other circumstances in the criminal proceedings, which could not be reliably determined by other evidence. Analysis of compulsory cases of performing expertise, listed in the CPC of different countries, as well as in the recommendations of the SCU, shows that they are aimed at establishing features, object, subject, subjective side of the crime, serve as the basis for the qualification of the criminal act and evaluation of other evidence.

There raises the question: Is it possible to unite all the cases of compulsory performing expertise in one norm? R. S. Bielkin offers three options for solving this problem: 1) to expand the list of cases of compulsory scheduling forensic expertise; 2) to formulate the legal norm in the CPC, in which there would be expressed the general requirement, the general conditions for the compulsory scheduling expertise instead of the detailed list of such cases, bearing in mind that the practice makes adjustments to any such a list; 3) to construct the CPC with such a norm which in its content would combine the first and second approaches: containing the list of the most common cases of compulsory applying expertise, as well as the formula, which would allow to expand this list depending on the circumstances of the criminal proceedings and his nature¹.

¹ See: *Белкин Р. С. Курс криминалистики : пособие / Р. С. Белкин. — М.: ЮНИТИ-ДАНА, Закон и право, 2001. — С. 620.*

Most of the suggestions, given in the literature, concern the first direction. For example, B. M. Bishmanov proposes to schedule obligatorily an expert examination to establish the mental or physical state of the person who committed the crime for which the death penalty is foreseen¹. Ye. V. Mishchenko considers performing forensic psychiatric examination to be compulsory before delivering the decision on the application of compulsory medical measures². V. V. Kurdiukov proposes to schedule obligatorily forensic psychological examination in the cases when: a) there are reasonable doubts about the possibility of the person (including the minor) to fully understand the significance of his actions, to manage them and to foresee the consequences of such actions; b) there is a reason to believe that in his mental development the person has not reached the age at which criminal responsibility may come, although his biological age provides for this possibility; c) the nature of the actions of a person and his condition after they have been committed, testify to the presence of physiological affect in him³. In the opinion of O. M. Bandurka with co-authors, it is necessary to consider performing forensic psychiatric examination if in respect to mentally healthy witnesses or victims, there is a doubt in their ability to correctly perceive circumstances relevant to the case because of individual psychological or age characteristics and give accurate testimonies about them⁴. N. S. Karpov also considers being appropriate to supplement Part 2 of Art. 242 of the CPC of Ukraine with the provision that the investigator, prosecutor are required to appoint an expert examination when there is doubt as to whether the witness or the victim due to his physical or mental deficiencies may correctly perceive facts of evidentiary value and give evidence about them⁵. O. V. Konstantynov proposes to supplement the grounds for compulsory scheduling forensic expertise in cases when a specialist points out on the need for ordering an expert examination, or when the parties, after getting acquainted with the explanations of a specialist, have submitted a petition for the necessity of scheduling an examination⁶. This proposal is questionable since the objective factors for compulso-

¹ See: Бишманов Б. М. Производство судебной экспертизы в уголовном процессе / Б. М. Бишманов // Вест. Оренбург. гос. ун-та. — 2004. — №3. — С. 68.

² See: Мищенко Е. В. Обязательное производство судебно-психиатрической экспертизы по делам о применении принудительной меры медицинского характера / Е. В. Мищенко // Вест. Оренбург. гос. ун-та. — 2007. — №3. — С. 33.

³ See: Курдюков В. В. Теоретичні засади та критерії обов'язкового призначення судових експертиз в кримінальному процесі України : автореф. дис. на здобуття наук. ступеня канд. юрид. наук : спец. 12.00.09 «Кримінальний процес та криміналістика; судова експертиза» / В. В. Курдюков. — К., 2009. — С. 14.

⁴ See: Бандурка А. М. Юридическая психология : учебник / А. М. Бандурка, С. П. Бочарова, Е. В. Землянская. — Харьков: Нац. ун-т внутр. дел, 2002. — С. 295.

⁵ See: Карпов Н. С. Использование специальных знаний по уголовно-процессуальному законодательству Украины / Н. С. Карпов // Известия Тул. гос. ун-та. Эконом. и юрид. науки. — Тула, 2013. — №4-2. — С. 76.

⁶ See: Константинов А. В. Процессуальные и организационные проблемы участия специалиста в уголовном судопроизводстве на стадии предварительного расследования : автореф. дис. на соискание уч. степени канд. юрид. наук : спец.

ry scheduling examination are replaced with the subjective opinion of even a knowledgeable person.

The problem of compulsory scheduling expertise is resolved by the legislators of most states by listing such cases and expanding them as necessary. An example may serve the indicated supplement introduced in Art. 242 of CPC of Ukraine three years after its adoption. However, the development of forensic expertise, the expansion of the possibilities for establishing various circumstances of the crime will inevitably lead to the need of expanding the list of compulsory scheduling expertise. Such situations, responding to the needs of the practice of nowadays, will not have the necessary factor of safety: depending on the change in the nature of crime and emergence of new types of crime, possibilities expansion of the expertise concerning broadening the range of tasks that are available to be resolved as to the most diverse categories of criminal proceedings. Therefore, the list of situations of compulsory scheduling expertise will undoubtedly be expanded by investigative practice and court requirements. In fact, in the future there will be a situation of the present day, but regarding to a new, expanded list by the legislator.

A. V. Kudriavtseva is a supporter of the formulation of the norm which provides general criteria for compulsory scheduling expertise. In this norm, she suggests that the examination is compulsory if “in order to establish the circumstances essential for the criminal proceedings, it is necessary to conduct in-depth studies on the basis of special knowledge in the field of science, technology, art or handicraft, and to establish the criminal procedural capacity of the participants in the criminal proceedings”¹. Agreeing in general with this proposal, it is impossible not to make two objections. Firstly, it is unclear what are “essential” circumstances. Secondly, indication to the necessity to carry out “in-depth studies” causes comments. “Depth” or the complexity of research are estimated notions which depend on many factors, starting from the raised task, the quantity and quality of objects, the availability of research methods, and so on. For example, is it necessary to consider the establishment of the knife’s belongingness to the criminal-legal category “cold arms” as an in-depth study, when it is performed: 1) inspection of the object to compare similarity of its external structure (the shape of the construction as a whole and the forms of certain characteristic constructive elements) with known analogues of cold arms samples; establishment of a complex of constructive elements, allowing it to attribute it to a certain form and type of cold weapons; 2) measuring the dimensions of individual elements, establishing the strength characteristics of both the structure as a whole and the separate parts². In general, this study can not be considered as difficult but it is obligatory for labeling process.

12.00.09 «Уголовный процесс, криминалистика и судебная экспертиза, оперативно-розыскная деятельность» / А. В. Константинов. — М., 2006. — С. 10.

¹ See: *Кудрявцева А. В.* Дискуссионные вопросы назначения и проведения экспертиз в уголовном процессе России / А. В. Кудрявцева // Вестник Южно-Урал. гос. ун-та. Серия «Право». — 2007. — Вып. 9. — № 4. — С. 84.

² See: Методика криміналістичного дослідження холодної зброї та конструктивно схожих з нею виробів : рішення розширеного засідання секції НКМР Міністерства юстиції України з проблем трасології та судової балістики із залученням

We support the proposal to formulate a general norm on compulsory involvement of an expert (scheduling expertise). In our opinion, V. V. Kurdiukov is right when he says that it is necessary to define a single criterion for the obligatoriness of scheduling expertise. The author took a person and his life as the criterion¹. At the same time, this criterion does not agree with the given numerous situations of compulsory involvement of experts in investigating crimes not related the study of human. We believe that such a general criterion should be the impossibility of obtaining evidence in the criminal proceedings by any means of proof ever as the use of special knowledge in the form of forensic examination. In our opinion, applying this criterion for the compulsory scheduling expertise will make it possible to fully and comprehensively investigate the circumstances of the criminal offense and is the basis for delivering an objective judicial decision.

Thus, we propose the following formulation of Part 2 of Art. 242 of the CPC of Ukraine: “The parties of the criminal proceedings necessarily involve the expert, and the investigating judge or the court entrusts the examination to the expert institution, expert or experts if the information on the circumstances relevant to criminal proceedings can be established only by performing an expertise”.

ОБОВ'ЯЗКОВЕ ПРИЗНАЧЕННЯ СУДОВИХ ЕКСПЕРТИЗ У КРИМІНАЛЬНОМУ ПРОВАДЖЕННІ

Щербаковський М. Г.

Розглянуто проблему обов'язкового призначення судових експертиз згідно з вітчизняним і зарубіжним законодавством. Показано, що з урахуванням потреб практики та розвитку судових експертиз найбільш доцільним є формулювання процесуальної норми із загальними вимогами, які визначають випадки обов'язкового залучення експерта.

Ключові слова: судова експертиза, кримінальне провадження, обов'язкове призначення, кримінально-процесуальний закон.

ОБЯЗАТЕЛЬНОЕ НАЗНАЧЕНИЕ СУДЕБНЫХ ЭКСПЕРТИЗ В УГОЛОВНОМ ПРОИЗВОДСТВЕ

Щербаковский М. Г.

Рассмотрена проблема обязательного назначения судебных экспертиз согласно отечественному и зарубежному законодательству. Показано, что с учетом потребностей практики и развития судебных экспертиз наиболее целесообразным является формулирование процессуальной нормы с общими требованиями, определяющими случаи обязательного привлечения эксперта.

Ключевые слова: судебная экспертиза, уголовное производство, обязательное назначение, уголовно-процессуальный закон.

членів Координаційної ради з питань судової експертизи [Електронний ресурс] // Протокол від 15.01.1999 (із змінами від 12.09.2014). — Режим доступу : <http://zakon4.rada.gov.ua/laws/show/n0002320-99>.

¹ See: Курдюков В. В. Indicated work. — С. 10, 13.

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SCIENTIFIC PARADIGM OF OPTICAL RESEARCH METHODS OF MICROOBJECTS

The research method as a method of scientific cognition as well as the scientific foundations of optical methods for expert examination of microobjects are considered. The methodological and practical aspects of the systematization of optical methods for studying microobjects are analyzed and their multilevel classification is proposed. The possibilities of individual optical methods for studying microobjects are highlighted.

Keywords: method, methodology, optical methods of criminalistic researches, classification, systematization, microscopy, spectroscopy.

The method of research as a method of scientific knowledge is of great importance in any field of activity. The multiplicity of methods, offered by science for the purposeful and maximum effective activity, including for the development of scientific research as such (theoretical knowledge), provides their ordering, subordination and coordination, systematization in science and, accordingly, in practical cognition.

If we consider the essence of the term “method” as a separate notion, then, in our opinion, the method is a totality of certain rules, techniques, means, algorithms, principles, norms in the process of cognition¹.

The methodology is a totality, sequence, the order of use of various means and methods in research. If the methodology is a kind of tactical plan that determines the way and sequence of solving a particular scientific or practical problem, then the methodology develops a strategy of cognitive and practical activity².

Any systematization that offers a scientific classification of methods is carried out for various purposes. Any system is artificial and plays a service role primarily for scientific analysis, and, in doing so, is specific for each branch.

The methods of forensic expertise have methodological and practical aspects. Those aspects which belong to the scientific methods of the general theory of forensic expertise are an instrument of science cognition and its development, and those aspects which deal with expert practice are a totality of means used in expert research.

¹ See: *Неня О. В.* Оптичні методи експертних досліджень мікрооб’єктів : дис. ... канд. юрид. наук : спец. 12.00.09 / О. В. Неня. — К., 2016. — С. 14–24.

² See: *Данильян О. Г.* Основи філософії : навч. посібник / О. Г. Данильян, В. М. Тараненко. — Х. : Право, 2003. — С. 225–241.

A topical issue of effective expert activity is the expansion of the possibilities of expert researches of material evidence, in particular microobjects, requiring the use of high-precision, highly sensitive methods, a wide spectrum of which is occupied, namely by optical methods. The main factor in the expansion of such opportunities, in our opinion, is the improvement of optical methods of researches; they are already used in expert practice, as well as the adaptation and introduction of new optical methods into their system from natural sciences.

The solution of these problems is impossible without a scientific system approach to the assessment of the possibilities of optical methods, as well as a comprehensive and integrated understanding of the physical principles on which they are based. The realization of the aforesaid may be resolved by developing a scientifically grounded classification and systematization of such methods.

On the basis of analysis of available sources, it can be concluded that the development of the question of the systematization of optical methods for criminalistic study of microobjects remained without attention of scientists. Some scientists – physicists, chemists, pharmacists, biologists, criminalists offer separate classifications of physical and physico-chemical research methods (including observation and analysis) that contain optical methods.

So, the aim of the paper is analysis of directions and development of the principles for realization of system approach for the use of optical methods of studying microobjects.

The methods used by criminalists and forensic experts, as well as the methods that are adopted from the natural sciences, may be systematized on different logical grounds, for example, by the method's belongingness to any branch of science, by tasks (identification and non-identification studies), depending on the size of the objects being studied (visual, microscopic), by the consequences of the research (those that destroy the object of research, and those that do not destroy it), and also by the types of objects under study (trasological, ballistic, handwriting, etc.).

The most complete information on the existing research methods (in particular, the physical principles on which they are based), their capabilities, as a rule, allows choosing the most effective ones, and if necessary, to confirm/disprove the reliability of the obtained research results by another method with similar capabilities, and also to ensure checking applicability (validation) of methods and techniques in compliance with ISO quality standards.

To collect, observe, record, investigate the sources of evidence, in particular microobjects, a wide range of optical methods and tools is applied, it allows to answer difficult questions of identification, classification, diagnostic or situational nature. With the help of optical methods, we investigate morphological characters; physical and chemical properties; internal structure (ultramicrostructure); atomic or molecular composition of objects (microobjects).

Optical methods of criminalistic researches are the methods based on the use of the laws of optics concerning the nature, propagation and interaction with the substance of electromagnetic radiation of the optical range, and they give a possibility for obtaining comprehensive information to solving forensic problems,

responding to such requirements as permissibility, ethics, validity, reliability, safety, efficiency, economy, accessibility¹.

Optimal systematization of optical methods of criminalistic research requires an appropriate classification mechanism which directly depends on the criterion by which optical methods may be divided.

Analysis of expert practice, as well as scientific works of criminalists such as A. I. Vinberg, O. P. Shliakhov, V. S. Mitrychev, O. O. Davydova, E. V. Sysoiev and others² shows that in the present time the main criterion for choosing the method of investigation is the nature of information about the object under study, in particular the nature of the properties that are being investigated. However, this approach does not take into account that namely the comprehensive knowledge of the methods of obtaining information that will stipulate the right choice of them in accordance with the nature of the results of the research being received. Optical methods may be considered and classified, proceeding also exclusively from the nature of the information being obtained, which is convenient for the expert. This approach immediately limits creative and search components of his activities, makes it impossible to deepen the research, and most importantly – further development and expansion of the possibilities of the expert practice. Classification of optical methods may be carried out entirely with regard to the physical phenomena that underlie them. Such classifications are offered by scientists in analytical chemistry, biology, nondestructive testing, in particular by L. V. Lievshyn, O. M. Saletskyi, E. P. Clark, K. N. Eberhardt, V. H. Diukov, Yu. O. Kudieiarov, Yu. A. Pentin, L. V. Vilkov, O. A. Babushkin with co-authors, H. V. Kreopalova, N. L. Lazareva, D. T. Puriaiev, S. J. Bredberi and co-authors, Ch. Cantor, P. Schimmel et al³. At the same time, the practical

¹ See: *Неня О. В.* Indicated work. — С. 37.

² See: *Винберг А. И.* Общая характеристика методов экспертного исследования : сб. науч. тр. ВНИИСЭ / А. А. Винберг, А. Р. Шляхов // *Общее учение о методах судебной экспертизы.* — М., 1977. — Вып. 28. — С. 54–93; *Митричев В. С.* Криминалистическая экспертиза материалов, веществ и изделий / В. С. Митричев. — Саратов : Изд-во Сарат. ун-та, 1980. — С. 55–56; *Давидова О. О.* Криміналістичні дослідження матеріалів, речовин та виробів : курс лекцій / О. О. Давидова. — К. : КНТ, 2008. — С. 60; *Криминалистическое исследование материалов, веществ и изделий : учеб. пособие* / [Э. В. Сысоев, А. В. Селезнев, Е. В. Бурцева, И. П. Рак]. — Тамбов : Изд-во Тамб. гос. техн. ун-та, 2007. — 84 с.

³ See: *Левшин Л. В.* Оптические методы исследования молекулярных систем. Ч. 1. Молекулярная спектроскопия / Л. В. Левшин, А. М. Салецкий. — М. : Изд-во МГУ, 1994. — 320 с.; *Кларк Э. Р.* Микроскопические методы исследования материалов / Э. Р. Кларк, К. Н. Эберхардт. — М. : Техносфера, 2007. — 376 с.; *Дюков В. Г.* Растровая оптическая микроскопия / В. Г. Дюков, Ю. А. Кудеяров. — М. : Наука, 1992. — 206 с.; *Пентин Ю. А.* Физические методы исследования в химии (Структурные методы и оптическая спектроскопия) / Ю. А. Пентин, Л. В. Вилков. — М. : Мир, АСТ, 2003. — 683 с.; *Методы спектрального анализа* / [А. А. Бабушкин, П. А. Бажулин, Ф. А. Королев и др.]; под ред. В. Л. Левшина. — М. : Изд-во Моск. ун-та, 1962. — 509 с.; *Креопалова Г. В.* Оптические измерения : учебник для вузов / Г. В. Креопалова, Н. Л. Лазарева, Д. Т. Пуряев ; под ред. Д. Т. Пуряева. — М. : Машиностроение, 1987. — 263 с.; *Световая микроскопия в биологии: методы* / [С. Дж. Бредбери, П. Дж. Эвнетт, Р. В. Хоробин и др.]; под ред. А. Лейси ; пер. с англ. И. А. Воробье-

component of such classification for the expert is depreciated. Not the last factor when choosing an expert method of research are the questions posed to him. All indicated criteria are related in one or another way.

We propose an open multilevel classification of the system of optical methods for studying microobjects, based on the optimal combination of such criteria as: the essence of the physical process underlying the method; the task assigned to the expert; the nature of information about the microobjects under investigation (the nature of the properties being studied).

Optical methods of criminalistic research, with the help of which in expert practice we receive information about microobjects, are proposed to divide into three main groups: optical microscopy; optical spectroscopy; optical methods of analysis, based on measuring intensity of the light flux, degree of its polarization and refraction.

In most cases the methods of optical microscopy belong to the methods of observation and allow one to determine the morphology of microobjects, its aggregate state, the degree of possible contamination and interaction with the material of the carrier, to estimate the natural color and luminescence, and probably to establish its nature, etc. Optical microscopy combines the methods of investigation in the visible and invisible regions of the optical wave band. The visible part of the range includes methods: light and dark fields; interference and phase contrast; polarization, luminescence, confocal, stereoscopic, immersion, near field optical (nano-optical) microscopy, and invisible – observation in UV and IR-rays; X-ray microscopy and the like. The further division of most of these methods is also possible.

Holographic microscopy and microphotography, micro-cinematography, microscanning may be attributed as two separate “blocks” to optical microscopic methods along with the above “classical” methods. Holography (from Greek *όλος* – full + *γραφή* – record) is a set of methods and technologies for the accurate recording, reproduction and reformation of wave fields by means of a laser¹. Microphotography and micro-cinematography are traditional methods of recording that are widely used together with all other methods of microscopic research.

An innovative approach to receiving, processing and recording 3D images of micro-objects is 3D scanning.

Optical spectroscopy – spectroscopy in the optical (visible) wavelength range with the adjacent ultraviolet and infrared ranges to it (from several hundred nanometers to microns). As in optical microscopy, in optical spectroscopy the optical range of waves also extends to the X-ray range, since the processes of X-ray propagation in media obey the laws of optics.

With the help of optical spectroscopy methods, the overwhelming majority of information on the structure of matter at the atomic and molecular levels is obtained, in particular, how do atoms and molecules behave when combined in condensed matter that gives an important information about the chemical (qua-

ва. — М. : Мир, 1992. — 462 с.; Кантор Ч. Биофизическая химия : в 3 т. / Ч. Кантор, П. Шиммель ; под ред. А. А. Богданова, Ю. С. Лазуркина, М. Д. Франк-Каменецкого. — М. : Мир, 1984. — Т. 2. — 496 с.

¹ See: *Gabor D. A new microscopic principle / D. Gabor // Nature. — 1948. — Vol. 161. — P. 777–778.*

litative and quantitative) composition, surface structure of the object, distribution of filled and unfilled energy surface layers and the like.

At the first level of classification, optical spectroscopic methods are proposed to be divided into emission ones that use emission spectra, absorption that use absorption spectra, and reflection methods. Reflectance spectroscopy is a section of optical spectroscopy that studies consistent patterns of reflection of electromagnetic radiation from various media.

At the next level, emission and absorption methods are divided into those that use spectra of atoms or molecules to obtain information, most of which are further subdivided into derivative methods that allow solving more narrow questions. For example, atomic emission spectroscopy includes, in particular, methods: emission flame photometry; plasma emission spectroscopy; laser-emission spectroscopy.

As for the reflection spectroscopy, it is possible to distinguish the optical spectroscopic methods of specular reflection, diffuse reflection, and disturbed total internal reflection¹.

The third group of optical methods of criminalistic studies combines optical methods of analysis which, as it was already noted, are based on measuring intensity of the light flux, the degree of its polarization and refraction. The application of these methods does not envisage obtaining and studying spectra, and when they are used, "simple" measuring and recording means are applied, in particular: diffractometers, photometers, spectrophotometers, photoelectrocolorimeters, polarimeters, refractometers.

With the help of the specified group of methods, the atomic-molecular structure of substances is investigated; there are done determination of the composition and structure of substances, components, for which there are no satisfactory photometric and other methods of analysis, rapid measurement of the concentration of optically active substances, identification of ethereal oils, etc.²

All forms of researching microobjects that are performed during criminal proceedings, may be divided into two main groups: non-procedural – non-expert – to obtain guidance information and adopt optimal tactical and procedural decisions on the basis of it, and procedural – expert, which are the most important stage of using microobjects in Criminal proceedings and have an evidentiary value. At the same time, the overwhelming majority of optical methods are used to carry out both non-expert and expert studies.

The main tasks of non-expert research are as follows: detection of microobjects on the object-carrier; an approximate definition of their nature (for the search of comparative samples) to ascertain the mechanism of formation; comparison with the material of specific subjects (to determine advisability of further research).

In practice, only non-destructive methods and means, mainly optical ones, are used in conducting out-expert researches of micro-objects, in particular: vi-

¹ See: Беккер Ю. Спектроскопия / Ю. Беккер ; пер. с нем. Л. Н. Казанцевой ; под ред. А. А. Пупышева, М. В. Поляковой. — М. : Техносфера, 2009. — 528 с.; Методы спектрального анализа / [А. А. Бабушкин, П. А. Бажулин, Ф. А. Королев и др.].

² See: Неня О. В. Indicated work. — С. 38–77.

sual – inspection by means of optical magnification (loops of various designs, microscopes), special lighting devices (including ultraviolet, polarized light, halogen lamps), integrated-holographic devices and portable X-ray installations.

The main tasks of expert research of microobjects are: location on the carrier object; relative location of dissimilar microobjects on the surface of the object-carrier; state, usually changed from the original; substance (material) of microobjects on the carrier object; morphological features; composition, structure and other properties of microobjects.

To solve these problems, optical methods of research of all three groups of the proposed classification are used. For example, the use of such methods of optical microscopy as methods of light and dark field allows revealing a number of significant morphological features of the coating or the material: color, the nature of the layers, the number of layers and the sequence of their layering, the thickness, various types of inclusions, surface and interlayer contamination, the degree of adhesion of the layers, the traces of the relief from the surface of the colored object, pores, cavities, swellings and other technological or operational defects. It is possible to subsist these indications in micro coated layers of different sizes. By this time, according to the data of the morphological investigation, in many cases it is possible to identify the signs which individualize the object, and they give the basis for solving the question of sameness.

The method of luminescent microscopy, which allows identifying morphological and chemical features of objects (microobjects) may be called as almost universal method.

Laser microspectral analysis (plasma emission spectroscopy) has got a widespread use, it, unlike other methods of emission spectral analysis, has a high absolute sensitivity (from 10^{-6} to 10^{-12} g), and it allows to obtain complete information about the main elements, as well as admixtures and microadmixtures of the mineral part of the substance. The analysis can be carried out at qualitative and quantitative levels¹.

A highly sensitive method of X-ray structure analysis is the method of X-ray phase analysis, which is carried out at qualitative and quantitative levels and gives clear illustrations in the form of a roentgenogram and diffraction pattern and does not lead to a change or a destruction of the object. By this method we study metals, alloys, minerals, inorganic and organic compounds, polymers, amorphous materials, liquids and gases, molecules of proteins, nucleic acids, etc.² Among the spectroscopic methods of reflection, there is the method of multiple attenuation total internal reflection, which is successfully used for studying the surfaces of solids and liquid samples of aqueous solutions, viscous and adhesive substances, pastes, surface coatings, surfaces of polymeric compounds, laminated plastics, fibrous and foamed materials, various precipitation, slags, etc.³

¹ See: Криминалистическое исследование материалов, веществ и изделий : учеб. пособие / [Э. В. Сысоев, А. В. Селезнев, Е. В. Бурцева, И. П. Рак]. — Тамбов : Изд-во Тамб. гос. техн. ун-та, 2007. — 84 с.

² See: *Китайгородский А. И.* Рентгено-структурный анализ мелкокристаллических и аморфных тел / А. И. Китайгородский. — М.; Л., 1952. — 368 с.

³ See: *Харрик Н.* Спектроскопия внутреннего отражения : монография / Н. Харрик. — М. : Мир, 1970. — 336 с.

Spectroscopy of diffuse reflection is effective as an express, non-destructive method for the quantitative determination of certain substances.

One of the aspects of expanding possibilities of expert research of microobjects is the introduction of new methods, in particular optical ones from the natural sciences. The study of modern achievements in science and technology makes it possible to offer such promising optical methods for the study of microobjects as: 3D scanning of microobjects, microscopy based on the limitation of level of spontaneous emission (STED microscopy), the method of simultaneous formation and recording of Raman spectra and photoluminescence, 4D-visualization¹.

Consequently, the knowledge of the method is of great importance since it guides the researcher, helps him to choose the essential and to distinguish the secondary, to outline the path of the ascent from the known to the unknown, from the simple to the complex and to the general.

Each of the research methods has its advantages and limitations in application and expresses an essential aspect of the cognitive process, therefore in a "pure" form it can be distinguished only in abstraction. In the real process of cognition all methods are interrelated, interact and mutually complement each other. At the same time, the store of tools and methods, used in performing forensic examinations and researches is constantly expanding due to the application of new methods of investigating material evidence, being enriched with new instruments and equipment.

Knowing possibilities of the method and its physical basis, taking into account the conditions and tasks of forensic-expert research, from which does the nature of the information follow that should be obtained from the object of investigation, one can choose the most effective method for the entire range of existing both optical methods for studying microobjects and other scientific-technical criminalistic methods and means of research and analysis of objects.

That is why, the proposed classification of optical methods for studying microobjects (objects), in our opinion, will make it possible to solve optimally problems concerning their selection and assessment of the applied methods, to create the necessary basis for their use depending on the posed task, integrate them, and provide replenishment of the methods, arsenal.

НАУКОВА ПАРАДИГМА ОПТИЧНИХ МЕТОДІВ ЕКСПЕРТНОГО ДОСЛІДЖЕННЯ МІКРООБ'ЄКТІВ

Клименко Н. І., Неня О. В.

Розглянуто метод дослідження як спосіб наукового пізнання, а також наукові основи оптичних методів експертного дослідження мікрооб'єктів. Проаналізовано методологічні та практичні аспекти систематизації оптичних методів дослідження мікрооб'єктів і запропоновано їх багаторівневу класифікацію. Висвітлено можливості окремих оптичних методів дослідження мікрооб'єктів.

Ключові слова: метод, методологія, оптичні методи криміналістичних досліджень, класифікація, систематизація, мікроскопія, спектроскопія.

¹ See: Неня О. В. Indicated work. — С. 120–140.

НАУЧНАЯ ПАРАДИГМА ОПТИЧЕСКИХ МЕТОДОВ ИССЛЕДОВАНИЯ МИКРООБЪЕКТОВ

Клименко Н. И., Неня Е. В.

Рассмотрен метод исследования как способ научного познания, а также изложены научные основы оптических методов исследования микрообъектов. Проанализированы методологические и практические аспекты систематизации оптических методов исследования микрообъектов и предложено их многоуровневую классификацию. Освещены возможности отдельных оптических методов исследования микрообъектов.

Ключевые слова: метод, методология, оптические методы криминалистических исследований, классификация, систематизация, микроскопия, спектроскопия.

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THE ESSENCE OF THE EXPERT PROVISION IN THE CRIMINAL PROCEEDINGS

Attention is focused on the lack of an agreed opinion on the terminology used for the denotation of the activities on expert provision of justice in Ukraine. The content of the terms “provision”, “expert provision of justice”, “forensic-expert activity”, etc. are disclosed. The state of the normative-legal regulation of the notion “forensic-expert activity” is analyzed. It is proposed to consider the expert provision of the criminal proceedings as a structural element of the expert provision of the judicial power. The author’s interpretation of the notion “expert provision of criminal proceedings” is given.

Keywords: expert provision, forensic and expert activity, criminal proceedings, forensic examination.

Criminal proceedings are called to protect a person, society and the state from criminal offenses, to protect the rights, freedoms and legitimate interests of participants, to ensure prompt, complete and impartial investigation and judicial proceedings, to ensure that anyone, who has committed a criminal offense, should be brought to the justice power with a measure of his own guilt, that no one innocent would become accused or convicted, that no one would be subjected to unreasonable procedural coercion and that an appropriate legal procedure would be applied to each participant in the criminal proceedings¹. To achieve this task, the legislator has endured participants in the criminal proceedings

¹ See: Кримінальний процесуальний кодекс України : Закон України від 13.04.2012 № 4651-VI // Відом. Верхов. Ради України. — 2013. — № 9–10, 11–12, 13. — Ст. 88.

with certain tools. One such instrument is performing forensic examinations. In this regard, the issue of expert provision of criminal proceedings, in particular regarding the definition of its essence, becomes of particular urgency.

Issues related with interpretation of the notions of expert provision of justice power, forensic-expert activity, have repeatedly been the subject of research in the works of such scientists as O. I. Zherebko, N. I. Klymenko, V. Yu. Mosiazhenko, O. O. Oliinyk, I. V. Pyrig, M. Ya. Segai, R. L. Sopilnyk, V. V. Fedchyshyna, V. M. Sherstiuk, M. H. Shcherbakovskyi and others¹. The contribution of these scientists is undeniable, but their elaborations did not solve all the problematic issues. In particular, till the present time the issue of expert provision of criminal proceedings has not yet been worked out in terms of an integrated, systemic approach; there is no uniform approach to disclosing the content of expert provision of criminal proceedings and the like.

Taking into account the above indicated and with the purpose of clarifying the nature and content of the expert support of criminal proceedings, such a scientific task to be solved with the help of analysis of existing scientific views and provisions of the current legislation of Ukraine is to determine the essence of the expert provision of criminal proceedings.

We consider to be appropriate to begin the coverage of the essence of the expert provision with the clarification of semantico-etymological interpretation of the term “provision”. Under it, it is accepted to understand the activity, aimed at the supply of something with sufficient quantity; satisfaction of anyone, anything in whatever needs; providing someone with sufficient material means of subsistence; creating reliable conditions for the realization of something; guaran-

¹ See for example: *Жеребко О. І.* Судово-експертна діяльність: сутність, принципи, організаційні основи : автореф. дис. на здобуття наук. ступеня канд. юрид. наук : спец. 12.00.09 «Кримінальний процес та криміналістика; судова експертиза; оперативно-розшукова діяльність» / О. І. Жеребко. — Запоріжжя, 2010. — 22 с.; *Мосяженко В. Ю.* Криміналістичне, судово-експертне забезпечення та оперативно-розшукове супроводження досудового розслідування злочинів у сфері суспільної моралі / В. Ю. Мосяженко // Наше право. — 2015. — № 2. — С. 109–116; *Сегай М. Я.* Судова експертологія – наука про судово-експертну діяльність / М. Я. Сегай // Вісн. Акад. прав. наук України. — 2003. — № 2(33)–3(34). — С. 740–762; *Сопільник Р. Л.* Експертне забезпечення правосуддя у контексті сучасних євроінтеграційних процесів в Україні / Р. Л. Сопільник // Криміналіст. вісн. — 2015. — № 1(23). — С. 39–44; *Олійник О. О.* Адміністративно-правове регулювання судово-експертної діяльності : монографія / О. О. Олійник, В. В. Галунько, О. М. Єшук. — Херсон : Гринь Д. С., 2015. — 224 с.; *Пиріг І. В.* Предмет і система судової експертології / І. В. Пиріг // Наук. вісн. Київ. нац. ун-ту внутр. справ. — 2010. — № 6. — С. 223–231; *Він же.* Судова експертологія: проблеми формування предмета та системи науки // Наук. вісн. Дніпропетр. держ. ун-ту внутр. справ. — 2013. — № 2. — С. 485–493; *Федчишина В. В.* Сутність державного управління у сфері експертного забезпечення правосуддя в Україні [Електронний ресурс] / В. В. Федчишина // Державне управління: удосконалення та розвиток. — 2012. — № 12. — Режим доступу : <http://www.dy.nauka.com.ua/?op=1&z=660>; *Шерстюк В. М.* Судово-експертна діяльність (організаційно-правові та морально-етичні засади) : монографія / В. М. Шерстюк ; за ред. В. Ю. Шепітька. — Сімферополь : ДІАІПІ, 2008. — 196 с.

teering something: protection, guard of anyone, anything from danger¹. That is, first of all, the provision is in creating conditions favorable for the realization of tasks that are put before a certain type of activity. Concerning criminal proceedings, the following types of security are applied: organizational, personnel, material and technical, financial, information, forensic, expert and the like. Moreover, these types of provision are often correlated between themselves as a general and a separate. The expert provision of criminal proceedings, in our opinion, is a composite expert provision of justice power, since the expert provision is realized both in criminal, administrative, civil, economic processes and in the enforcement proceedings. As Yu. M. Chornous notes, in the context of solving problems of criminalistic provision of criminal proceedings, technical-criminalistic and expert-criminalistic provision, regardless interpretation of the essence of the correlation of these terms, is an important component, having a common goal: ensuring pre-trial investigation, judicial proceedings with scientifically grounded means, methods and techniques, as well as with forensic recommendations on their practical usage². In this connection, the question arises: why does the author think that the purpose of expert provision of criminal proceedings is only development of criminalistic recommendations, since expert provision concerns not only criminalistic types of expertise, but also other: economic, art, commodity, construction-technical, psychological and the like.

On the essence of expert support of criminal proceedings, there is no agreement of opinion in scientific circles regarding the choice of terminology for the denotation of such activities, and the interpretation of terms. So, in the scientific literature one can find such terms: “forensic-expert activity”, “expert provision of justice”, “forensic-expert provision of judicial power”, “expert-criminalistic provision” and others. Along with this, their interpretations also differ.

For example, V. V. Fedchyshyna, investigating the essence of public administration in the field of expert provision of judicial power in Ukraine, stated the fact that the term “expert provision of judicial power” was absent in the system analysis of scientific works of domestic and foreign researchers and in other practical literature. In the opinion of the scientist, in the essence, this is the formation and statement of qualitatively new principles of state administration, defined in the preamble of the Law of Ukraine “On Forensic Expertise”³, the legislative norms for organizing forensic expert activity in order to ensure judicial power of Ukraine with an independent, qualified and objective examination oriented at maximum use of achievements in science and technology⁴. Later in his scientific searches R. L. Sopilnyk operates with the term “expert provision”. Covering issues related to the expert provision of the judicial power in the context of modern integration processes in Ukraine, he clarifies the es-

¹ See: Великий тлумачний словник сучасної української мови / уклад. і гол. ред. Б. Т. Бусел. — К. : Ірпінь : ВТФ «Перун», 2009. — С. 375.

² See: Чорноус Ю. М. Криміналістичне забезпечення кримінального провадження / Ю. М. Чорноус // Криміналіст. вісн. — 2014. — № 1(21). — С. 35.

³ See: Про судову експертизу : Закон України від 25.02.1994 № 4038-XII // Відом. Верхов. Ради України. — 1994. — № 28. — Ст. 232.

⁴ See: Федчишина В. В. Indicated work.

sence, content and significance of forensic expert activity¹. V. Yu. Mosiazhenko, considering the features of pre-trial investigation of crimes in the sphere of public morality, also uses the term “forensic-expert provision”. From the content of the research done by her, it becomes evident that forensic-expert provision is identified with the activities of forensic experts, aimed at organizing and conducting forensic examinations for the sake of forming evidence which comply with the requirements of the Criminal Procedural Code of Ukraine². That is, the scientists identify expert provision of judicial power and forensic expert activity. In our opinion, the expert provision of judicial power is carried out by means of forensic-expert activity, the purpose of which is defined in the preamble of the Law of Ukraine “On Forensic Expertise”. Therefore, we will analyze the scientific approaches to the interpretation of the term “forensic-expert activity”.

At the legislative level, the notion of forensic-expert activity was firstly introduced with the adoption of the Law of Ukraine “On Forensic Expertise”. This normative legal act only entrenched the term “forensic-expert activity” and its goal is to ensure the judicial power in Ukraine with an independent, qualified and objective examination, oriented to maximal use of achievements in science and technology. Since this Law contains norms on scientific and methodical and personnel provision of forensic-expert activity, it can be concluded that, in accordance with the spirit of the Law, forensic-expert activity concerns not only performing forensic examinations, but also is aimed at the indicated goals.

In 2013, the official website of the Ministry of Justice of Ukraine promulgated the draft Law of Ukraine “On Forensic-expert Activity”, which was giving the definition of forensic-expert activity as a special type of activity related to the organization and performing of forensic examinations, expert studies, aimed at provision of authorized persons (bodies), legal entities and individuals with independent, qualified and objective conclusions, oriented at maximal use of achievements in science and technology, at creation and improvement of the scientific and methodical base in the field of Criminalistics and Forensic Expertise, as well as at the state administration in this field. This law is still a project, and therefore there is no legislative regulation of forensic-expert activity for today. M. Ya. Sehai proposes to define forensic-expert activity as activity of public authorities, legal entities and individuals founded on the constitutional principles to ensure the judicial power with independent, objective, qualified forensic expertise on the basis achievements in science and technology³. According to I. V. Pyrog, the content of the expert activity is the cognition of certain objects, processes or phenomena by special methods with the aim of obtaining new information about them⁴. O. I. Zharebko asserts that forensic-expert activity covers all acti-

¹ See: *Сопільник Р. Л.* Indicated work.

² See: *Мосяженко В. Ю.* Indicated work. — С. 114–115.

³ See: *Сегай М. Я.* Indicated work. — С. 752.

⁴ See: *Пирог І. В.* Предмет і система судової експертології. — С. 223–231; *Він же.* Судова експертологія: проблеми формування предмета та системи науки. — С. 485–493.

vities associated with performing forensic examination, formation of scientific bases for new forms and types of forensic expertise, organization of the activities of the expert subdivisions for performing specific types of forensic examinations, selection, training and education of personnel for recruiting expert subdivisions and the like. Moreover, as a distinctive feature of expert activity, the scientist distinguishes professionalization, in connection with which only persons, having necessary theoretical knowledge and practical skills, who have passed special training and occupy relevant positions or have received procedural powers to perform forensic examination, have the right to be engaged in this activity¹. An analysis of these provisions indicates that the overwhelming majority of scientists emphasize that forensic activity primarily performs a provisional function in order to create the necessary conditions for an independent, objective, qualified forensic expertise being the such that relies on the achievements in science and technology. That is, forensic expert-activity is not only an activity to conduct forensic examinations. We agree with the above position. In our opinion, the main function of forensic expert-activity is performing forensic expertise by knowledgeable persons, and its core is a forensic expertise. Consequently, the notion of forensic-expert activity is broader with respect to the content of the notion "forensic expertise". Accordingly, the circle of forensic expertise subjects (they are exclusively forensic experts) and the circle of subjects of forensic-expert activity (they are, in addition to forensic experts, the head of a specialized institution and a forensic expert institution as a legal entity and the corresponding subdivisions of state power bodies, to the sphere of whose administration specialized forensic institutions are included). Expert provision of justice power in the criminal proceedings is a narrower notion with regard to the notion of expert provision of judicial power, which includes both a provisional activity, as well as the activities for the direct performing forensic examinations by their subjects. Therefore, we consider that the expert provision of judicial power and the expert provision of criminal proceedings are related as general and a separate, as a whole and a part, and forensic expert activity is the driving mechanism for the expert provision of judicial power.

O. O. Oliynyk and co-authors note that forensic expert activity consists in conducting a legal, independent, objective and complete forensic examination on the basis of special knowledge of material objects, phenomena and processes that contain information on the circumstances of the legal case, as well as in the activities of the public administration concerning: maintenance of working conditions of the judicial expert at the location of the objects of research; creation of forensic-expert specialized institutions; provision with scientific-methodical and organizational-management activities in forensic-expert institutions; provision of the organizational-legal foundations for the activities of the Coordination Council on problems of forensic examination; maintenance of the State Register of Certified Judicial Experts; with organizational-legal basis for the activities of the expert-qualification commission; organizational-legal bases for training specia-

¹ See: *Жеребо О. І.* Indicated work. — С. 5, 6, 16.

lists for the specialized institutions which carry out forensic examinations; organization-legal bases for attestation of forensic experts, etc.¹

Concerning the above, we note the following. These provisions fully convey the content of the activities related to the expert provision of judicial power (forensic expert activity), including in criminal proceedings, but because of their complexities they make them difficult to perceive. After all, the definition of any phenomenon or process should be laconic, and not simply contain a list of constituent elements, features, tasks, subjects and methods of realization.

It is impossible to clarify the essence of the expert support of criminal proceedings without previous clarifying the essence of the notion of criminal proceedings. The last, according to item 10 of part 1 of Art. 3 of the Criminal Procedural Code of Ukraine, is defined as pre-trial investigation and trial, procedural actions in connection with the commission of an act, provided by the law of Ukraine on criminal liability. Accordingly, the essence of the expert provision of criminal proceedings is the establishment, organization and realization of activities, aimed at creating favorable conditions for the performance of the own professional duties by the subjects of forensic-expert activity, including in conducting forensic examinations during pre-trial investigation and judicial proceedings, procedural actions in connection with the commitment of a criminally punishable action in order to fulfill the task of the criminal proceedings.

Therefore, expert provision of criminal proceedings is a multifaceted category. Firstly, it is a constituent of expert provision of the judicial power and is closely related to the notion of forensic expert activity. Secondly, expert provision of criminal proceedings is an integral system that includes separate structural elements that are closely interrelated and united by a common goal. That is why under expert provision of criminal proceedings, we suggest to understand the activities to create conditions for the subjects of forensic expert activity to perform their professional duties, including to conduct forensic examinations during pre-trial investigation and judicial proceedings, procedural actions in connection with the commitment of a criminal offense in order to achieve the task of the criminal proceedings.

СУТНІСТЬ ЕКСПЕРТНОГО ЗАБЕЗПЕЧЕННЯ КРИМІНАЛЬНОГО ПРОВАДЖЕННЯ

Ткаченко Н. М.

Акцентовано увагу на відсутності узгодженої думки стосовно термінології, що використовується для позначення діяльності з експертного забезпечення правосуддя в Україні. Розкрито зміст понять «забезпечення», «експертне забезпечення правосуддя», «судово-експертна діяльність» тощо. Проаналізовано стан нормативно-правової регламентації поняття «судово-експертна діяльність». Запропоновано розглядати експертне забезпечення кримінального провадження як структурний елемент експертного забезпечення правосуддя. Наведено авторське тлумачення поняття «експертне забезпечення кримінального провадження».

¹ See: Олійник О. О., Галушко В. В., Євчук О. М. Indicated work. — С. 28.

Ключові слова: експертне забезпечення правосуддя, судово-експертна діяльність, кримінальне провадження, судова експертиза.

СУЩНОСТЬ ЭКСПЕРТНОГО ОБЕСПЕЧЕНИЯ УГОЛОВНОГО ПРОИЗВОДСТВА

Ткаченко Н. Н.

Акцентируется внимание на отсутствии согласованного мнения об используемой терминологии для обозначения деятельности по экспертному обеспечению правосудия. Раскрыто содержание понятий «обеспечение», «экспертное обеспечение правосудия», «судебно-экспертная деятельность» и др. Проанализировано состояние нормативно-правовой регламентации понятия «судебно-экспертная деятельность». Предложено рассматривать экспертное обеспечение уголовного производства как структурный элемент экспертного обеспечения правосудия. Приведена авторская трактовка понятия «экспертное обеспечение уголовного производства».

Ключевые слова: экспертное обеспечение, судебно-экспертная деятельность, уголовное производство, судебная экспертиза.

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INTEGRATION PROCESSES IN FORENSIC EXAMINATION: ESSENCE AND PROBLEM ISSUES OF COMPREHENSIVE RESEARCHES

Modern science considers the complexity of researches as one of the regularities of the process of cognition. Forensic examination, which is aimed at the use of knowledge accumulated in various fields of science with the purpose of resolving problems of legal proceedings, in the process of scientific and technological progress, is constantly subjected to the influence integration processes taking place in these areas. Scientific publications indicate that the integration of knowledge in forensic examination is an obligate process of its development, one of the main levers of influence on the formation of the foundations of comprehensive forensic expert studies; and now it is gaining more and more in depth and spread. Studying the forms of complexation in forensic examination, it is necessary to start from the analysis of the subject, tasks, objects, parties and techniques of comprehensive studies, since integration processes are realized in the development of forensic examination on the subject of knowledge integration, tasks of forensic, objects, subjects of knowledge integration and methods.

Keywords: forensic examination, integration processes, comprehensive expert researches, comprehensive examination, complex of researches, techniques, methods.

The term “integration” (from Lat. Integratio – restoration, replenishment) means unification of any parts into the whole, the process of development associ-

ated with unification of previously disparate parts and elements into a whole¹. This notion is used in many sciences, practical activities and has established itself in the status of general scientific. A significant number of works of foreign scientists is devoted to the study of theoretical and practical issues of various aspects of integration (for example, economic, production, etc.)². As for the integration processes that take place in the forensic examination, the use of this notion is primarily closely related with its very nature, since forensic expertise is always oriented at the maximum use of the achievements of various branches of science and technology in legal proceedings in the investigation of crimes and judicial consideration of criminal proceedings, civil, economic, administrative cases, cases on administrative violations, enforcement proceedings. In the process of cognition of any phenomena, we understand that they do not have absolute boundaries; when studying them, we come across with relatively independent forms of material (materialized) formations that go over into one another and form links in a single chain of development. Hence, the sciences that study them, may possess not absolute, but only relative independence. The transitions between the forms of the development of matter are reflected in the “transitional” sciences, that express the structural relation between the elements of the science as a whole in their content, demonstrate the unity of apartness and interpenetration, one of the forms of which is complexity. This work is namely devoted to the problems of comprehensive forensic expert studies. Modern science considers the complexity of researches as one of the regularities of the process of cognition. Forensic examination, which with the purpose of resolving tasks of legal proceedings, is aimed at the use of knowledge accumulated in various fields of science, in the process of scientific and technical progress, is constantly influenced by the integration processes taking place in these areas.

The study of problems of complexity in forensic examination is reflected in the scientific writings of many scientists. Thus, R. S. Bielkin associates the extension of the possibilities of forensic expertise with the enhancement of the effectiveness of the complex study of physical evidence³. T. V. Averianova emphasizes that in the process of complex research there is appeared the global process of modernity – the integration of scientific knowledge, the interpenetration of methods of scientific cognition⁴. She rightly notes that the application of the

¹ See, for example: Словник іншомовних слів / за ред. О. С. Мельничука. — 2-ге вид., випр. і допов. — К. : УРЕ, 1985. — 966 с.; Философский энциклопедический словарь / редкол.: С. С. Аверинцев, Э. А. Араб-Оглы, Л. Ф. Ильичев и др. — 2-е изд. — М. : Сов. энциклопедия, 1989. — 815 с.

² See, for example: Viner J. The Customs Union Issue / J. Viner. — New York : Carnegie Endowment for International Peace, 1950. — 221 p.; Wiles P. J. D. Communist International Economics / P. J. D. Wiles. — Oxford : Basil Blackwell, 1968. — 580 p.; Muller-Armack A. Wirtschaftsordnung und Wirtschaftspolitik. Studien Integration / A. Muller-Armack. — Bern; Stuttgart : Paul Haupt, 1976. — S. 231–242 та ін.

³ See: Белкин Р. С. Курс криминалистики : в 3-х т. / Р. С. Белкин. — М. : Юристъ, 1997. — Т. 3. — С. 116.

⁴ See: Аверьянова Т. В. Интеграция и дифференциация научных знаний как источники и основы научных методов судебной экспертизы / Т. В. Аверьянова. — М. : Акад. МВД РФ, 1994. — С. 16.

methods of other sciences into any single-taken branch of knowledge leads to its enrichment, to the development of general scientific foundations, creates conditions for the active creativity of scientists. Thus, each object of forensic examination due to its complexity and specificity of the tasks being solved, is investigated by means and methods of several sciences¹. Proceeding from the foregoing, it can be noted that one of the forms of knowledge integration in forensic expertise is the integration of methods of various sciences.

Due to the application of the methods of various sciences, there takes place integration of scientific knowledge itself, which leads to the emergence of new branches of knowledge. Thus, A. I. Vinberh and N. T. Malakhovska indicate that the process of interaction, relationship of subject, brunch knowledge in the process of studying various objects of research leads by means of analysis of the general properties of the various objects to interaction of sciences that research them. As examples, they name transport tracology, which arose as a result of interaction of autotechnical and tracological knowledge, forensic medical tracology, etc.² In general, forensic tracology as a science of traces, being one of the directions of forensic technique as forensic science, confirms by its very appearance and development this thesis concerning penetration of methods of various sciences into forensic expertise, that is, their integration, associated with the complex nature of objects and requires the study of their different sides by appropriate methods. R. S. Bielkin and A. I. Vinberh also note the processes of knowledge integration, distinguishing the law of active creative adaptation of achievements of other sciences and the general law of the development of science as the integration of scientific knowledge for the purposes of legal proceedings³. S. F. Bychkova notes that it is technical knowledge that acts as a peculiar synthesis of social science and natural science. It is the link that associates knowledge about the regularities, goals, needs of the science on forensic expertise which are worked up by social sciences, primarily by legal sciences with knowledge of the fundamental laws that are the part of the branch of natural science⁴. Thus, in forensic expertise the integration of knowledge occurs by means of interaction of sciences, due to which new types (kinds, classes) of forensic expertise appear.

In the development process of the theory and practice of forensic expertise and Criminalistics, as a consequence of diverse phenomena occurring in the sphere of social, political, scientific life of society, the interest of scientists in the problems of integration of special knowledge, used in legal proceedings, is constantly growing. Thus, in the works of scientists T. V. Averianova, A. F. Aubakirov, A. A. Bart-

¹ See: *Аверьянова Т. В.* Интеграция и дифференциация научных знаний как источники и основы научных методов судебной экспертизы / Т. В. Аверьянова. — М. : Акад. МВД РФ, 1994. — С. 7.

² See: *Винберг А. И.* Судебная экспертология (общетеоретические и методологические проблемы судебной экспертизы) / А. И. Винберг, Н. Т. Малаховская. — Волгоград : ВСИ МВД СССР, 1979. — С. 20–21.

³ See: *Белкин Р. С.* Криминалистика (общетеоретические проблемы) / Р. С. Белкин, А. И. Винберг. — М. : Юрид. лит., 1973. — С. 57.

⁴ See: *Бычкова С. Ф.* Становление и тенденции развития науки о судебной экспертизе / С. Ф. Бычкова. — Алматы : Каз. НИИСЭ, 1994. — С. 46.

sytska, V. P. Bakhina; R. S. Bielkin, S. F. Bychkova, O. O. Bondarenko, L. H. Bordiuhov, A. I. Vinberh, Yu. M. Hrochevyi, V. H. Honcharenko, V. A. Zhuravel, N. I. Klymenko, V. O. Konovalova, Yu. H. Korukhov, O. I. Kostrov, N. P. Mailis, A. A. Makarian, N. T. Malakhovska, O. R. Rosynska, M. Ya. Segai, T. E. Sukhova, V. Yu. Shepitko; O. R. Shliakhov, M. H. Shcherbakovskiy¹

¹ See: *Аверьянова Т. В.* Indicated work. — 123 с.; *Аубакиров А. Ф.* Криминалистическая экспертиза материалов и веществ : пособие / А. Ф. Аубакиров, Э. П. Ким. — Алматы : Эдилет, 2001. — 222 с.; *Барцицька А. А.* Криміналістичні технології: сутність та місце в системі криміналістичної науки : автореф. дис. на здобуття наук. ступеня канд. юрид. наук : спец. 12.00.09 «Кримінальний процес; криміналістика та судова експертиза» / А. А. Барцицька. — Одеса, 2011. — 22 с.; *Бахин В. П.* Криминалистика. Проблемы и мнения (1962–2002) / В. П. Бахин. — К., 2002. — 268 с.; *Белкин Р. С.* Курс криминалистики : в 3-х т. / Р. С. Белкин. — М. : Юрист, 1997. — 538 с.; *Бондаренко О. О.* Об'єкт і предмет судової експертизи у кримінальному судочинстві / О. О. Бондаренко // Вісн. Харків. нац. ун-ту ім. В. Н. Каразіна. Серія «Право». — 2013. — № 1082. — Вип. № 16. — С. 316–318; *Бордюгов Л. Г.* Интегративный характер ситуалогической экспертизы / Л. Г. Бордюгов // Теорія та практика судової експертизи і криміналістики : зб. наук. пр. — Х. : Право, 2009. — Вип. 9. — С. 205–213; *Бычкова С. Ф.* Indicated work; *Винберг А. И., Малаховская Н. Т.* Indicated work. — 183 с.; *Грошевий Ю. М.* Докази і доказування у кримінальному процесі : наук.-практ. посібник / Ю. М. Грошевий, С. М. Стахівський. — К. : КНТ, Вид. Фурса С. Я., 2006. — 272 с.; *Експертизи у судочинстві України : посібник / за заг. ред. В. Г. Гончаренка, І. В. Гори.* — К. : Юрінком Інтер, 2015. — 504 с.; *Клименко Н. І.* Судова експертologia / Н. І. Клименко. — К. : Ін Юре, 2007. — 528 с.; *Коновалова В. Е.* О значении и функциях экспертных версий / В. Е. Коновалова // Криминалистика и судебная экспертиза. — К. : Вища школа, 1977. — Вип. 14. — С. 53–58; *Костров А. И.* Моделирование как метод исследования в криминалистике / А. И. Костров // Современные достижения науки и техники в борьбе с преступностью : материалы науч.-практ. конф. — Минск, 1992. — С. 52–54; *Корухов Ю. Г.* Экспертные и неэкспертные трасологические исследования в уголовном процессе / Ю. Г. Корухов // Проблемы трасологических исследований : сб. науч. тр. ВНИИСЭ. — М., 1978. — Вип. 35. — С. 3–105; *Макарян А. А.* Интеграция естественных и технических наук в криминалистике : дис. ... канд. юрид. наук : 12.00.09 / А. А. Макарян. — М., 1994. — 179 с.; *Сегай М. Я.* Методология судебной идентификации / М. Я. Сегай. — К. : РИО МВД УССР, 1970. — 256 с.; *Сегай М. Я.* Судебная экспертиза материальных следов-отображений (проблемы методологии) / М. Я. Сегай, В. К. Стринжа. — К. : Ір-Юре, 1997. — 174 с.; *Сухова Т. Э.* Интеграция знаний как фактор развития теории и практики судебной экспертизы : дис. ... канд. юрид. наук / Т. Э. Сухова. — Тула, 2001. — 174 с.; *Шепитко В. Ю.* О пределах использования специальных знаний в уголовном процессе / В. Ю. Шепитко // Актуальні проблеми кримінального права, процесу та криміналістики : матеріали IV міжнар. наук.-практ. конф., присвяч. 95-річчю з дня народження проф. М. В. Салтєвського, Одеса, 2 лист. 2012 р. — Одеса : Фенікс, 2012. — С. 499–502; *Він же.* Проблеми використання спеціальних знань крізь призму сучасного кримінального судочинства в Україні // Суд. експертиза. — 2014. — № 1. — С. 11–18; *Шляхов А. Р.* Организация и производство криминалистической экспертизы в СССР / А. Р. Шляхов // Теория и практика криминалистической экспертизы. — М. : Юрид. лит., 1962. — Сб. № 9–10. — С. 3–446; *Шляхов А. Р.* Сущность криминалистических экспертиз материалов, веществ и изделий из них (КЭМВИ) / А. Р. Шляхов, Ф. Э. Давудов // Правоведение. — 1983. — № 6. — С. 71–77.

and others there was carried out the improvement of existing and development of new provisions on integration processes in Criminalistics and forensic expertise. In general, the development of forensic expertise largely depends on the level of development of the most diverse scientific and technical knowledge that are integrated into its scope.

During formation and improvement of the scientific basis of forensic expertise, the integration and differentiation of scientific knowledge plays a significant role. The integration function is in using the data obtained in carrying out various types, kinds and classes of forensic expertise and in systematization of accumulated knowledge, in using new methods of natural and technical sciences that can be applied in expert research, their adaptation to the fulfillment of forensic examination tasks, assessment of its results in accordance with the principles of forensic-expert cognition¹. Proceeding from this, we emphasize that the integration of special knowledge mainly consists in their integration.

We consider one of the prospects for the development of forensic expertise to be the necessity for widespread introduction of the complexity in the creation of new techniques of expert research. O. H. Kuznetsov states that the current needs of investigative and judicial practice on the issues of wide introduction of complexity into the process of formation of new complex branches of forensic expertise of a higher scientific level determined the following provision: a complex examination and comprehensive research is one of the main channels due to which achievements of scientific-technical progress fall into the sphere of criminal, civil and administrative processes². Consequently, the formation of the theoretical foundations of law enforcement practice on the issues of the use of complexity is today especially urgent and requires innovative approaches for solving this problem.

Theoretical and methodical scientific researches in the field of forensic expertise and the needs of forensic-investigative practice became the basis for the development of methods for solving expert problems on the basis of special knowledge integration. Formation of techniques of expert research requires a reliable theoretical basis since the practice without theory can not perform the functions of a stable lever for the introduction of science and technology into the legal proceedings. An important role in this process belongs to the development, first of all, of the theoretical provisions of forensic expertise. The very nature of the objects of expertise and the peculiarities of the means used for their investigation make it possible to adapt the methods of other sciences for solving the problems of forensic expertise. In order to identify the main tendencies in the development of integration processes in the field of forensic expert activity, let us examine the directions in which they occur. The forensic examination has acquired active implementation of integration processes in the second half of the twentieth

¹ See: *Клименко Н. І. Інтеграційна функція експертології* / Н. І. Клименко // *Теорія та практика судової експертизи і криміналістики* : зб. наук.-практ. матеріалів. — Х. : Право, 2006. — Вип. 6. — С. 117–124.

² See: *Кузнецов О. Г. Судебная экспертиза: актуальные проблемы и перспективы ее развития в Республике Казахстан* / О. Г. Кузнецов. — Алматы : Глобус, 2008. — С. 233.

century. At this time, on the one hand, the forensic examination started active application of the methods of scanning electron microscopy, emission spectral X-ray fluorescence, atomic absorption analysis, thin-layer and gas-liquid chromatography, methods of measuring hardness, electrical conductivity, chemical reactions, etc., and on the other hand, the use of forensic methods in the study of materials, substances and the items thereof¹. At this stage, the scientists did not really pay attention to the theoretical justification of the integration processes that took place in the forensic expertise, although this did not prevent the accumulation of empirical experience, which subsequently reflected on the development of the theoretical provisions of forensic expertise.

The generalization of the special literature indicates the following. If we turn to the sources, then a certain analysis of integration processes was inherent to the development of forensic expertise and Criminalistics. In particular, in 1902 Ye. F. Burynskyi drew attention to the duty of the expert to master the tasks from

¹ See, for example: *Вареникова С. П.* Теоретические и методические основы исследования механизма слеодообразования в криминалистических экспертизах материалов, веществ и изделий : дис. ... канд. юрид. наук : 12.00.09 / С. П. Вареникова. — М., 1986. — 178 с.; *Ласкаускене Б. И.* О понятии микроследов и микрочастиц в трасологии / Б. И. Ласкаускене // Вопросы судебной экспертизы и криминалистики. — Вильнюс, 1982. — Вып. 16. — С. 51–55; *Митричев В. С.* Научные основы и общие положения криминалистических идентификационных исследований физическими и химическими методами : автореф. дис. на соискание уч. степени докт. юрид. наук : спец. 717 «Криминалистика» / В. С. Митричев. — М., 1971. — 30 с.; *Він же.* Актуальные вопросы криминалистической экспертизы материалов, веществ и изделий // Современные тенденции развития судебной экспертизы вещественных доказательств и пути внедрения новых физических, химических и биологических методов в экспертную практику : материалы Всесоюз. науч. конф. — М. : ВНИИСЭ, 1972. — Ч. 3. — Вып. 1. — С. 3–9; *Він же.* Структура объектов идентификации при установлении принадлежности частей целому / В. С. Митричев // Теория и практика криминалистики и судебной экспертизы. — Саратов : Изд-во Саратов. ун-та, 1978. — Вып. 2. — С. 9–16; *Эйсман А. А.* Физические методы выявления невидимых текстов / А. А. Эйсман, В. М. Николайчик ; под ред. А. И. Винберга. — М. : Госюриздат, 1961. — 240 с.; *Пучков В. А.* Судебное материаловедение / В. А. Пучков // Соц. законность. — 1979. — № 7. — С. 61–62; *Садомсков Е. И.* О возможностях идентификации целого по частям объектов растительного происхождения / Е. И. Садомсков // Материалы науч. конф., посвящ. вопросам установления групповой принадлежности вещественных доказательств в практике судебной экспертизы. — К., 1963. — С. 155; *Сегай М. Я.* Идентификация материалов и веществ в криминалистической экспертизе / М. Я. Сегай // Материалы 3-й расширен. науч. конф., посвящ. памяти засл. деятеля науки, проф. М. И. Райского / под ред. А. М. Гамбург. — К. : Госмед издат УССР, 1958. — С. 102–107; *Седова Т. А.* Проблемы судебной идентификации некоторых видов вещественных доказательств : автореф. дис. на соискание уч. степени канд. юрид. наук : спец. 717 «Криминалистика» / Т. А. Седова. — Л., 1967. — 23 с.; *Вона ж.* Применение спектроскопии внутреннего отражения в судебной экспертизе. — Л. : ЛГУ, 1978. — 108 с.; *Вона ж.* Проблемы методологии и практико-нетрадиционной криминалистической идентификации. — Л. : ЛГУ, 1986. — 105 с.; *Спивак Т. В.* Растровая электронная микроскопия / Т. В. Спивак, Г. В. Санарин, М. В. Быков // Успехи физических наук. — М., 1969. — Т. 99. — Вып. 4 та ін.

all sides¹, in the essence, offering introduction of a comprehensive fulfillment of tasks for forensic expertise of documents. M. V. Terziiev with co-authors (1948) formulated recommendations on the use of physical methods in criminalistics². V. M. Nikolaichyk and O. O. Eisman (1961), having summarized and systematized the accumulated experience, developed recommendations on the use of physical methods for detecting invisible texts³. M. M. Ziuskyn (1962) paid attention to the photographic and physical methods for investigating material evidence⁴. O. R. Shliakhov (1962) noted on the existence of a science of forensic expertise, which combines general logical, physical-technical and chemical-biological methods of research⁵. The achievements of O. O. Eisman and V. M. Kudriavtsev consists in the fact that they (1964) proved and substantiated the necessity for the integration of cybernetics in forensic expertise⁶. In their works V. I. Shykanov (1967)⁷ and I. M. Zeldes (1968)⁸, despite the fact that the criminal procedural legislation did not contain a corresponding norm, conducted dissertation researches on the theory and practice of complex expertise in the criminal process, having proved the necessity for further development of comprehensive researches. Z. I. Kirsanov also actively propagandized complexation of various types of special knowledge, in particular with the purpose of identifying a person by a photo portrait by using mathematical methods in criminalistics. In 1971, V. S. Mutruchev's monograph was published, in which the author developed the scientific foundations and general provisions of forensic identification researches by means of physical and chemical methods⁹. In 1974 H. L. Hranovskiy has proposed a technique for establishing the trace-forming section of the papillary pattern on the basis of introduction of statistical methods in the

¹ See: *Буринский Е. О. Судебная экспертиза документовъ, производство ея и пользование ею* / Е. О. Буринский. — СПбургъ, 1902. — С. 12.

² See: *Физические исследования в криминалистике* / Н. В. Терзиев, Б. Р. Киричинский, А. А. Эйсман, Е. Б. Геркен. — М. : Полиграфкнига, 1948. — 224 с.

³ See: *Эйсман А. А. Физические методы выявления невидимых текстов* / А. А. Эйсман, В. М. Николаичик ; под ред. А. И. Винберга. — М. : Госюриздат, 1961. — 240 с.

⁴ See: *Фотографические и физические методы исследования вещественных доказательств : пособие для экспертов, работников органов дознания, прокуратуры и суда* / под ред. Н. М. Зюскина, Б. Р. Киричинского. — М. : Юрид. лит., 1962. — 542 с.

⁵ See: *Шляхов А. Р. О предмете судебной экспертизы* / А. Р. Шляхов // *Некоторые вопросы теории судебной экспертизы : тезисы науч. сообщ. на 7 теор. семинаре — криминалистических чтений 26 июня 1975 г.* — М. : ВНИИСЭ, 1975. — С. 3.

⁶ See: *Кудрявцев В. Н. Кибернетика в борьбе с преступностью* / В. Н. Кудрявцев, А. А. Эйсман. — М., 1964.

⁷ See: *Шиканов В. И. Комплексная экспертиза в советском уголовном процессе (некоторые вопросы теории и практики) : дис. ... канд. юрид. наук : 717 / В. И. Шиканов.* — М., 1967. — 391 с.

⁸ See: *Зельдес И. М. Комплексные исследования в судебной экспертизе : дис. ... канд. юрид. наук : 717 / И. М. Зельдес.* — М., 1968. — 186 с.

⁹ See: *Митричев В. С. Научные основы и общие положения криминалистических идентификационных исследований физическими и химическими методами* / В. С. Митричев. — М., 1971.

forensic examination¹. M. M. Shulga (1976) published his work on the identification expertise of traces of the thrust and cut weapon², which provided new opportunities for resolving tasks on its research on the basis of comprehensive approaches. One of the wide-ranging works devoted to the complex forensic-expert study of human properties was the monograph of V. Ye. Kornoukhov (1982)³. V. V. Lypovskiy and T. O. Drozdova (1991) analyzed the problems of using methods of technical study of documents and handwriting in the expertise of signatures that were subjected to changes⁴.

Concerning issues of integration of special knowledge in performing complex expertise, which were considered in the works of scientists in this century, then M. S. Shuvaeva's dissertational research on the legal and organizational bases for the appointment and conduct of a comprehensive expertise⁵, as well as the dissertation and other professional publications O. Yu. Horoshko on theoretical and applied aspects of comprehensive expert studies in the criminal process of the Republic of Belarus⁶ deserve attention. In these works, issues of appointment and performing of comprehensive expertise, their organizational and procedural problems are mainly analyzed. The theoretical paradigms of comprehensive researches have not been developed yet.

The provisions, set forth in these and other works of scientists, show that the integration of knowledge in forensic expertise is a natural process of its develop-

¹ See: *Грановский Г. Л.* Статистические методы определения слепообразующего участка папиллярного узора руки / Г. Л. Грановский. — М.: ВНИИ МВД СССР, 1974. — 44 с.

² See: *Шульга Н. Н.* Комплексная идентификационная экспертиза следов колюще-режущих орудий : дис. ... канд. юрид. наук : 12.00.09 / Н. Н. Шульга. — Х., 1977. — 167 с.

³ See: *Корноухов В. Е.* Комплексное судебно-экспертное исследование свойств человека / В. Е. Корноухов. — Красноярск : Изд-во Краснояр. ун-та, 1982. — 184 с.

⁴ See: *Липовский В. В.* Использование методов технического исследования документов и почерковедения при экспертизе подписей, подвергшихся изменениям / В. В. Липовский, Т. А. Дроздова // Криминалистика и судебная экспертиза. — К.: Лыбидь, 1991. — Вып. 43. — С. 74–80.

⁵ See: *Шуваева М. С.* Правовые и организационные основы назначения и производства комплексной экспертизы [Электронный ресурс] : дис. ... канд. юрид. наук : 12.00.9. — М.: РГБ, 2007. — (Из фондов Рос. гос. библиотеки). — Режим доступа : [www.http://diss.rsl.ru/07/0069/070069038.pdf](http://diss.rsl.ru/07/0069/070069038.pdf).

⁶ See, for example: *Горошко Е. Ю.* Комплексные экспертные исследования в уголовном процессе: теоретические и прикладные аспекты : автореф. дис. на соискание уч. степени канд. юрид. наук : спец. 12.00.09 «Уголовный процесс, криминалистика; оперативно-розыскная деятельность» / Е. Ю. Горошко. — Минск, 2010. — 23 с.; Вона ж. Методологические теории комплексных экспертных исследований // Вестник Акад. МВД Респ. Беларусь. — 2009. — №2. — С. 127–131; Вона ж. К вопросу об оформлении заключений комплексных экспертных исследований // Эксперт-криминалист. — 2009. — №3. — С. 13–16; Дулов А. В. Методологические принципы комплексных экспертных исследований / А. В. Дулов, Е. Ю. Горошко // Вестник Гродн. гос. ун-та им. Я. Купалы. — 2009. — №4(6). — С. 65–71; Дулов А. В. Принципиальные основы проведения комплексных исследований в судебной экспертизе / А. В. Дулов, Е. Ю. Горошко // Право.by. — 2010. — №1(7). — С. 98–105.

ment, one of the main levers of influence on the formation of the foundations of complex forensic expert studies; now it is gaining more and more depth and spread.

Expert practice shows that in the process of carrying out expert examinations, a knowledgeable person, who has knowledge in the fields of physics, chemistry, medicine, biology, art, engineering techniques, etc., also uses knowledge in Criminalistics, Theory of Forensic Expertise, Theory of Proving, etc. This is primarily due to the fact that it is impossible to properly evaluate the results of any study without taking into account the provisions of the theory of forensic identification, diagnostics, situational analysis, mechanism of trace formation, cause-effect relationships, and the like. These separate theories and teachings originated in the depths of Criminalistics and received their application in the development of theoretical and methodical provisions of forensic examination.

Let us consider the levels of knowledge integration in the examination of materials, substances and products. Performing complex trace-material science study of traces in order to establish the fact and mechanism of contact interaction in the absence of the reflection of one or two objects of their external structure is referred by L. D. Beliaieva to them¹. Developing this thought, it should be noted that practically all types of complex expertise make up certain levels of solving integration problems. So, the tendencies in the development of its subject in related branches as the prospects of development of forensic-soil science expertise were rightly noted by V. V. Tiurikova and E. P. Koziner to be a result of various forms of knowledge integration. As an example of such a study, they named an expertise on establishing mechanism for the formation of soil layers at various objects, for which it is not enough to be get acquainted with the teachings on the mechanism of trace formation, but also it is necessary to get knowledge in the field of soil science (with respect to soil properties), as well as in the possibilities of materials and surfaces of various subjects to hold the soil². Proceeding from the need for the comprehensive study of the soil traces or the traces on soil, we have carried out the work on the development of theoretical foundations and general provisions of the technique of integrated soil-study-trasological examination that has culminated in the preparation of the dissertation for the competition on the degree of the candidate of legal sciences³. Let us note the following cir-

¹ See: *Беляева Л. Д.* Проблемы дифференциации и интеграции знаний в области криминалистического исследования материалов, веществ и изделий / Л. Д. Беляева // Современное состояние и перспективы развития новых видов судебной экспертизы. — М. : ВНИИСЭ, 1987. — С. 4–12.

² See: *Тюрикова В. В.* Судебно-почвоведческая экспертиза: итоги и перспективы развития / В. В. Тюрикова, Э. П. Козинер // Современное состояние и перспективы развития новых видов судебной экспертизы. — М. : ВНИИСЭ, 1987. — С. 12–18.

³ See, for example: *Ефремян Э. Б.* Некоторые теоретические и методические вопросы экспертизы по установлению механизма образования почвенных наслоений / Э. Б. Ефремян // Роль судебной экспертизы в социалистическом правовом государстве : тез. науч.-практ. конф. — Минск : УД СМ БССР, 1989. — С. 319–322; Вона ж. Об экспертном исследовании механизма образования почвенных наслоений на предметах-носителях // Криминалистика и судебная экспертиза. — К., 1992. — Вып. 44. — С. 100–105; Вона ж. Некоторые вопросы программирования решения типовых задач комплексной почвоведческо-трасологической экспертизы // Актуальные проблемы

cumstance: the question of establishing the fact and circumstances of contact interaction is solved with respect to the open areas of terrain, premises, vehicles, clothes, shoes, bodies of persons and other objects, and therefore it can be concluded that the subject of expertise of contact interaction with the subject of expertise whose generic object is the soil, vehicles, equipment, instruments, weapons, plants, animals, man and their derivatives, as well as materials, items, substances, etc., that is, different types of expertise. Consequently, in this case, we must speak about a qualitatively new, interdisciplinary subject of complex expertise that presents itself as a completely unique system as the totality of objects researched and tasks solved, whose individual elements will be the tasks of forensic tracological, medical, autotechnical, biological, chemical, physical, ballistic and other types of expertise. In this regard, there is a necessity in the development of new techniques of complex studies. In the course of realization of the interdisciplinary approach, there takes place interpenetration of knowledge of different sciences and a new interdisciplinary paradigm is formed. It should be noted that in forensic expertise, complexation of knowledge primarily takes place on the subject of a definite expert study, and therefore an analysis of the subject of complex expert studies is needed, and it is closely related to the tasks being solved. Since the tasks of forensic examination is solved by means of the research of their objects, it is also necessary to conduct and study of the specified these categories in order to identify their features in the aspect of complex researches.

Relating solution of the issue regarding the grounds for using complexity in forensic expertise with the gnoseological aspect of this problem, scientists note that the notion “comprehensive expertise”, “complex of expertise”, “complex of researches within the framework of one expertise” are equivalent in the gnoseo-logical sense, therefore they believe that the only correct one solution is the admission of all three forms of complexation in conducting expertise¹. At the same time, it is necessary to understand that the proposed list of forms of complexation, firstly, contains various grounds for distinguishing each of the above specified notions, and, secondly, it is incomplete. In our opinion, the es-

судебной экспертизы и криминалистики : тез. науч.-практ. конф. — К. : МЮУ, 1993. — С. 163–164; Вона ж. О классификации задач комплексных криминалистических почвоведческо-трасологических исследований // Криминалистика и судебная экспертиза. — К., 1993. — Вып. 46. — С. 98–104; Хлесткова Е. А. Судебно-почвоведческая экспертиза. Ч. 2. Вып. 1. Методы комплексного криминалистического исследования почв / Е. А. Хлесткова, Э. Б. Ефремян, О. И. Даньшина. — М. : ВНИИСЭ, 1993. — Гл. 2, §1, 2. — С. 64–80; Ефремян Э. Б. Возможности комплексной криминалистической почвенно-трасологической экспертизы / Э. Б. Ефремян, Е. А. Хлесткова // Экспертная техника. — М. : ВНИИСЭ. 1994. — Вып. 119. — С. 18–22; Ефремян Э. Б. Об объектах комплексной криминалистической почвоведческо-трасологической экспертизы / Э. Б. Ефремян // Роль судебной экспертизы и криминалистики в раскрытии и профилактике преступлений. — Одеса, 1994. — С. 166–168; Вона ж. Теоретичні основи та загальні положення методики комплексної криміналістичної ґрунтознавсько-трасологічної експертизи : автореф. дис. на здобуття наук. ступеня канд. юрид. наук : спец. 12.00.09 «Кримінальний процес, криміналістика та судова експертиза». — Х., 1994. — 24 с. та ін.

¹ See, for example: Корухов Ю. Г. Indicated work. — С. 95–97.

sence of the notion “comprehensive expertise” is primarily of procedural character, although the definition in the procedural legislation of Ukraine is not provided away off in all types of legal proceedings. The notion of complex expertise is relevant to the tactics and techniques of investigation of various crimes. Proposals concerning complexes of expertise, which are scheduled in one or another category of crimes, are developed during performing scientific researches in the brunch of Criminalistics on the issues of technique and tactics of investigation of certain types of crime in order to improve the efficiency of detection, investigation and disclosure of unlawful acts, depending on their composition and criminalistic characteristics. Concerning the notion of the complex of researches within the limits of one expertise, then this complex is always present in any expert research conducted both in the form of a comprehensive examination and an homogeneous one. Based on the results of the generalization of expert practice, we have established that the “complex of studies within the framework of one expertise” is the most common type of complexation. In each expert's conclusion, we observe the complexes of methods which are applied in accordance with the technique of the research. That is why, when studying the forms of complexation in forensic expertise, it is necessary to start from the analysis of the subject, tasks, objects, parties and methods of comprehensive studies, since integration processes are realized in the development of forensic expertise on the subject of knowledge integration, forensic tasks, objects, parties of knowledge integration and methods.

ИНТЕГРАЦИЙНИ ПРОЦЕСИ В СУДОВІЙ ЕКСПЕРТИЗІ: СУТНІСТЬ ТА ПРОБЛЕМНІ ПИТАННЯ КОМПЛЕКСНИХ ДОСЛІДЖЕНЬ

Сімакова-Єфремян Е. Б.

Сучасна наука розглядає комплексність досліджень як одну із закономірностей процесу пізнання. Судова експертиза, яка з метою вирішення завдань судочинства спрямована на використання знань, накопичених урізних галузях науки, у процесі науково-технічного прогресу постійно отримує вплив інтеграційних процесів, що відбуваються в цих галузях. Наукові публікації свідчать про те, що інтеграція знань у судовій експертизі – це закономірний процес її розвитку, один із головних важелів впливу на формування засад комплексних судово-експертних досліджень; нині вона набуває все більшого поглиблення й поширення. Вивчаючи форми комплексування в судовій експертизі, необхідно виходити з аналізу предмета, завдань, об'єктів, суб'єктів і методик комплексних досліджень, оскільки інтеграційні процеси реалізуються в розвитку судової експертизи за предметом інтеграції знань, завданнями судової експертизи, об'єктами, суб'єктами інтеграції знань та методами.

Ключові слова: судова експертиза, інтеграційні процеси, комплексні експертні дослідження, комплексна експертиза, комплекс досліджень, методика, метод.

ИНТЕГРАЦИОННЫЕ ПРОЦЕССЫ В СУДЕБНОЙ ЭКСПЕРТИЗЕ: СУЩНОСТЬ И ПРОБЛЕМНЫЕ ВОПРОСЫ КОМПЛЕКСНЫХ ИССЛЕДОВАНИЙ

Симакова-Ефремян Э. Б.

Современная наука рассматривает комплексность исследований как одну из закономірностей процесса познания. Судебная экспертиза, которая с целью решения

задач судопроизводства направлена на использование знаний, накопленных в разных областях науки, в процессе научно-технического прогресса постоянно испытывает влияние интеграционных процессов, происходящих в этих областях. Научные публикации свидетельствуют о том, что интеграция знаний в судебной экспертизе – это закономерный процесс ее развития, один из главных рычагов влияния на формирование принципов комплексных судебно-экспертных исследований; сегодня она приобретает все большее углубление и распространение. Изучая формы комплексирования в судебной экспертизе, необходимо исходить из анализа предмета, задач, объектов, субъектов и методик комплексных исследований, поскольку интеграционные процессы реализуются в развитии судебной экспертизы по предмету интеграции знаний, задачам судебной экспертизы, объектам, субъектам интеграции знаний и методам.

Ключевые слова: судебная экспертиза, интеграционные процессы, комплексные экспертные исследования, комплексная экспертиза, комплекс исследований, методика, метод.

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SIGNIFICANCE OF THE QUALITY SYSTEM FOR IMPROVEMENT OF FORENSIC-EXPERT ACTIVITY

The main tendencies of the development of modern requirements to the competence of testing and calibration laboratories related with the introduction of a modern model of the management system, with the generalization of the results of researches in expert laboratories are analyzed.

Keywords: quality system, accreditation, certification, research, calibration, international standard.

In connection with reforming judicial system, development of advocate practice, criticism in the address of police officers during court hearings, there is a need on the part of the prosecution and defense to raise questions for the expert on the methods being chosen, on the correctness of the expert examination, the expert's conclusion formalization, on the choice of standards and the reliability of the results obtained. Also, with the development of international relations, the prospects for Ukraine's integration into the European Union (EU) are the problems related to the competitiveness of ongoing expert studies, the imperfection of our current legislation and the standardization base that do not meet modern requirements. In this regard, there has arisen a necessity for introducing a new unified approach to conduct expert studies, formalize normative documents for harmonization with the international regulatory documents, to improve the quality of expertise in various areas of research.

The topic considered in the paper is topical. The introduction of the ISO/IEC 17025: 2005 quality system enables experts to be confident in the conducted studies, to present evidence of their rightness in the courts, to reproduce the results of researches, to evaluate the researches, conducted by other experts and organizations¹. The implementation of the international standard ISO/IEC 17025:2005 determines the quality of performing researches in the physical and chemical laboratories and the correctness of the choice of techniques. To conduct researches on synthetic narcotic drugs or psychotropic substances, as well as plant-based narcotic drugs, modern physicochemical laboratories are imposed with requirements oriented on the normative documents, adopted in our country, and on international requirements, namely: it is necessary to have new modern equipment, qualified personnel, to use standard methods and techniques, to apply the certified quality system during the work, to transparently select suppliers of necessary drugs².

The purpose of the paper is to disclose the practicability of the implementation of international standards ISO/IEC 17025:2006 in the field of forensic expertise activity and to show the importance of introducing a quality system into performing expertise in physical and chemical laboratories. To analyze the requirements and provisions of the quality system ДСТУ ISO/IEC 17025:2006 in the practice of advocates, a necessity in assessing reliability of the conclusions of forensic experts, correctness of the chosen technique, methods and means of research arises frequently. Such an assessment has always been hampered by the lack of etalons, standards, detailed descriptions of the means and methods of research. The techniques of forensic expertise were the possessions of the departmental forensic expert institutions, often they had a mark "For Official Use Only", what made them to be inaccessible not only for those participants in the proceedings as the victim and the accused, but also for lawyers acting in criminal, civil and arbitration processes as the representatives or advocates. Legislative consolidation of the principle of contentiousness and equality of the parties in the domestic legal proceedings required provision of the access to forensic-expert techniques. Over the past decade, there has been a lot done to systematize, unify and standardize forensic-expert techniques. In recent years, the Ministry of Justice of Ukraine and the Research Expert-Criminalistics

¹ See: *Москвина Т. П.* Обеспечение единого научно-методического подхода в судебной экспертизе на основе сертификации / Т. П. Москвина, А. И. Усов // Криминалистические средства и методы в раскрытии и расследовании преступлений. — М.: ЭКЦ МВД России, 2006. — Т. 1. — С. 154–157; *Усов А. И.* Перспективы развития системы добровольной сертификации методического обеспечения судебной экспертизы // Теория и практика судебной экспертизы. — 2006. — № 1(1). — С. 60–63.

² See: *Новиков В. М.* Розробка систем якості в лабораторіях та аналіз вимог ДСТУ ISO/IEC 17025:2006 : навч. посібник / В. М. Новиков, О. А. Никитюк. — К.: Нора-принт, 2002. — 225 с.

³ See: ДСТУ ISO/IEC 17025:2006 Загальні вимоги до компетентності випробувальних та калібрувальних лабораторій (ISO/IEC 17025:2005, IDT). — К.: Держспоживстандарт України, 2007. — 26 с.

Centers (RECC) of the Ministry of Internal Affairs of Ukraine paid much attention to the creation of a normative-legal framework for regulating the activities of state forensic-expert institutions¹.

Article 8 of the "Law on Forensic Expertise"² has defined that for consideration of the issues on development of forensic expertise, having interdepartmental nature, the Coordinating Council has been established, and the techniques for performing forensic expertise are subjected to attestation and state registration. State specialized forensic institutions of the same profile realize performing forensic expertise on the basis of a single scientific-methodical approach. The mechanism for ensuring this approach in forensic institutions of the Ministry of Justice of Ukraine and the Ministry of Internal Affairs of Ukraine is realized by means of approval of techniques, performing verification of the equipment. This requires more close attention to the establishment of the competence of experts, confirmation of its accordance to the expert profession and the availability of special knowledge in a certain field, the final stage of which is the attestation of forensic experts for getting the right to independently perform forensic expertise. A general approach for assessing of the compliance with all the above mentioned requirements, certificates attesting the competence in the field of forensic performing expertise of institutions or professionals is the purpose of implementing a quality system.

Formation of a clear definition of the competence of an expert engaged in the production of forensic expertise in the frames of special knowledge application is necessary in resolving issues in which the investigation or the court has an interest. For the state forensic experts, this procedure has been sufficiently worked out and provides: determining the expert's competence by passing him a professional certification; applying in the production of forensic expertise of approved techniques and verified equipment, etc.

In the purposes of ensuring realization of the principles of competitiveness and equality of the parties in the modern legal proceedings, there is a constant search for new procedures for introducing norms, set forth in the legal acts of the Ministry of Justice of Ukraine and the Ministry of Internal Affairs of Ukraine and dealing with the organization and production of forensic expertise and with the use of special knowledge in procedural and non-procedural forms.

Obviously, it is extremely necessary in the course of reforming judicial system and internal affairs bodies to introduce a modern quality system in the laboratories of Research Expert-Criminalistics Centers of the Ministry of Internal Affairs of Ukraine and the institutes of the Ministry of Justice of Ukraine. The system is intended to conduct an independent qualified assessment and to confirm the compliance of both the methodical provision of forensic examination and the competence of forensic experts within the framework of a

¹ See: Хоша В. В. Перспективи розвитку судово-експертних установ Міністерства юстиції України в аспекті вступу до Європейської системи ENFSI / В. В. Хоша, О. В. Мануленко // Теорія та практика судової експертизи і криміналістики : зб. наук. праць. — Х. : Право, 2009. — Вип. 9. — С. 244–249.

² See: Про судову експертизу : Закон України від 25 лют. 1994 р. №4038-XII // Відом. Верхов. Ради України. — 1994. — №28. — Ст. 232 (зі змінами та допов.).

specific expert specialty to the requirements of the system. The task of certification in the system is to improve the quality of forensic-expert, scientific-methodical, educational, testing-constructional and other types of activity of individuals and legal entities, as well as to increase the effectiveness of using scientific-technical achievements in the field of forensic examination.

One of the most important components of Ukraine's accession into the World Trade Organization (WTO) and integration into the EU is the provision of services, production of products that meet international and European standards, and certification of ongoing researches. The introduction of such a system will contribute to the recognition of domestic certificates in European countries and will increase the competitiveness of ongoing researches. The condition for the competence of these institutions is their accreditation for the compliance with international and European standards.

At present, in Ukraine there was completed the first important stage of reforming national system of technical regulation which resulted in the adoption and enactment of the Law of Ukraine "On conformity confirmation" on May 17, 2001 No. 2406-III, "On accreditation of bodies for conformity assessment" on May 17, 2001 No. 2407-III and "On Standardization" on June 5, 2014 No. 1315-VII – the basic market-oriented legislative proposals in the field of standardization, accreditation and conformity assessment. These are the first Ukrainian legislative acts in the field of technical regulation, meeting requirements of the TBT/WTO Agreement, international and European standards, norms and rules¹.

When assessing the reliability and validity of the expert conclusions that determine the evidentiary value of forensic expertise, the special attention is paid to confirming the reliability of the techniques used. Let's consider some provisions related to the accreditation of laboratories.

The criteria to be met by the laboratory in accordance with the scope of accreditation include the following provisions:

- availability of a sufficient number of specialists who have the appropriate education, qualification and were certified in accordance with the established procedure;
- availability of a sufficient number of rooms that meet the requirements of technical equipment and applied test methods; ensuring the requirements of sanitary regulations and safety measures for performing tests, researches, including energy sources, lighting and the environment;
- the use in the laboratory of test methods and procedures adequate to the field of accreditation, including taking samples, handling with them, transportation, storage and preparation of samples for testing, performing tests, methods of processing and analysis of test results;
- availability of appropriate legal and normative acts; the procedures for ensuring and updating normative documents;
- availability of testing and auxiliary equipment for taking samples; compliance with the requirements for its operation, use, storage, planned maintenance, repair;

¹ See: *Рамазанова-Стьопкіна О. А. Основи стандартизації, сертифікації та контролю якості : курс лекцій / О. А. Рамазанова-Стьопкіна. — К. : НАУ, 2004. — 45 с.*

- ensuring the uniformity of measurements, including the availability of the necessary measuring instruments of the approved type, the timely verification of the measuring instruments, the use of certified methods for performing measurements; availability of standard samples, certified mixtures of composition (properties) of substances and certified methods for their preparation, control sample substances, compliance with their storage conditions and shelf life; determination of the accuracy of the methods and measurements results;

- availability of procedures for taking samples, their transportation, registration and storage, that provide the possibility to avoid damage or deterioration of their characteristics, as well as utilization procedures;

- availability of a quality control procedure when performing testing;

- existence of a precise and clear procedure for recording the testing process and test results, established forms of registration documents;

- the laboratory should also comply with the general requirements established in the international standard¹.

The level of modern requirements for the competence of measuring and calibration laboratories is determined by the level of development of the society and the level of its needs in reliable researches results. Each expert conclusion is accompanied by a research protocol.

The evaluation of the quality of the test protocol is based on the fact that the test result itself must have a certain set of properties that characterize its quality (for example, accuracy). Experts and bodies of pre-trial investigation should equally understand what is written in the conclusion about the conducted research. Misrepresentation of meaning and ambiguity of understanding are the main disadvantageous features when presenting the results of research, therefore, after formalizing the project of the protocol and before its approval, it is recommended to monitor both the correctness of the information given in the protocol and single meaningfulness of wordings.

Often, in accordance with the methods of testing (measurement, analysis), certain requirements are set for the form of presentation of the results. Such requirements may include:

- calculation of the result from several single definitions (arithmetic mean, minimum or maximum value, median);

- presentation in the protocol of all the results of single definitions;

- presentation in the protocol of accompanying measurements results, coefficients, tabular values and constants;

- the number of significant digits of the result (if the result is a number);

- descriptive terminology (if the result is described verbally);

- the form of the protocol;

- calculation of the error;

- appendixes of graphs, diagrams, schemes and so on².

¹ See: Новиков В. М. Тенденції розвитку вимог до компетентності лабораторій згідно ISO/IEC 17025:2005 / В. М. Новиков, О. А. Никитюк // Стандартизація, сертифікація, якість. — 2006. — № 1. — С. 30–32.

² See: Новиков В. Н. Автоматизация процесса вычисления оценок неопределенности измерений / В. Н. Новиков, В. В. Новиков // Методы оценки соответствия. — 2007. — № 3. — С. 24–27.

Definite requirements are also imposed on the methods of research being applied. Competent laboratories are aware of the characteristics of the research methods used and the uncertainties associated with the results. Uncertainty of measurements is a very important measure of the quality of the result or the method of research. When performing researches, the uncertainty for each method used in the laboratory is calculated. Other such measures are reproduction, convergence, resistance and selectivity.

The specificity of the work of testing laboratories is determined by the dependence of the quality of their work on the appropriate level of quality of the materials used in the laboratory (etalons, reagents). Obviously, such materials as, for example, paper, pencils or pens are not applied to this element of the quality system. It is clear that the quality of the laboratory work in general may be dependent on the quality of the materials and services used in it. That is why this element of the quality system is mandatory. The laboratory should have a certain procedure for selecting and purchasing goods and services that affect upon its operation. It is necessary to develop the procedures for procurement, receipt (obtaining), preservation of materials used for research (reagents, consumables, etc.). The developed certification system is the guarantor of raising competence of not only the state forensic experts but also other persons with special knowledge in science, technology, art or crafts, and participating in the legal proceedings in this or that status.

In conclusion, we note that the chosen approach for improving forensic-expert activity by means of certification of scientific-methodical provision of forensic expertise determines the optimization and increase of the level in using special knowledge in the legal proceedings, excluding the majority of possible expert errors.

ЗНАЧЕННЯ СИСТЕМИ ЯКОСТІ ДЛЯ ВДОСКОНАЛЕННЯ СУДОВО-ЕКСПЕРТНОЇ ДІЯЛЬНОСТІ

Косміна Н. М.

Проаналізовано основні тенденції розвитку сучасних вимог до компетентності випробувальних і калібрувальних лабораторій, які пов'язані із впровадженням сучасної моделі системи управління, узагальненням результатів досліджень експертних лабораторій.

Ключові слова: система якості, акредитація, сертифікація, дослідження, калібрування, міжнародний стандарт.

ЗНАЧЕНИЕ СИСТЕМЫ КАЧЕСТВА ДЛЯ СОВЕРШЕНСТВОВАНИЯ СУДЕБНО-ЭКСПЕРТНОЙ ДЕЯТЕЛЬНОСТИ

Космина Н. Н.

Проанализированы основные тенденции развития современных требований к компетентности испытательных и калибровочных лабораторий, связанных с внедрением современной модели системы управления, обобщением результатов исследований экспертных лабораторий.

Ключевые слова: система качества, аккредитация, сертификация, исследование, калибрование, международный стандарт.

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ADMINISTRATION MODELS IN THE SYSTEM OF FORENSIC EXAMINATION INSTITUTIONS FROM THE POSITION OF SCIENTIFIC MANAGEMENT

The individual forensic activity in comparison with the activity of forensic experts of specialized state institutions is considered, the main advantages and disadvantages are determined. The directions of development of specialized state and non-state forensic institutions are presented in accordance with R. Quinn's competing values model.

Keywords: state forensic-expert institutions, individual forensic-expert activity, structure of R. Quinn competing values, management model.

According to the provisions of Art. 7 of the current Law of Ukraine “On Forensic Expertise”¹ forensic-expert activity is carried out by state specialized institutions, as well as in the cases and on the terms defined by this Law, forensic experts who are not employees of these institutions. As it is seen from the text of the Law, government institutions and experts who do not work in these institutions, are named as equivalent subjects of expert activity. In our opinion, this division is not equivalent, since the institution, in its essence, is the system – the totality of the elements united in a single whole and possessing properties that are not inherent to its separate constituent elements and the forensic expert is the central element of such a system. Consequently, the possibilities of forensic expertise institutions in terms of performing researches, depending on the kind and type of expertise, significantly exceed the possibilities of a private expert in this field.

The problem of the growing importance of organizations in modern society is considered by many sciences. German social historian M. Weber has noted that as the structure of society becomes more complex, responsibility for the main activities is concentrated in specialized organizational units functioning solely by means of systems that institutionalize the management process in the form of organizations relying on rules, instructions, hierarchy, division of labor and detailed procedures².

This position was reflected in the management concepts of F. Taylor, A. Fayol, and others.

From the point of view of Sociology, a social system in which subjects, who are aware of their belongingness to a given system, act in the name of achieving

¹ See: О судебной экспертизе : Закон Украины от 25 февр. 1994 г. №4038-ХІІ (с изм. и доп.) [Электронный ресурс]. — Режим доступа : <http://uazakon.ru/zakon/zakon-o-sudebnoy-ekspertize.html>.

² See: Бодди Д. Основы менеджмента: пер. с англ. / Д. Бодди, Р. Пейтон ; под ред. Ю. М. Каптуревского. — СПб. : Питер, 1999. — С. 72.

a common goal – this is an organization¹. Such a definition fully applies to the activities of forensic institutions, in which forensic experts, united into groups depending on the type of research, assist in the process of their activities in resolving issues arising in the course of investigation or legal proceedings.

Thus, the emergence of such specialized organizational units as criminalistic institutions is conditioned by the need of professional solving practical problems arising in the public practice within the framework of the existence of the social institution of law.

Generalizing the above mentioned, it can be said that the individual forensic expert activity is a step towards the establishment of an expert institution.

The main reasons why individual expert activity can not compete with the activities of the organization include the following:

- the intensity of performing researches: single forensic experts can not sufficiently meet the demand from the courts and the investigation regarding the number (capacities) of performing forensic expertise;

- informational limitation: according to Art. 8 of the Law of Ukraine “On Forensic Expertise”, the organization of scientific-methodical provision of forensic-expert activity and the organizational-managerial bases for the activities of the state specialized institutions are entrusted to the ministries and other central executive bodies whose spheres of management include state specialized institutions that carry out forensic-expert activity. For consideration of the most important issues of forensic expertise development which are of interdepartmental nature, the Coordinating Council on Problems of Forensic Expertise has been established under the Ministry of Justice of Ukraine, acting in accordance with the Regulations on it which is approved by the Cabinet of Ministers of Ukraine. The techniques for conducting forensic expertise (except for forensic medical and forensic psychiatric) are subjected to the attestation and state registration in the manner determined by the Cabinet of Ministers of Ukraine. That is, to participate in the scientific-methodical process, private forensic experts need to contact the relevant consultative and advisory bodies under the Ministry of Justice of Ukraine, facing a certain bureaucratic procedure.

To a certain extent, the activity of private experts is also affected by the limited access to specialized literature that helps in solving expert problems and contributes to improving the quality of the expertise performed;

- communicative insufficiency: due to the branching of the state system of forensic institutions in authorities, the presence of a sufficiently large number of state expert institutions, and most importantly, the number of the qualified personnel, communication at any level – employees or administrative apparatus, accumulates the experience of all participants in the system of the state institutions to solve the problematic issues, to develop new directions in the scientific, practical, administrative or economic spheres of activity. At the same time, private experts mostly remain one-on-one with problems of a methodical and practical nature.

In order to change the current situation, in 2013 the Ministry of Justice of Ukraine developed and submitted for discussion the draft Law of Ukraine “On

¹ See: Соціологія : підручник / [М. П. Требін, В. Д. Водник, Г. П. Клімова та ін.] ; за ред. М. П. Требіна. — Х. : Право, 2010. — С. 70.

Forensic Expert Activities”¹. According to Art. 15 of this draft law, forensic experts can be incorporated into the public organizations. Public organizations of forensic experts are established in accordance with the procedure defined by the current legislation with the aim of protecting the social and professional rights of forensic experts, realization of the methodical and publishing activities, representation of interests, etc. That is, the main purpose of creating non-state experts’ public organizations is to protect their social rights, to improve methodical, publishing activities and to represent their interests. Thus, the state takes the responsibility for the risks of rights protection, regulation of activities which should be reduced by means of creating public associations of non-state forensic experts.

In addition, in Art. 16 of the said draft law there is noted that the status of the subject of forensic expert activity is not extended to the public associations of non-state forensic experts, which, in its turn, leaves these organizations as a union of subjects, but not as a full valued subjects of forensic expert activity.

Generalizing the foregoing, it can be concluded that single forensic experts of the non-state sector are difficult to compete with experts from the state institutions, and potential changes in the legislation do not fundamentally change the situation. However, in the case of systematization of individual non-state experts into the organization, with the adoption by them of the process of achieving individual goals by means of advancement and achievement of common goals, non-state expert institutions may achieve a qualitatively new level of functioning, since it is the collective goal-setting that necessitates the introduction of hierarchy and management².

Characteristic features inherent to the organizations, were considered in detail by specialists in the field of scientific management such as M. Weber (1864–1920), A. Fayol (1841–1925), and others.

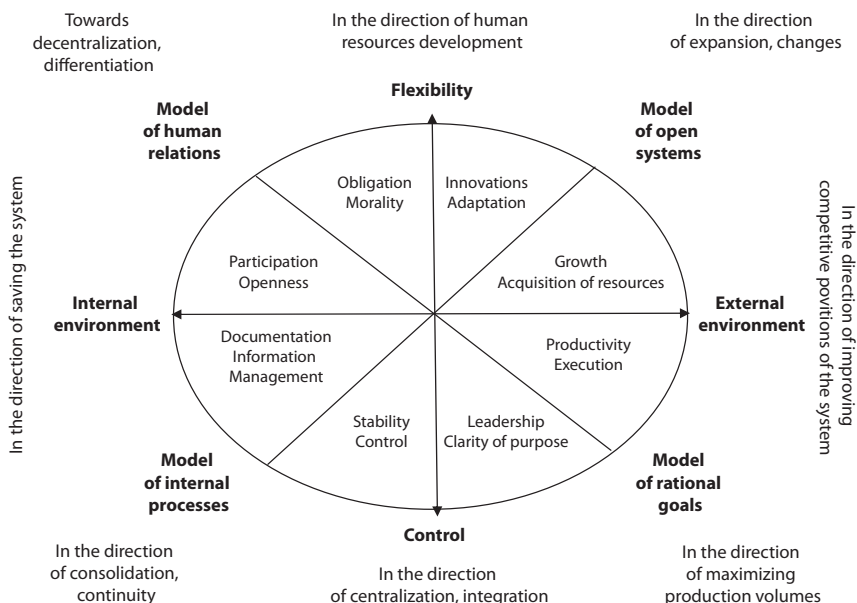
M. Weber emphasized that when the structure of bureaucratic management of an organization arises, and the state institutions of forensic expertise can be attributed to the such, the methods of scientific management are used to establish control over production systems, which seems to him to be an ideal means for establishing discipline. However, in our opinion, the “Structure of competing values” of R. Quinn demonstrates most vividly the variants for choosing the direction of activity, the so-called organizational culture, depending on the development of one or others priorities (see the picture).

R. Quinn and his colleagues argue that the basic models increase our knowledge on management, but none of them in themselves is sufficient (Quinn et al., 1996). Helping us to focus our sight on some aspects of the phenomenon, they darken the others, no less significant characteristics. Diverse approaches not only mutually exclude, but complement each other and are essential elements of the larger whole.

¹ See: Про судово-експертну діяльність : повідомлення про оприлюднення проекту Закону України від 06 серп. 2013 р. [Електронний ресурс]. — Режим доступа : <http://old.minjust.gov.ua/43603>.

² See: Социология: Цели социальных организаций [Електронний ресурс]. — Режим доступа : <http://www.grandars.ru/college/sociologiya/celi-socialnyh-organizaciy.html>.

R. Quinn argues that the model of competing values demonstrates the complexity of the problems faced by organizations and provides a conceptual framework for overcoming it, allowing us to assess both the strengths and weaknesses of each model. In addition, it is very useful for determining various competencies needed to solve the management tasks implied by each model¹.



Picture. The structure of R. Quinn's competing values

The main directions of development of the state institutions of forensic expertise lie in the range “Direction of centralization, integration” – “Direction of conservation of the system”. This is stipulated by the purpose of establishing these organizations – expert provision of the judicial power, as well as by the clear regulation of the activity in accordance with the current legislation in this sphere. At the same time, in the process of functioning, state institutions pay attention to such directions as “human orientation” in terms of training qualified personnel, and “maximizing result” in terms of optimizing and improving the efficiency of performing expertise.

Bureaucracy of the model of functioning of state expert institutions determines the low level of development of such directions as “Adaptability”, “Growth and acquisition of resources”, “Flexibility”, due to the availability of restrictions in the freedom to use financial resources. Thus, the functioning of state institutions

¹ See: Бодди Д., Пейтон Р. Указ. работа. — С. 63.

of forensic expertise corresponds to the characteristics of the “Model of internal processes” and “Model of rational goals”.

Given that the system, proposed by R. Quinn, combines the above management models into a single whole, the insufficient use of the capabilities of the “Human Resources” and “Open System” models reduces the chances of the organization to function in a balanced way in the long term.

The open system model emphasizes the relations between the organization and the external environment: the organization must satisfy the needs of the external environment, which allows receiving the resources supporting the organization. The task of the management is to maintain such relations. Feedback belongs to the information about the operation of the system¹.

In practice, under the resources supporting the organization, one should understand not only and not just state financing but the number of appointed expert examinations and expert studies, provided advices, etc. to the investigative bodies, courts of different types of proceedings, lawyers, representatives of public organizations.

Undoubtedly, in the case of uniting non-state forensic experts in the organization and obtaining by them of the status of the subject of expert activity, the model of functioning of such associations can also gravitate towards the “Model of internal processes”. However, the motivation for such an association is conditioned by the social needs of its participants: the realization of the social rights, the improvement of the methodical activity, and the representation of the interests. The main objective of emergence of these organizations will also be changed: from the protection of the interests of non-state forensic experts to the expert provision of the judicial power, with less bureaucratic aspects of functioning in the sphere of choice of activity areas, types of research, acquisition of resources, choice of the source of financing, organization structure, which, in its turn, will help to engage highly qualified specialists.

The creation of non-state institutions of forensic expertise with involvement of non-budgetary sources of financing contributes to the renovation of the material and technical base, which, in its turn, causes an increase in the level of performance of those types of research, financing of which is insufficient from the state budget. Thus, on the basis of R. Quinn “Structure of competing values” indicators, association of non-state forensic experts, systematized in the organization, will have more opportunities than governmental institutions to strengthen such areas of their development as “Adaptability”, “Increase and Acquisition of Resources”, “Flexibility”, “Openness”, while the state organizations will be acting in the direction of increasing the degree of “Control”, “Persistence”, “Information Management”.

Summarizing the above, we can conclude that forensic institutions of state and non-state forms of ownership, proceeding from the degree of control and openness of the system, mainly are developed on the basis of opposing management models. Consequently, the combination of approaches to the management which are inherent to the above mentioned branches of forensic activity will

¹ See: Бодди Д., Пейтон Р. Указ. работа. — С. 83, 85.

positively influence upon the organic development of organizations in all directions of R. Quinn's "Structure of Competing Values".

Thus, the association of individual non-state experts in an organization, with obtaining by them of the status of forensic-expert activity, will create certain prerequisites for competition, diversification and complementarity in the conduct of researches of different types, will increase the responsibility and simplicity of administration of non-state experts in general and will positively influence on the development of forensic expertise as a social institution.

The carried out comparison of the possibilities of individual non-state subjects of expert activity, systematized in the organization, with the capabilities of state expert institutions, clearly illustrates the principle of emergence of complex systems, which is in the basis of the law of synergy, which says that the joint action of several factors always or almost always differs from the sum of separate effects. The manifestation of synergy in social organizations means the growth of additional energy exceeding the sum of individual efforts of participants¹.

In other words, the interaction of the state and non-state forensic institutions, the co-operation of their potentials, will lead to the emergence of additional opportunities for the realization of the own functions by the social institution of forensic expertise, which should exceed the effects of the separate functioning of such institutions.

МОДЕЛІ УПРАВЛІННЯ В СИСТЕМІ УСТАНОВ СУДОВИХ ЕКСПЕРТИЗ ІЗ ПОЗИЦІЙ НАУКОВОГО МЕНЕДЖМЕНТУ

Кудряшова С. В.

Розглянуто індивідуальну судово-експертну діяльність у порівнянні із діяльністю судових експертів спеціалізованих державних установ, наведено основні переваги та недоліки. Визначено напрями розвитку спеціалізованих державних і недержавних судово-експертних установ згідно з моделлю конкуруючих цінностей Р. Куінна.

Ключові слова: державні судово-експертні установи, індивідуальна судово-експертна діяльність, структура конкуруючих цінностей Р. Куінна, модель управління.

МОДЕЛИ УПРАВЛЕНИЯ В СИСТЕМЕ УЧРЕЖДЕНИЙ СУДЕБНЫХ ЭКСПЕРТИЗ С ПОЗИЦИИ НАУЧНОГО МЕНЕДЖМЕНТА

Кудряшова С. В.

Рассмотрена индивидуальная судебно-экспертная деятельность в сравнении с деятельностью судебных экспертов специализированных государственных учреждений, определены основные преимущества и недостатки. Представлены направления развития специализированных государственных и негосударственных судебно-экспертных учреждений согласно модели конкурирующих ценностей Р. Куинна.

Ключевые слова: государственные судебно-экспертные учреждения, индивидуальная судебно-экспертная деятельность, структура конкурирующих ценностей Р. Куинна, модель управления.

¹ См.: Социология: Цели социальных организаций [Электронный ресурс].

FORENSIC HANDWRITING, LINGVISTIC EXAMINATIONS AND TECHNICAL EXAMINATIONS OF DOCUMENTS: METHODICAL APPROACHES TO THE PROBLEM SOLVING

UDC 343.98

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SOME FEATURES OF METHODOLOGICAL APPROACHES TO THE RESEARCH OF SIGNATURES MADE BY PERSONS WITH CHANGES IN SIGNS OF THEIR OWN SIGNATURE HANDWRITING

The main stages of researches of signatures made with changing signs of their own signature handwriting of performers are considered. The most important features of each stage which should be given with special attention, are defined. Examples from the expert practice of Kharkiv RIFE are given.

Keywords: signature, general signs of signature, transcription, tempo, coordination of movements, redrawing "peek-a-boo".

The main directions of scientific research in forensic handwriting always reflected the needs of forensic expert practice in developing theoretical foundations, creating and improving techniques and methods for resolving forensic handwriting problems. One of these directions is related with the study of signatures performed by a person with a change in the signs of his own signature handwriting.

In 2013–2015 years in the forensic expert institutions of the Ministry of Justice of Ukraine (Kharkiv RIFE, Kyiv RIFE, Dnipropetrovsk RIFE, Sumy Branch of Kharkiv RIFE) there were performed the studies related to the generalization of forensic literature and expert practice of forensic expert institutions on the possibilities of handwriting researches of signatures made by individuals with changing signs of their own signature handwriting¹, as well as with the generalization and analysis of the data, obtained during experimental studies

¹ See: Актуальні питання дослідження підписів, виконаних особами зі зміненням ознак власного підписного почерку / [Т. В. Сохранич, Н. В. Сиротенко-Кацман,

in order to understand the processes of changing their own signatures by individuals¹.

The obtained results served as the basis for improving methodical principles for resolving the identification problems of the specified graphic objects and developing expert's consequent actions regarding researching these objects that is conditioned by the need for unification and standardization of expert studies in accordance with the requirements of the current legislation and the state of development of modern practice in the field of domestic forensic handwriting examination.

In the practice of forensic handwriting expertise, identification studies are common with the purpose of resolving questions on determining the belongingness (or non-belongingness) of a signature to a particular person on behalf of which this signature is written. For the expert examination of signatures performed with changing signs of their own signature handwriting, the combination of resolving the diagnostic (establishing the fact of the signature performance with the change of the signs of his own signature handwriting) and the identification (the exclusion or establishment of the person on behalf of which the signature is indicated) tasks is specific.

Proceeding from this, each property, reflected in signs of signature handwriting, is considered as a source of both identification and diagnostic information, and the research which is carried out to resolve this so-called "integration" problem, is the single process.

It should be noted that the research of the indicated signatures belongs to a number of complex objects. This is explained by: the distortion by a person of his signature which has a very unclear origin; the lack of useful information due to the small size of the graphic object; the influence on the process of writing of a "distorting" factor which leads to a significant transformation of the signature and, as a result, to the low comparability of the comparative material with the graphic object under study.

Thus, the methodical approaches to handwriting research of the indicated handwriting objects have certain peculiarities. At the same time, according to the general approaches of signature research based on qualitative evaluation criteria, they are built on a two-level principle, the essence of which is that the research is performed cyclically, that is, with varying degrees of depth and approach to the final solution of the problem at different levels. The researches at each level, at each phase, at each stage result in the formation of intermediate conclusions. Their evaluation is occurred on all previous research results. Intermediate solutions should form a logical sequence which leads to a final conclusion – the decision of the expert task. If there are internal contradictions in intermediate conclusions, they should be the subject of special expert analysis, since if the expert does not solve these problems, he will not be able to draw a definite conclusion.

Н. Я. Дідушок, В. Г. Абросимова] // Теорія та практика судової експертизи і криміналістики. — Х., 2015. — Вип. 15. — С. 229–237.

¹ See: Бондар М. Є. Особливості прояву почеркових ознак у підписах, виконаних шляхом автопідлогу // Криміналістика и судебная экспертиза. — К., 2015. — С. 266–274.

Preliminary research (resolving the problem at the first level) provides an initial, orientative approximation to the solution of the main problem. The essence of the previous study consists in the gradual passing by the expert of all phases and stages in order to compose the imagination on the task, the degree of its complexity and the possibilities and directions for solving this problem. The peculiarity of the first stage – the stage of familiarization with all materials – is the identification of the circumstances or the information from the materials of the case related to the subject matter of the examination that anticipates obtaining information related to this study, in particular, the data on: the age of the person whose signature is to be examined; which common hand for writing (right, left) does the person fulfil his own signatures, about the state of his health at the time of writing of the examined signature; as well as information on the conditions for drawing up a document, submitted for research and on possible changes in the name of a person, who is verified. This information is necessary, since its majority lies at the heart of the change in the person's own signature handwriting.

For example, in the proceedings of Kharkiv RIFE, there was an expertise in the case of L. Studying the materials of the case, the expert drew an attention to the information available in them, according to which the person, being verified (L.), in the result of the road-traffic accident, has lost the ability of right hand (usual for writing). The circumstance revealed allowed the expert to properly approach to the study of the comparative material, and, finally, to come to the categorical positive conclusion about the authenticity of the studied signature on behalf of L.

The second stage of this study involves an examination and a preliminary analysis of the examined signature (the signatures under investigation).

Determination of the conditions of making the signature under the study is associated with the establishment of diagnostic signs indicating the usual (unusual) conditions of its performance and their preliminary evaluation. Therefore, the specificity of this expert task is to determine the presence and the extent of the manifestation of the diagnostic signs that indicate on performance of the examined signature by changed movements, the absence or presence of these signs in the signature samples, and the handwriting of the person on whose behalf this signature is indicated, in the data from the materials of case concerning the subject of the research.

The most typical features that are diagnostic in nature, include: coordination of movements, tempo of performance, pressing of the writing device. Reduced coordination of movements, retardedness of tempo, undifferentiated pressing of the writing device are inherent for making signature under the influence of any “distorting” factor. There are other signs: interruption of strokes, corrections, additions and the like.

At this stage, the expert has the ability to visually distinguish (for the purpose of further recording) informative individual characteristics by examining all the fragments of the signature behind the trajectory of its performance as well as the signs that are rare enough in the signatures since there is a possibility of reflecting in each fragment of the signature of a certain totality of individual characteristics.

At the stage of inspection and preliminary study of the comparative material there is occurred: preliminary evaluation of the sufficiency (by quantity, quality and certitude) of the provided comparative material; determination of the conditions for performing samples; preliminary determination of variability of the samples given; taking samples which are mostly compared with the researched signature; distinguishing general and particular features.

One of the main requirements for the comparative material is the certainty of the origin of the signature and handwriting samples. The expert's preliminary determination of the sufficiency of the comparative material presupposes the obligatory evaluation of the given samples from the point of view of belongingness to one particular person. Determination of the sufficiency of the comparative material is closely related with the clarification of the conditions of performing samples, with the determination of their variability, so at this stage the expert also provides an indicative estimate of the variability of the signatures-samples. The comparative material under research should also correspond to the research signature as to the conditions of its performing; the expert receives information about it from the materials of the case. Simultaneously, the expert determines the degree of comparability of different variants of signature-samples of a certain person among themselves. From the number of predefined variants of signatures, there is executed the selection of the most closest to the handwriting object under research (by the time of performing, by the nature of performing, by the conditions of drawing and the formation of written signs by construction, etc.)

The selection of the most similar samples with the signature under research plays a key role in comparing them and in further formation of the final conclusion. For example, in the proceedings of the specialists of Kharkiv RIFE there was an expert examination of the signature on behalf of V. A careful study of the comparative material allowed the expert to establish that among the variety of samples of the signature of V. there is one that coincided with the researched signature in appearance, composition of transcription, in size and arrangement of the elements.

Along with this, in the examined signature, the expert determined the tempo slowness (in the samples – fast), the discrepancies in the signature elements relatedness and the violation of movements coordination of the group I. The above allowed the expert to put forward a version about executing the studied signature by redrawing “to the skylight”. In the process of complex research by specialists in the field of technical research of documents and handwriting studies, it was possible to conclude that the signature under research was being carried out by redrawing peek-a-boo (“to the skylight”) and the model for this purpose was the specified sample of signature V.

It should be noted that the specificity of the solution of this handwriting task requires more demanding attitude to the provided comparative material.

Firstly, among the comparative material it is important to have samples not only of the signature of a certain person but also the handwriting of that person. Samples of and handwriting, and signatures of the verified person should be fulfilled for a considerable period of time which will allow us to identify not only relatively stable general and particular features, to determine the variability in the

handwriting of this person, but also to retrace the variability of signs of the signature handwriting of a certain person in time. Besides, checking comparability of signature and handwriting samples of a particular person includes availability of the comparative material which corresponds to the intended purpose and content. This is related with the determination of the purpose of performing the signature under consideration – with the direction for the quick simplified performing or with the direction for the careful, legible, slow drawing the signature. Such a characteristics as a tempo is directly dependent on the general structure of movements (simplified or obstructed writing). Therefore, in the first case, handwriting samples may be provided in the form of drafts, notebooks, conspectuses, etc., and in the second – free samples should be provided in the form of official documents that require legible filling of them. According to the content, the comparative material should be executed in the same language, contain the same written signs as the signature under research since the comparison is carried out by comparison with the corresponding written signs. Samples of handwritten realizations should be compared according to the conditions of performing, that is, they must be executed on a similar material of writing by analogous instrument of drawing, taking into account the presence/absence of blank lines, graphing and the like in the provided material. Further comparison requires evaluation of the possibilities of using other variants of signature samples (partially comparable, almost not comparable).

The stage of preliminary comparison includes withdrawal and study of the signs indicating the presence/absence of the manifestation of “distorting” factors in the performance of the examined signature, identificational common and particular handwriting signs. This is explained by that the expert approaches to this stage with an ambiguous explanation of the origin of the signs that indicate the presence of “distorting” factors during performing the examined signature. In this regard, the special attention should be paid to the manifestation of the diagnostic features available in the test signature and the available or missing signature and handwriting samples of a particular person provided as comparative material. Carrying out of a preliminary comparative study presupposes distinguishing in the studied signature of the most informative written signs in which graphic information useful for identification is contained, and a corresponding comparison with the given samples of signature and handwriting of a certain person. The result of the comparison which may include both coincidence and non-coincidence of the diagnostic and identificational features, helps the expert to find out or defin more precisely separate expert versions.

At the stage of preliminary evaluation the coincidences and (or) discrepancies of the signs are established from the point of view of approaching to the solution of the integration problem. Each of the evaluations is both relatively independent and related with others. Only in relation to each other, they are the basis for putting forward separate and general versions. It should be noted that in the presence of the peculiarities inherent to this type of tasks, the expert should make the final decision only after carrying out detailed research. As for the previous integration (diagnostic and identification) results obtained by the expert during the previous study, in the course of the comparative study (the so-

lution of the problem at the second level) they are deepened, comprehensively evaluated, which helps to establish objective information necessary for formulating the final reliable conclusion.

So, proper observation by the expert of all stages of research, namely: careful study of materials submitted to expertise and paying sufficient attention to both the signature and the comparative material, will help to avoid mistakes in resolving issues on signatures performed by persons with changing signs of their own signature handwriting.

ДЕЯКІ ОСОБЛИВОСТІ МЕТОДИЧНИХ ПІДХОДІВ ЩОДО ДОСЛІДЖЕННЯ ПІДПИСІВ, ВИКОНАНИХ ОСОБАМИ ЗІ ЗМІНОЮ ОЗНАК ВЛАСНОГО ПІДПИСНОГО ПОЧЕРКУ

Сохранич Т. В., Сиротенко-Кацман Н. В., Дідушок Н. Я.

Розглянуто основні етапи дослідження підписів, виконаних зі зміною ознак власного підписного почерку виконавців. Визначено найважливіші особливості кожного з етапів, яким слід приділити особливу увагу. Наведено приклади з експертної практики Харківського НДІСЕ.

Ключові слова : підпис, загальні ознаки підпису, транскрипція, темп, координація рухів, перерисовування "на просвіт".

НЕКОТОРЫЕ ОСОБЕННОСТИ МЕТОДИЧЕСКИХ ПОДХОДОВ К ИССЛЕДОВАНИЮ ПОДПИСЕЙ, ВЫПОЛНЕННЫХ ЛИЦАМИ С ИЗМЕНЕНИЕМ ПРИЗНАКОВ СВОЕГО ПОДПИСНОГО ПОЧЕРКА

Сохранич Т. В., Сиротенко-Кацман Н. В., Дидушок Н. Я.

Рассмотрены основные этапы исследования подписей, выполненных с изменением признаков собственного подписного почерка исполнителей. Определены наиболее важные особенности каждого из этапов, которым следует уделить особое внимание. Приведены примеры из экспертной практики Харьковского НИИСЭ.

Ключевые слова: подпись, общие признаки подписи, транскрипция, темп, координация движений, перерисовывание "на просвет".

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ELEMENTS OF CRIMINAL ARGOT AS A PARTS OF CRIMINALISTIC THESAURUS

It was made analysis of criminal argot element functioning in the modern Ukrainian terminological system of forensics. Consideration was given to the positions of some linguists on the possibility of argotic origin words existence in terminology systems. Modern scientific and professional sources for forensic science made and analyzed the examples of the argotism functioning.

Keywords: term, terminology system, forensics, scientific style, jargon, criminal argot.

Analysis of scientific forensic literature, criminal procedural norms, professional textbooks and studies of specialists shows the heterogeneity and inconsistency of forensic terminology. Quite often there are discussions of forensic scientists concerning definition and interpretation of concepts. For today there is an urgent need for the unification and standardization of a special forensic language, its systematization and the reduction of terms to an integrated system.

Up to now, forensic terminology remains not investigated from the aspect of linguistics, since only a small number of papers are devoted to this topic: these are the scientific linguistic researches of G. A. Sergeeva, N. V. Artikutsa, L. Gaponova, V. Ya. Radetskaya along with articles of criminal experts V. B. Shevchenko, V. S. Kuzmichova, V. Yu. Shepitko, in which some aspects of normalizing the certain forensic terms are considered.

Despite the fact that forensics was not allocated to an independent branch of knowledge for a long time, its terminological apparatus absorbed a whole series of legislative and legal special words, as well as terminological elements of other branches of science. This fact is the main reason for the complexity of the research object and study of science itself.

When investigating the criminal event, defining its mechanism and establishing the direct persons and objects of the material environment, which take part in this crime, forensics uses general scientific methods, methods of some sciences and its own (special) methods. Therefore, the terms used by science are divided into general scientific terms, terms of related sciences and own terminological elements. The specified variety of special words affects the normalization and standardization of the entire forensic system.

One of the topical issues for today is the possibility/impossibility of existence of slang origin words such as so-called criminal argot in the terminological system of criminalistics. The purpose of our research is to clarify the role of criminal argot elements in the thesaurus of criminalistics. The main tasks are to study examples of the argot expression functioning in a scientific language, to conduct their lingual analysis as well as to determine the nature of criminal argot. Today's globalization processes facilitate the significant influence of the media on the gradual emergence of special words beyond the professional or social groups where they were created as well as their integration into other layers of speech. It is actual to point out and study such elements in scientific language, particularly, in criminalistics language. The question arises about the definition of argot itself in scientific speech: can its elements be considered as terms. The positions of linguists are ambiguous. Thus, A. V. Superanskaya and co-authors note that they do not classify the argot lexis as a special one, although it is connected with some purposeful activity, but it serves not so much for exposition as for concealment of facts. The most characteristic feature for argot, in their opinion, is its organization on the principle of antispeech, so that the speech of a particular group of people is not clear for others. So, the scientists are absolutely against using such linguistic terms as professional jargon, professional argot¹. L. Stavyska, on the contrary, believes that "jargon

¹ See: *Суперанская А. В. Общая терминология. Вопросы теории* / А. В. Суперанская, Н. В. Подольская, Н. В. Васильева. — М. : Наука, 1989. — С. 27.

lexicon is not just a “coldness” of vocabulary meanings, but a unique picture of the world, a powerful semiosphere of a certain time cut of culture”¹. In researcher's opinion, the slang words, which also include criminal ones, are oppositional to general literary words and approve norms of behavior. The process of creating such coded words requires “significant linguo-creative abilities”. Therefore, they form a part of the national language on the same conditions as other language units. As it is noted by A. S. Dyakov with his co-authors, one should not support the creation of terms that come from dialectic expressions and jargon, because they violate such a requirement for terms as euphony. But the researchers point out that we can talk a lot about the desired properties of the terminology unit, but “it can not be considered as inferior or unnecessary only on the grounds that it does not have a certain property, although the term is used by the user for a long time”². We support this view and believe that, when analyzing a certain terminology system, great attention should be given to its practical part, since scientific speech is not a frozen form, living processes occur in it, which sometimes may not coincide with the rules of theory. The question of defining and differentiating such terms as *jargon* and *argot* remains ambiguous for today.

In the Large Explanatory Dictionary of Modern Ukrainian, the *argot* lexeme is designated as a linguistic term, which means “the conditional talk of any social environment (group, circle, etc.), which has specific words and expressions that are not clear to outsiders”³.

In the same dictionary entry, the *jargon* lexeme is given as a synonym for the term *argot*. So, the dictionary treats the named lexemes almost identically and derives the meaning of one concept through another. Thus, in linguistics, the concerned terms are synonymous, and of course, this complicates their correct perception and clear definition. There is no consensus among linguists on using this or that term in a certain context. In our opinion, this situation is unacceptable and we should try to distinguish between these concepts. We believe that a *jargon* term is more appropriate to designate a speech of open social or professional group, that differs from the general literary language by the presence of special words and expressions.

A vivid example is a youth jargon or professional jargon, which in its turn is divided into individual types of jargon according to professional affiliation (for example, drivers' jargon, fitters' jargon, computer specialists' jargon, etc.). An important feature of jargon is that the motivated secrecy and secret meaning are not typical for them. They are used to revitalize speech, have many artificially created words and utterances, which are involved in those realities that are related to a certain type of occupation. The *argot* term, in our opinion, is more appropriate to use for designating the specially created artificial language of individual groups, which they keep secret and oppose to the general

¹ See: Ставицька Л. Українська мова без прикрас / Л. Ставицька // Короткий словник жаргонної лексики української мови. — К.: Критика, 2003. — С. 12.

² See: Д'яков А. С. Основи термінотворення. Семантичні та лінгвістичні аспекти / А. С. Д'яков, Т. Р. Кияк, З. Б. Куделько. — К.: Academia. — С. 13.

³ Великий тлумачний словник сучасної української мови / [уклад. і гол. ред. В. Т. Бусел]. — К.: Ірпінь, 2009. — С. 23.

literary language. The *criminal argot* belongs to such kind of speech, which arose quite long ago as a reaction of the criminal world people to hostile and negative perception of their lifestyle by the outside world. In this way, they tried to make their speech incomprehensible to others in order to hide information communicated to one another. So argot performs the role of a peculiar password for the criminal community. In most cases, the words of the general literary language are filled with a new meaning that does not coincide with the main one. The artificially created lexical elements are emerging, for example, the term *waistcoat* (*жилетка*) in criminal argo means “device for cutting pockets, which is mounted in a ring”¹; the term *cobblestone* (*булижник*) means “swindler who sells a simple glass as a precious stone”² and so on.

An ordinary person perceives such speech as vulgar, stylistically understated and emotionally negative, the thieves themselves perfectly master it, consider it neutral, understandable for them, and therefore specifically use it to keep a certain mystery. Such conditional speech is called *pull* (*блат*), the derivative expression is to *talk in a pull way* (по-блатному).

So the criminal world people use two languages: ordinary language spoken in the common environment and language created and encoded by themselves to be used in the criminal sphere.

In fact, the main task of criminalistics as a science is to disclose the crimes, prevent and investigate their consequences, that is, the subject of study is constantly concerned with the criminal world. The criminalists conduct interrogations of criminals who speak mostly in their own language or use surzhik. This is how argot expressions gradually enter into the speech of specialists, for whom it becomes important to understand what criminals are talking about or what they agree with each other. So, we consider argot expressions to be proper parts of criminalistic terminology. They meet certain requirements imposed on the terms, such as: the exact and laconic name of a person, phenomenon or event, which are unequivocal in most cases. Actually, the latter concerns the criminalistic terminological system. When composing the encyclopaedic dictionary of criminalistic terms³, V. Yu. Shepitko introduces the terms which in their origin belong to criminal argot, denoting them as “thieves' jargon”.

Besides criminals, not only criminalistic sphere specialists but also lawyers and judges use argot expressions in their speech. Among the argot terms, only those terms become well-known that are devoid of excessive emotionalism or outright vulgarity. In the educational literature on criminalistics, we can trace the use of argot expressions alongside with professional terms. Specifically naming a phenomenon or event, they perform the function of scientific units, execute the role of a definite significatum. Here are examples from professional literature and researches: “... an investigation of marriage *affaire* with a rich bride is under way”⁴. The term *affaire* (афера) originally meant some illegal ac-

¹ See: *Шепітько В. Ю.* Криміналістика. Енциклопедичний словник / В. Ю. Шепітько. — Х. : Право, 2001. — С. 87.

² See: *Ibid.* — С. 36.

³ See: *Шепітько В. Ю.* Indicated work. — 553 с.

⁴ See: *Салтевський М. В.* Криміналістика (у сучасному викладі) : підручник / М. В. Салтевський. — К. : Кондор, 2005. — С. 496.

tions involving the circulation of monetary units, but later it was used to indicate the criminal activities by means of which somebody illegally gains any benefit;

In the forensic dictionary, the term *authority* (*аємопутєм*) is an “experienced criminal, a recidivist, who has won confidence in the criminal environment, who has influence and is able to lead a group”¹. Today this term is quite common, it is unequivocal regardless of the scope of its application. As a rule, argot expressions fulfill a nominative function in the criminalistic literature, they are used to name certain types of criminal groups. Thus, specialists immediately understand what kind of thieves are talking about and what proper measures should be taken to find them or detain them. For example: “... a group of *criminal touring* (*злочинців-застролерів*) performers was engaged in falsifying railway tickets by etching a handwritten text and applying a new one”². In common literary language the word (*застролі*) *touring* means the performance of creative collectives for profit outside their stationary sites. There was a rethinking of this concept in criminal argot on the basis of the general, that is, in the criminal world, to go on a tour means committing a crime both outside of their residence and in public vehicles;

“...*plunderer-grabbers* (*hucksters*) (*розкрадачі-рвачі* (*користолубці*)) are prone to money-grubbing, appropriation of another person's property by any means”³. The term is a compound word, comes from verbs *to plunder* and *to grab*, in a criminal speech it differs from the generally accepted meaning. It concerns the ability of some criminals to gain benefit for a short period of time in any circumstances, that is, *to grab* enrichment for themselves under any conditions. In our opinion, the word *grab* available in youth slang originates from criminal argot, because it also means a benefit instantly gained for oneself;

“... the author gave a detailed description to criminals of different categories: murderers, robbers, plunderers, thieves, fraudsters, counterfeiters, *distillers*”⁴; “The work ... is devoted to tactical methods used by professional criminals (*marwickers* (*марвікери*), *washers* (*мийники*)), horse thieves (*конокради*), swindlers (*аферисти*), *scammers* (*шахраї*), etc.”⁵. In the above contexts, we now pay attention to only special words that are highlighted.

So, the terms *distilleries* (*винокури*), *horse thieves* (*конокради*) call thieves according to main type of their offense: *distilleries* (*винокури*) are engaged in the production of alcoholic products in non-factory (handicraft) conditions; *horse thieves* (*конокради*) who really steal horses and cattle to dispose of them as owners. These terms have entered the criminalistic system from the common literary language, where they are still used. The term *swindler* (*аферист*) originates from criminal argot, it is now popular in the general

¹ See: Шенітько В. Ю. Indicated work. — С. 11.

² See: Салтевський М. В. Indicated work. — С. 164.

³ See: Салтевський М. В. Indicated work. — С. 487.

⁴ See: Криміналістика (криміналістична техніка) : курс лекцій / [П. Д. Біленчук, А. П. Гель, М. В. Салтевський, Г. С. Семаков]. — К. : МАУП, 2001. — С. 82.

⁵ Ibid.

environment and denotes a person who engages in criminal self-serving actions for the circulation of money or other valuables.

And the terminology units: *marwikhers* (*марвихеру*), *washers* (*мийнуки*) are vivid examples of criminal argot, because they are coded names, the meaning of which can not be understood by people from another environment.

In the criminal world, a separate type of criminal touring performers discussed earlier are called *marwikhers* (*марвихеру*); the argot expression *washers* (*мийнуки*) is now used to designate thieves in supermarkets, but the name *washers* (*мийнуки*) was once used for station thieves who stole any things from sleepy passengers.

There are some cases when argot expressions are formed on the basis of the sound shell and semantics of certain common literary words, but the meaning of the whole lexeme is radically changed.

Thus, the lexeme *debt* (*долг*) was taken as a word-formative stem for the argot expression *small debt* (*боржок*) which means "what is borrowed". In linguistics, *-ок* suffix gives a hypocoristic meaning to the word-formative stem.

In criminal argot, the derivative word *small debt* has a negative disdainful character, while the amount of debt itself can be either small or large, for example: an anonymous exactor organizes alarm calls by phone with threats, for example: "You have to pay a *small debt*"¹.

So, criminal argot gradually penetrates into scientific speech, while its elements in criminalistic speech acquire the functions of terms, become integral elements of this system. In our opinion, the criminalistic terminology system should be viewed from a practical point, since there's where you can trace cases of undesirable phenomena for scientific speech in general and for terminological systems in particular, which should be investigated with attempt to identify the causes of their occurrence, analyze them, and give practical recommendations on their standardization and unification. When analyzing the functioning of argot elements in the criminalistic terminology system, we come to the following conclusions:

1) elements of criminal argot are used in criminalistic terminology system as terms equivalent to other special lexemes;

2) the use of argot expressions is an undesirable phenomenon in terminology, but in the criminalistic sphere, in our opinion, it is justified, because such terminological units are often exact and accurately convey the notions of criminal environment. They, of course, require critical judgment from criminalistic specialists, but they will hardly be replaced by scientific terms, since in this case they will become artificially created theoretical names which will not have any practical confirmation;

3) the problem of criminal argot element role in the scientific style of criminalistic speech, of course, remains open and actual just as the polemic concerning the nature of modern argot: whether it exists as a secret language, or whether it is expressive.

Thus, the raised question still requires study and clarification, therefore, it is scientifically actual.

¹ See: *Салтєвський М. В.* Indicated work. — C. 495.

ЕЛЕМЕНТИ КРИМІНАЛЬНОГО АРГО ЯК СКЛАДНИКИ ТЕЗАУРУСУ КРИМІНАЛІСТИКИ

Ковкіна Є. В.

Проаналізовано функціонування елементів кримінального арго в сучасній українській термінологічній системі криміналістики. Розглянуто позиції мовознавців щодо можливості існування в терміносистемах слів арготичного походження. Наведено та проаналізовано приклади функціонування арготизмів у сучасних наукових і фахових джерелах з криміналістики.

Ключові слова: термін, термінологічна система, криміналістика, науковий стиль, жаргон, кримінальне арго.

ЭЛЕМЕНТЫ КРИМИНАЛЬНОГО АРГО КАК СОСТАВЛЯЮЩИЕ ТЕЗАУРУСА КРИМИНАЛИСТИКИ

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Проанализировано функционирование элементов криминального арго в современной украинской терминологической системе криминалистики. Рассмотрены позиции языковедов о возможности существования в терминсистемах слов арготического, жаргонного происхождения. Приведены и проанализированы примеры функционирования элементов криминального арго в научных источниках по криминалистике.

Ключевые слова: термин, терминологическая система, криминалистика, научный стиль, жаргон, криминального арго.

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DETERMINATION OF THE PERFORMANCE STROKES SEQUENCE IN THE ABSENCE OF THEIR MUTUAL INTERSECTION AREAS

Consideration is given to the possibility of determining the chronological sequence of strokes made with ballpoint pen paste and strokes made by the electrophotographic method if there are no any sectors of their intersection. In addition to the methods existing abroad, it was suggested to carry out a study on determining the average density of the toner "background" on the sections, where strokes of records and signatures are executed as well as on the blank sections of document sheets.

Keywords: ballpoint pen paste, electrophotographic printers, toner microparticles, strokes, metallographic microscope, average density of toner "back-ground".

Experts who conduct forensic technical examinations of documents (FTED) are often confronted with a question of the chronological sequence of strokes execution, and if there are any intersections of requisites in documents, they

successfully solve this question. But if there are no such sectors, the question of sequence in placing the requisites in the document, as a rule, remained unanswered¹.

It is known that when executing the texts or images electrophotographically (on laser or LED printer or on copymaker), the “background” being formed by toner microparticles (of 5–15 microns) always appears on the blank sections of document sheet (-s). It is apparent that, if there are handwritten requisites in the document, then in place of their location, there may also be toner micro-particles. Depending on the sequence in which the requisites are executed in the document, the micro-particles will be located either on the top of handwritten lines or under them, but the toner micro-particles located on the top of handwritten strokes and under them, look different².

The toner micro-particles on the top of the handwritten strokes retain their original form (we can talk about the original form of toner micro-particles on the paper after examining them on the document paper blank field) or they are convex volumetric grains of various shapes, of black color with a bright shine or they are slightly flat volumetric particles of various shapes of grey-black color with a shine.

Toner micro-particles located under handwritten strokes look like flat spots of various shapes and sizes, they have grey-black aureole and iridescent (from yellow to dark pink) shine. The intensity of shine and color shade of micro-particles depend on the type and color of the dye material that a handwritten stroke is made with. The surface of toner micro-particles is flat due to crushing by the ball point during execution of strokes. The rainbow effect results from the formation of a polymer microfilm on the surface of toner micro-particles, on which, when a vertically directed light hits, light amplification of a certain wavelength occurs.

It should be noted that the visually smooth and flat surface of the document paper under study at large magnifications (up to 400×) is considered as a three-dimensional surface consisting of fibers intertwined at different levels with numerous depressions. Only toner microparticles located on the “upper” fibers are suitable for the study. Micro-particles, which are located in the cavities or in the interweaving of fibers of the lower level, can not be the objects of research.

Besides, when conducting the expert researches, to gain greater objectivity in evaluation of the pattern observed in the microscope field of view, it is recommended to perform experimental strokes on the test document

¹ See: Данилович В. Б. Современные возможности установления хронологической последовательности выполнения пересекающихся штрихов / В. Б. Данилович, А. А. Онищенко // Криминалистика. XXI век: материалы науч.-практ. конф. — М., 2001. — Т. 1. — С. 75–80.

² See: Торопова М. В. Установление последовательности выполнения в документах реквизитов при отсутствии участков их пересечения / М. В. Торопова // Теория и практика судебной экспертизы. — 2006. — № 1(1). — С. 125–127; Вона ж. Новый подход к решению задачи по установлению последовательности выполнения реквизитов в документах // Ibid. — 2008. — № 3(11). — С. 180–185.

in order to simulate one known variant of sequencing for the printed text and handwritten strokes¹.

For the first time in Ukraine, in Kharkiv Research Institute of Forensic Examinations, the scientific researches are carried out with the metallographic mi-roscope METAM LV-34 to solve the problems of determining a chronological sequence of record and signature strokes made with ballpoint pen pastes and text and image strokes made by electrophotographic method if there are no any sections of their intersection.

During scientific researches, in addition to the already available foreign techniques² on determining the sequence of requisitions applied in documents by electrophotographic method as well as requisitions applied by means of ballpoint pen pastes, the examination is conducted to determine the average density of the toner "background" on the sections of record and signature strokes, as well as on the blank sections of document sheets in order to exclude the possibility of handwritten strokes with so-called "bypassing" the toner microparticles available on the document sheet.

Thereafter, the simulation of several situations will be carried out for the execution of handwritten strokes applied with "bypassing" the toner "background" microscopic particles, which can cause improper conclusions.

1. Today, it is a widespread practice for the company manager to put his signature on empty sheets, for example, for the subsequent execution of accounting documents. These documents often become objects of interest for swindlers, since they use them to execute the debt receipts for a large amount and contracts for the sale of shares or bills. In the process of microscopic examination of such documents, the toner micro-particles will be detected in the signature strokes on the top of the signature strokes, therefore, the printed text was applied after putting the signature.

However, it may be such situation, when the manager receives to sign "clean" sheets, which were previously exposed to influence of electrophotographic printer (so-called "blank sheet printing"), with already existing toner microparticles,.

Then, in process of entering the printed document requisites, the location of the signature is closed with paper, thus the document is created, the microscopic examination of which will find out that there are some toner micro-particles under the signature strokes, but they are absent on the top of strokes. This will be the basis for the conclusion that first the printed requisites had been executed, and then the signature was put, which is not true.

2. If during execution of the printed document requisites (for example, of contract or acknowledgement of cash assets receipt), the place for signature on

¹ See: *Торопова М. В.* Новый подход к решению задачи по установлению последовательности выполнения реквизитов в документах.

² See: *Вона ж.* Установление последовательности нанесения в документах реквизитов, выполненных электрофотографическим способом, и рукописных реквизитов, оттисков печати (методические рекомендации). — М. : Изд-во ЭКОМ — ООО "ЭКОМ Паблишерз", 2011. — 30 с.

the document is closed with a piece of paper, then the toner micro-particles will not be available under the strokes of a signature after its putting. Then the document may be exposed to an electrographic printing device, and background toner micro-particles will appear on the top of signature strokes. During the microscopic examination of this document, it will be determined that the toner micro-particles locate only on the top of signature strokes. From this we can conclude that the signature was put first, and the printed requisites were placed after it, which also does not correspond to reality¹.

To avoid such errors during the research, it is suggested to take into account the average density of the toner “background”.

The average density of the toner “background” is determined by photographing the document blank areas (at same magnification of 100–200×) in close proximity to handwritten strokes of signatures or records as well as on the blank areas of the document sheet at a relative distance from the text strokes and electrophotographic images (at least 30–40 photographs), after which the number of toner “background” micro-particles is counted on the photographs and the average density of the toner “background” is calculated and compared on the sections of record and signature strokes as well as on the blank sections of the document sheets.

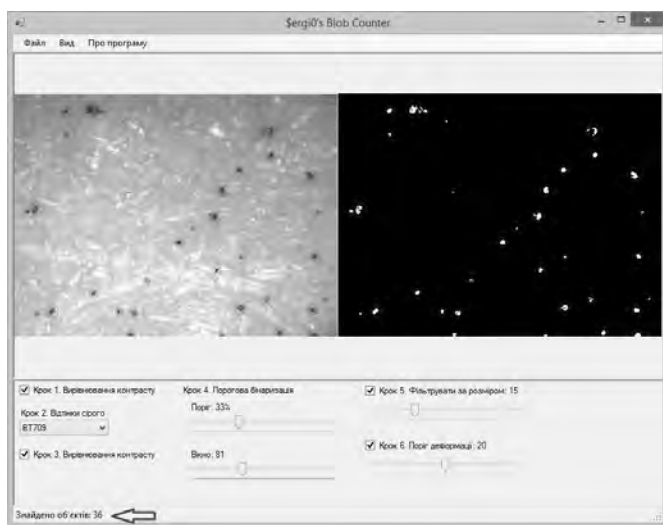


Figure. General view of the Sergi0's BlobCounter program working window

¹ See: *Соколов А. Ф. К вопросу о практике проведения экспертиз по установлению последовательности выполнения реквизитов документов, один из которых выполнен способом электрофотографии, при отсутствии мест их взаимного пересечения* / А. Ф. Соколов, Д. А. Шлыков // *Энциклопедия судебной экспертизы*. — 2013. — № 1.

To determine (account) the number of toner “background” micro-particles, the computer program Sergi0's BlobCounter was developed and now it is under passing of evaluation tests in the Kharkiv Research Institute of Forensic Examinations. It allows quickly and qualitatively to determine the amount of toner “background” micro-particles on digital photographs of the document blank areas obtained with using the metallographic microscope METAM LV-34. The general view of the program working window is shown in the figure.

If the average density of the toner “background” on the sections of placing the strokes of records and signatures and on the blank spaces of document sheets coincides or has very small discrepancies, this indicates that sections of documents with strokes of signatures and records were not covered by paper fragments at the time of printing the text or passing a sheet through the electrographic printer and the conclusions to be obtained by the expert during the microscopic examination of toner “background” micro-particles located in the strokes will correspond to reality.

The presence of a significant difference in average density of the toner “background” on the sections with strokes of records and signatures as well as on the blank sections of document sheets makes the expert to carry out a more detailed study of document sheet surface at locations of signatures (records) in order to reveal the boundaries of the sections that were covered with fragments of paper.

Using the new methodological approach significantly expands the capabilities to solve problems of determining a chronological sequence of executing the requisites in documents.

УСТАНОВЛЕННЯ ПОСЛІДОВНОСТІ ВИКОНАННЯ ШТРИХІВ ЗА ВІДСУТНОСТІ ДІЛЯНОК ЇХ ВЗАЄМНОГО ПЕРЕТИНУ

Наранович О. В.

Розглянуто можливості встановлення хронологічної послідовності нанесення штрихів, виконаних пастами для кулькових ручок, і штрихів, виконаних електрофотографічним способом, за відсутності ділянок їх взаємного перетину. На доповнення до методик, що існують за кордоном, запропоновано проводити дослідження зі встановлення середньої щільності тонерного «фону» на ділянках виконання штрихів записів і підписів та на пробільних ділянках листів документів.

Ключові слова: пасти для кулькових ручок, електрофотографічні друкуючі пристрої, мікрочастки тонера, штрихи, металографічний мікроскоп, середня щільність тонерного «фону».

УСТАНОВЛЕНИЕ ПОСЛЕДОВАТЕЛЬНОСТИ ВЫПОЛНЕНИЯ ШТРИХОВ ПРИ ОТСУТСТВИИ УЧАСТКОВ ИХ ВЗАИМНОГО ПЕРЕСЕЧЕНИЯ

Наранович О. В.

Рассмотрена возможность установления хронологической последовательности нанесения штрихов, выполненных пастами для шариковых ручек, и штрихов, вы-

полненных электрофотографическим способом, при отсутствии участков их взаимного пересечения. В дополнение к методикам, существующим зарубежом, предложено проводить исследование по установлению средней плотности тонерного «фона» на участках выполнения штрихов записей и подписей и на пробельных участках листов документов.

Ключевые слова: пасты для шариковых ручек, электрофотографические печатающие устройства, микрочастицы тонера, штрихи, металлографический микроскоп, средняя плотность тонерного «фона».

UDC 343.98:681.5

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FEATURES OF CRIMINALISTIC RESEARCH OF BALLISTIC CHARACTERISTICS AND STRIKING PROPERTIES OF ELASTIC BUCKSHOT OF TRAUMATIC EFFECT CARTRIDGES “TEREN-12K”

During experimental studies of ballistic characteristics and elastic buckshot killability of 12-caliber cartridges “Teren-12K” of traumatic action, the definition was given to peculiarities of buckshot kinetic energy dispersion on the trajectory as well as to the nature of impact-contact interaction with biological object tissues at various ranges of shooting. Particular attention was paid to the examination of elastic buckshot killability at shooting ranges, for which the compact action of such a multiple kinetic-energy projectile is typical. The complex of differential diagnostic features is determined for buckshot shooting at close ranges.

Keywords: ballistic plasticine, elastic buckshot, pattern of buckshot, cartridge “Teren-12K”, pump-action shotgun “Fort-500”, traumatic action of buckshot, buckshot kill-ability.

Introduction of such a false definition for cartridges of traumatic action as cartridges of “non-lethal action” led to an underestimation of their kill-ability and consequently, to a significant number of tragic (lethal) cases. Among the cartridges, which kill-ability was least studied are 12-caliber cartridges “Teren-12K” of traumatic action with elastic buckshot (Fig. 1). According to NPO “Ecolog” LLC manufacturer’s manual, the effective shooting range of these cartridges is 5 m to 15 m. The designated cartridges are not allowed for shooting at ranges up to 5 m.

The buckshot element speed at distance of 3.5 m from the gun barrel muzzle end is 280 ± 20 m/s (260–300 m/s), while the weight of an elastic buckshot is 0.26 ± 0.005 g, its diameter is 7.2–7.5 mm.

Since in practice the use of weapon is not always carried out at distances specified by the cartridge manufacturers or by current normative acts, therefore, as viewed from the forensic examination of traumatic-action cartridges, it is essential to determine the initial rates of shooting the injuring elements at distance equal to 1.0 m (averaged range of shooting, on which it is believed that the after-effect of powder gases no longer affects the increase in initial velocity of a kinetic-energy projectile after its departure from the barrel bore).



Fig. 1. General view of 12-caliber cartridge “Teren-12K” of traumatic action and elastic buckshot, which the cartridge is loaded with

For this purpose, the experimental shooting from 12-caliber guns of “Fort-500” model range was carried out. The results of studies are given in Tables 1–6.

Table 1

Ballistic characteristics of elastic buckshot for cartridges “Teren-12K” in case of their shooting from the pump-action shotgun “Fort-500A” at range of 1.0 m from the gun barrel muzzle end (data provided for a single element of buckshot)

Shot No.	V_0 , m/s	E_0 , J	$E_{0 \text{ HMT}}$, J/mm ²
1	333	14,42	0,354
2	329	14,07	0,346
3	334	14,50	0,356
4	330	14,16	0,348
5	328	13,99	0,344
6	335	14,59	0,358
7	331	14,24	0,349
8	332	14,33	0,352
9	327	13,90	0,341
10	325	13,73	0,337

Table 2

The calculated values of buckshot trajectory parameters of cartridges “Teren-12K”, determined on the basis of the ballistic coefficient within the range of initial rates of 325–335 m/s (data provided for a single element of buckshot)

Range, M	Rate of buckshot, m/s		Kinetic energy of buckshot, J		Specific kinetic energy of buckshot, J/mm ²	
	V _{min}	V _{max}	V _{min}	V _{max}	V _{min}	V _{max}
1,0	325,00	335,00	13,73	14,59	0,337	0,358
3,5	282,72	291,42	10,39	11,04	0,255	0,271
5,0	260,05	268,05	8,79	9,34	0,216	0,229
10,0	196,79	202,85	5,03	5,35	0,124	0,131
15,0	148,92	153,51	2,88	3,06	0,071	0,075
20,0	112,70	116,17	1,65	1,75	0,041	0,043
25,0	85,29	87,91	0,95	1,01	0,023	0,025
30,0	64,54	66,53	0,54	0,58	0,013	0,014
35,0	48,84	50,34	0,31	0,33	0,0076	0,0081
40,0	36,96	38,10	0,18	0,19	0,0044	0,0046
45,0	27,97	28,83	0,10	0,11	0,0025	0,0027
50,0	21,17	21,82	0,058	0,062	0,0014	0,0015

Table 3

Ballistic characteristics of elastic buckshot for cartridges “Teren-12K” in case of their shooting from the pump-action shotgun “Fort-500M1” at range of 1.0 m from the gun barrel muzzle end (data provided for a single element of buckshot)

Shot No.	V ₀ , m/s	E ₀ , J	E _{0 нмт} , J/mm ²
1	351	16,02	0,393
2	342	15,21	0,373
3	339	14,94	0,367
4	353	16,20	0,398
5	338	14,85	0,365
6	350	15,93	0,391
7	337	14,76	0,363
8	345	15,47	0,380
9	349	15,83	0,389
10	352	16,11	0,396

Table 4

The calculated values of buckshot trajectory parameters of cartridges “Teren-12K”, determined on the basis of the ballistic coefficient within the range of initial rates 337–353 m/s

Range, m	Rate of buckshot, m/s		Kinetic energy of buckshot, J		Specific kinetic energy of buckshot, J/mm ²	
	V _{min}	V _{max}	V _{min}	V _{max}	V _{min}	V _{max}
1,0	337,00	353,00	14,76	16,20	0,363	0,398
3,5	293,16	307,01	11,17	12,26	0,274	0,301
5,0	269,65	282,45	9,45	10,37	0,232	0,255
10,0	204,06	213,75	5,41	5,94	0,133	0,146
15,0	154,42	161,75	3,10	3,40	0,076	0,084
20,0	116,86	122,41	1,78	1,95	0,044	0,048
25,0	88,43	92,63	1,02	1,12	0,025	0,027
30,0	66,92	70,10	0,58	0,64	0,014	0,016
35,0	50,64	53,05	0,33	0,37	0,0082	0,0089
40,0	38,33	40,15	0,19	0,21	0,0047	0,0051
45,0	29,00	30,38	0,11	0,12	0,0027	0,0029
50,0	21,95	22,99	0,063	0,069	0,0015	0,0017

Besides, in the course of experimental researches, the character of slowing the elastic buckshot flight speed was determined at shooting ranges up to 5.0 m. The results of researches are given in Tables 5 and 6.

Table 5

Speed values of the elastic buckshot for cartridges “Teren-12K” at shooting ranges up to 5.0 m

Shot No.	Shooting range, m		
	1,0	3,5	5,0
1	326	281	–
2	346	300	–
3	335	287	–
4	321	276	–
5	276	246	–
6	349	297	–
7	336	292	–
8	261	233	–

End of Table 5

Shot No.	Shooting range, m		
	1,0	3,5	5,0
9	285	251	–
10	329	292	–
11	313	–	246
12	320	–	248
13	298	–	233
14	301	–	238
15	281	–	217
16	323	–	253
17	339	–	261
18	269	–	211
19	275	–	215
20	295	–	233

Table 6

The calculated values of buckshot trajectory parameters of cartridges “Teren-12K”, determined on the basis of the ballistic coefficient within the range of initial rates 337–353 m/s given in Table 5

Range, m	Rate of buckshot, m/s		Kinetic energy of buckshot, J		Specific kinetic energy of buckshot, J/mm ²	
	V _{min}	V _{max}	V _{min}	V _{max}	V _{min}	V _{max}
1	261,00	346,00	8,86	15,56	0,2175	0,3822
3,5	227,05	300,99	6,70	11,78	0,1646	0,2893
5	208,84	276,85	5,67	9,96	0,1393	0,2447
10	158,04	209,51	3,25	5,71	0,0797	0,1401
15	119,60	158,55	1,86	3,27	0,0457	0,0803
20	90,51	119,98	1,06	1,87	0,0262	0,0460
25	68,49	90,80	0,61	1,07	0,0150	0,0263
30	51,83	68,71	0,35	0,61	0,0086	0,0151
35	39,22	51,99	0,20	0,35	0,0049	0,0086
40	29,68	39,35	0,11	0,20	0,0028	0,0049
45	22,46	29,78	0,07	0,12	0,0016	0,0028
50	16,99	22,54	0,04	0,07	0,0009	0,0016

The data of Tables 1–6 show that, theoretically, elastic buckshot can not inflict penetrating wounds at all shooting ranges. According to the energy concept of target (biological object) defeat, the value of its specific kinetic energy is less than the limiting value (0.5 J/mm^2). On the basis of the ballistic coefficient, using theoretical calculations, taking into account the range of initial rates found experimentally, we determined the maximum shooting ranges, as well as the ranges at which the buckshot retains its respective striking properties. The maximum shooting range determination depends on the angle of strike element departure at the time of a shot. As a rule, the maximum range of smoothbore weapon shooting corresponds to departure angles up to 45° , but at such angle values after a shot, the buckshot will not be able to hit the target at close ranges, because it immediately goes beyond the size of a target (particularly, beyond the limits of human height). Therefore, the determination of the maximum shooting range at the considered angle of departure is of purely theoretical significance. In most cases, the shooting was carried out from the standing position and at departure angles close to 0° , or completely at negative angles of departure (in the direction “from top to bottom”), which makes calculations of the buckshot maximum flight range at departure angle 0° more significant in practice. The analysis of these calculations shows the following:

— the calculated maximum range of shooting the elastic buckshot of cartridge “Teren-12K” from “standing” position and at departure angle of 0° within the range of initial rates from 261 to 353 m/s makes up 44.1–49.3 m; the calculated speed of the buckshot at these maximum ranges makes up 23.6–23.9 m/s; the calculated value of their kinetic energy is 0.0725–0.0743 J; the value of their specific kinetic energy at the indicated maximum shooting range is 0.00178–0.00183 J/mm^2 ;

— the calculated maximum range of shooting the elastic buckshot of cartridge “Teren-12K” from “standing” position and at departure angle of 45° within the range of initial rates from 261 to 353 m/s makes up 72.4–78.5 m; the calculated speed of the buckshot at these maximum ranges makes up 4.88–4.69 m/s; the calculated value of their kinetic energy is 0.0031–0.0029 J; the value of their specific kinetic energy at the indicated maximum shooting range is 0.000076–0.000070 J/mm^2 ;

The results of these calculations testify that at maximum ranges, the elastic buckshot shooting does not constitute any danger due to its rather low energy characteristics in comparison with the parameters of physical injuries given in Table. 7.

Table 7

The nature of injuries and corresponding specific kinetic energy value

Nature of injuries	Specific kinetic energy values J/mm^2
Grazes	0,06–0,08
Superficial injurie	0,14–0,17

End of Table 7

Nature of injuries	Specific kinetic energy values J/mm ²
Non-penetrating wounds of the breast with probable fractures	0,32–0,36
The ability to give penetrating wounds to one of the human body cavities (ultimate values)	0,50
Penetrating wounds of the breast	0,54–0,60
Penetrating wounds of the breast with injury of its rear wall	1,35–1,45

When evaluating the energy parameters of the elastic buckshot of traumatic cartridges “Teren-12K” for their ability to inflict these or other injuries, one can be guided by the following data:

— scalp grazes can arise at injuring element specific energy of 0.022–0.0312 J/mm², wounds on the scalp can arise at specific kinetic energy of 0.074 J/mm²;

— thigh skin grazes can arise at injuring element specific energy of 0.14 J/mm², wounds on the thigh skin and in the subcutaneous tissue can arise at specific kinetic energy of 0.228 J/mm²;

— breast skin grazes can arise at injuring element specific energy of 0.075 J/mm²; wounds on the breast skin and in the subcutaneous tissue can arise at specific kinetic energy of 0.193 J/mm².

Concerning the influence of kinetic energy value on the nature of injury, it is accepted that an eyeball injury occurs when the kinetic energy value exceeds 3.9 J. A skull bone injury occurs when the kinetic energy is greater than 80 J. Injuries of ribs occur when the value of specific kinetic energy exceeds 0.24 J/mm². Penetration of an injuring element through the body skin occurs with a probability of 50% at specific kinetic energy value greater than 0.239 J/mm². As for the values of injuring element impact parameters, at which painful sensing of the corresponding intensity occurs, it should be noted that the “weak” pain is felt at specific kinetic energy of more than 0.0215 J/mm². “Strong” pain is felt when the specific kinetic energy exceeds 0.036 J/mm². “Very strong” pain is felt at specific kinetic energy of more than 0.06 J/mm².

On the basis of these data, it is possible to draw certain conclusions on predicting the nature of caused injuries with taking into account the ballistic characteristics of the elastic buckshot of the traumatic-action cartridge “Teren-12K”: the elastic buckshot is not capable of inflicting the penetrating injuries to a biological object (person) in one of the body cavities, and the bodily injuries caused by it can be diagnosed as injuries of mild severity.

However, the elastic buckshot constitutes a danger to the human eye. In the course of calculations, it was found that at kinetic energy limiting value 3.9 J,

which is characterized by the human eyeball injury, at initial rates 261–353 m/s, the range of buckshot dangerous shooting amounts to 8.4–13.8 m.

To determine the nature of biological object (person) injuries caused by the traumatic-action cartridges “Teren-12K” submitted for the research, the experimental shooting was made from the pump-action shotgun “Fort-500A” at the block of ballistic plasticine of Beschussmasse 6287156 brand (Manufacturer is Carl Weible KG, Germany) (Fig. 2, 3).

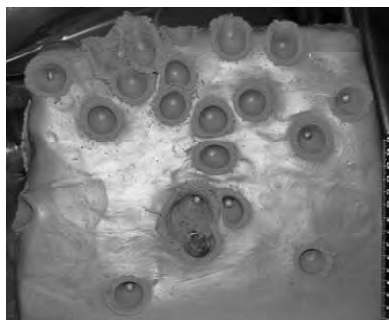


Fig. 2. General view of ballistic plasticine block damage caused by shooting the traumatic-action cartridges “Teren-12K” from pump-action shotgun “Fort-500A” at range of 3.5 m

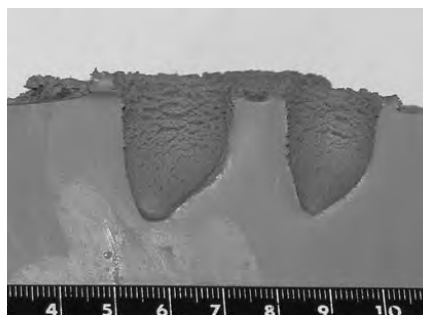


Fig. 3. Cross-sectional view of ballistic plasticine damage (looks like multiple residual cavities) caused by elastic buckshot

In order to determine the elastic buckshot striking properties at shooting ranges up to 1.0 m, the experimental shooting at a ballistic plasticine block was carried out. The results of the researches are given in Fig. 4. The depth of caused damage is from 60–70 mm (in case of shooting from range of 80 cm) to 90–100 mm (in case of shooting from range of 50 cm). If account is given to the experimentally determined range of initial rates, which makes up 261–346 m/s at range of 1.0 m from the gun barrel muzzle end, the energy characteristics of some buckshot elements are the following: the kinetic energy value is not less than 8.86–15.56 J; the value of specific kinetic energy is 0.2175–0.3822 J/mm². However, it is in contrast with results of full-scale tests (Figures 4, 6) due to the compact action of such multiple kinetic-energy projectile as the elastic buckshot. In case of buckshot compact action from shooting ranges up to 1.0 m, the kinetic energy value is 196.19–387.88 J, while the specific kinetic energy value is 0.6245–1.2347 J/mm². The latter indicator is significantly higher than the limiting value (0.5 J/mm²) of this parameter, what may be an evidence of a guaranteed defeat of the target – biological object (person) by inflicting a penetrating wound in one of the body cavities (thoracic, abdominal or cranial cavity). Therefore, in case of shooting the elastic buckshot of 12-caliber traumatic-action cartridges “Teren-12K” from the shooting range up to 1.0 m, there is a threat to human life, since considerably serious bodily injuries can be caused at this range.

One of the main ballistic data of the buckshot is the nature of its pattern of hits, depending on the range of shooting. For this purpose, experimental shooting at ranges up to 25 m was carried out on the ballistic track (Fig. 5) specially equipped for this purpose. The results of shooting are given in Fig. 6 *a, b, c*.

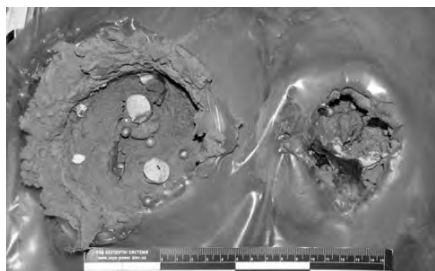


Fig. 4. Comparison of block ballistic plasticine damage caused by shooting the elastic buckshot at range of 50 cm (left) and 80 cm (right) from the gun barrel muzzle end

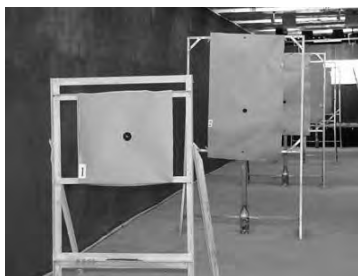
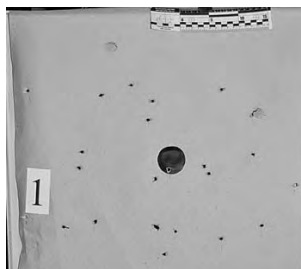
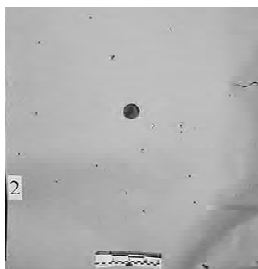


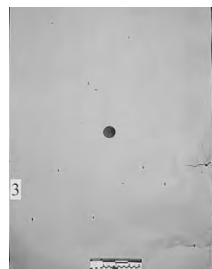
Fig. 5. General view of the ballistic track equipped for experimental shooting (target boards are installed at range 5 ("1"), 10 ("2"), 15 ("3"), 20 ("4") and 25 ("5") m from the gun barrel muzzle end)



a) 5 m



b) 10 m



c) 15 m

Fig. 6. The nature of elastic buckshot pattern at different ranges from the gun barrel muzzle end

In the course of the conducted researches, it was found that, at range of 5 m from the gun barrel muzzle end, the average pattern of the elastic buckshot after a series of five shots is 52.4×54.6 cm, the pattern has a shape close to an ellipse. The area of the pattern is 0.2247 m^2 .

The pattern is characterized by a relatively dense arrangement of buckshot elements in relation to each other, which ensures the repeated defeat of a single target. The distance between individual elements of the buckshot is within the range of 18–150 mm. At distance of 10 m, the size of pattern is 76.6×98.2 cm, it also has a shape close to an ellipse, and its area amounts to 0.5908 m^2 .

This distance is characterized by a decrease in density of the pattern, as well as by an increase in distances between individual elements of the buckshot and at an average it amounts to 20–260 mm. At distance of 15 m the size of the pattern is 82.8×121.6 cm, and its area is 0.7908 m².

This distance is characterized by even greater decrease in density of the pattern, as well as by significant increase in distances between individual buckshot elements, and at an average it amounts to 90–320 mm. The nature of the pattern at distances of 10 and 15 m indicates that the multiple target defeat is still guaranteed at such distances by several elements of the buckshot (part of a multiple projectile), but taking into account the energy characteristics of the buckshot at these distances, it is possible to cause only bodily injuries of mild severity. However, there is still a danger of injury (traumatizing) to the visual organs.

At ranges of 20 and 25 m, there is a target defeat only by individual buckshot elements, since their main quantity has practically gone beyond the target size due to emission. It proves the probability of target defeat by only single buckshot elements, which can not cause any significant damage. However, injury to eyes, in case of accidental impact at these distances is not excluded. At long shooting ranges of more than 25 m, the elastic buckshot of cartridges “Teren- 12K” is not dangerous.

For cases when shooting was carried out from range up to 5.0 m, the experimental studies of elastic buckshot emission were also carried out, their results are given in Fig. 7 *a, b, c, d, e*.

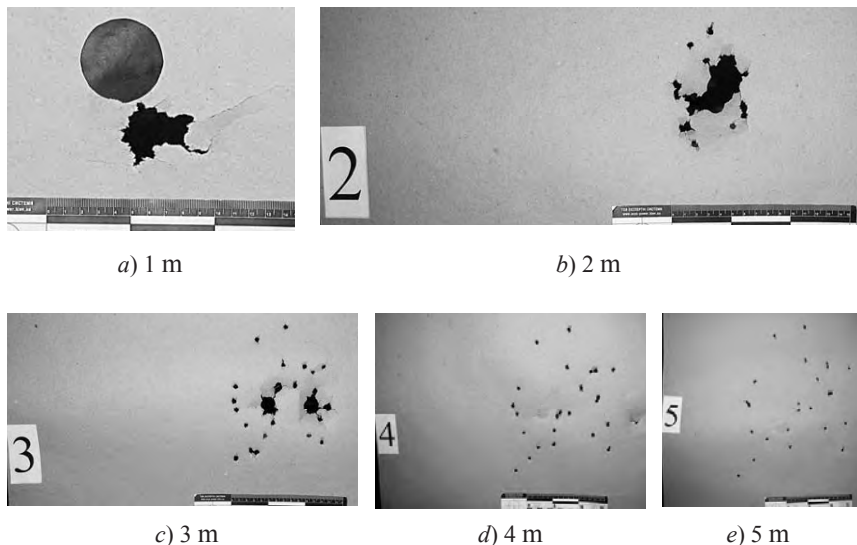


Fig. 7. Nature of the elastic buckshot pattern at various ranges from the gun barrel muzzle end

At distance of 1 m from the gun barrel muzzle end, the pattern is characterized by the relatively compact action of the multiple kinetic-energy projectile elements, its average dimensions make up 4.8×8.6 cm.

The area of the pattern is 0.0032 m^2 . At a distance of 2 m from the gun barrel muzzle end, the buckshot elements act separately. The pattern is characterized by sufficiently high density of strike elements, the average size of the pattern is 9.4×15.2 cm, and its area is 0.0112 m^2 . At distance of 3 m, the average size of the pattern is 22.0×24.6 cm, and its area is 0.0425 m^2 . This distance is characterized by decrease in density of the pattern, as well as by increase in distances between individual buckshot elements, which at an average amount to 8–65 mm. At distance of 4 m, the average size of the pattern is 28.6×32.8 cm, and its area is 0.0737 m^2 . This distance is characterized by even greater decrease in density of the pattern, as well as by increase in distances between individual buckshot elements, which on average are 12–80 mm. At distance of 5 m, the average size of the pattern is 35.6×42.2 cm, and its area is 0.11180 m^2 . This distance is characterized by further decrease in density of the pattern, as well as by increase in distances between individual buckshot elements, which at an average amount to 20–110 mm. The analysis of these data shows that at distances up to and including 5 m, the target is defeated by practically all elements of the multiple charge. The energy characteristics of the buckshot prove its ability to inflict bodily injuries, which are characterized mostly by mild severity. However, at such distances elastic buckshot constitutes a significant danger to the organs of vision.

To establish a complex of differential diagnostic signs in case of shooting the elastic buckshot from a close range up to 1.0–1.25 m, the experimental researches were conducted, the results of which are given in Fig. 8 *a, b, c, d, e, f, g, h, i, j, k, l*. The shooting was perpendicular to the surface of a target.

The results of these researches allow us to draw the following conclusions. As regards the effectiveness of target defeat, the shooting range above 5.0 m is ineffective, since there is a significant emission of the buckshot with sufficiently low energy characteristics. At such ranges, the elastic buckshot constitutes a significant danger only to the human organs of vision.

The use of cartridges for shooting up to 5.0 m is forbidden, although it is quite effective, taking into account the energy characteristics of the fired elastic buckshot. Shooting from ranges of less than 1.0 m can cause severe bodily injuries, which pose a threat to human life.

In the course of experimental researches, a fairly large amount of data was obtained on the ballistic characteristics of the “Teren- 12K” cartridge elastic buckshot, the nature of its kinetic energy dispersion on the trajectory, as well as data on the buckshot kill-ability and the signs of near and distant shooting ranges.

This makes it possible to conduct complex forensic-ballistic and forensic medical expert examinations at a sufficiently high scientific level to determine the shooting range, the location from which the shot was fired, the reliability of the testimony of victims or other participants of the event, as well as to assess the severity of the caused injuries.

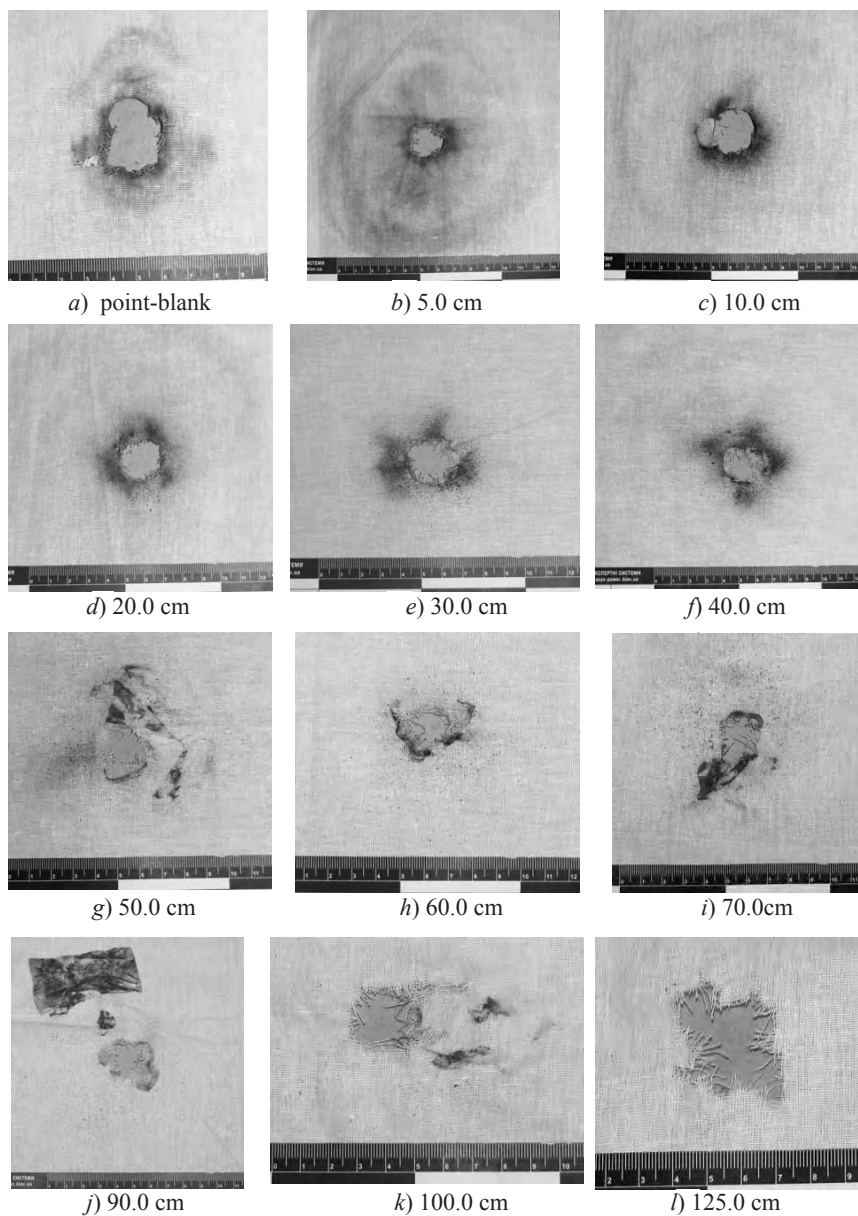


Fig. 8. Nature of target damage in case of shooting from various ranges

**ОСОБЛИВОСТІ КРИМІНАЛІСТИЧНОГО ДОСЛІДЖЕННЯ
БАЛІСТИЧНИХ ХАРАКТЕРИСТИК ТА УРАЖАЮЧИХ
ВЛАСТИВОСТЕЙ ЕЛАСТИЧНОЇ КАРТЕЧІ ПАТРОНІВ
ТРАВМАТИЧНОЇ ДІЇ «ТЕРЕН-12К»**

Коломійцев О. В., Сапелкін В. В.

У ході проведення експериментальних досліджень балістичних характеристик та уражаючих властивостей еластичної картечі патронів травматичної дії 12-го калібру «Терен-12К» визначено особливості розсіювання її кінетичної енергії на траєкторії, а також характер ударно-контактної взаємодії із тканинами біологічного об'єкта на різних дистанціях стрільби. Особлива увага приділена дослідженню уражаючих властивостей еластичної картечі на дистанціях стрільби, для яких характерна компактна дія такого множинного кінетичного снаряда. Визначено комплекс диференційно-діагностичних ознак при стрільбі картеччю на близьких відстанях.

Ключові слова: балістичний пластилін, еластична картеч, осип картечі, патрон «Терен-12К», помпова рушниця «Форт-500», травматична дія картечі, уражаючі властивості картечі.

**ОСОБЕННОСТИ КРИМИНАЛИСТИЧЕСКОГО ИССЛЕДОВАНИЯ
БАЛЛИСТИЧЕСКИХ ХАРАКТЕРИСТИК И ПОРАЖАЮЩИХ СВОЙСТВ
ЭЛАСТИЧНОЙ КАРТЕЧИ ПАТРОНОВ ТРАВМАТИЧЕСКОГО
ДЕЙСТВИЯ «ТЕРЕН-12К»**

Коломийцев А. В., Сапелкин В. В.

В ходе проведения экспериментальных исследований баллистических характеристик и поражающих свойств эластичной картечи патронов травматического действия 12-го калибра «Терен-12К» определена особенность рассеяния ее кинетической энергии на траектории, а также характер ударно-контактного взаимодействия с тканями биологического объекта на разных дистанциях стрельбы. Особое внимание уделено исследованию поражающих свойств эластичной картечи на дистанциях стрельбы, для которых характерно компактное действие такого множественного кинетического снаряда. Определен комплекс дифференциально-диагностических признаков при стрельбе картечью на близких расстояниях.

Ключевые слова: баллистический пластилин, эластичная картечь, осип картечи, патрон «Терен-12К», помповое ружье «Форт-500», травматическое действие картечи, поражающие свойства картечи.

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SYSTEMS OF SYMBOLS AND STANDARTIZATION OF COMMERCIAL CARTRIDGES FOR HAND FIREARMS

Consideration is given to the features of marking the ammunition caliber for hand firearms in imperial (inch) and metric systems, basic variants of cartridge designation according to outdated standards as well as the brand codes of ammunition of the largest European manufacturers of the late XIX – early XX century. The paper gives a brief overview of international system formation stages for standardizing ammunition according to C.I.P. and SAAMI systems.

Keywords: caliber, ammunition, cartridge, case, imperial system, metric system, standardization, C.I.P., SAAMI.

To determine the calibers of ammunition for small arms is one of the main tasks of criminalistics examination. In this regard, the understanding of specifics of designating and marking the ammunition, which is usually reflected in inch and/or metric systems, allows us to fully cope with this task. In diagnosing the research objects, the certain difficulties can arise when examining the out-dated cartridges, which often come to expert institutions as objects of criminalistics examinations. The paper gives a brief overview of the development and formation of modern ammunition designation systems for small arms. It may be of current interest in carrying out the forensic ballistics examination of cartridges submitted for research.

In the second half of the XIX century, the small arms ammunition with metal cases were widespread. They became the basis for the creation of so-called “unitary cartridges”, i. e. cartridges, in which the metal case was used to combine the remaining ammunition components: bullet, powder charge and cap primer into a single unit.

At first, ammunition with metal cases significantly differed in design, and each inventor or developing company promoted their unique system of “ammunition – weapon” on the market. Due to the variety of designs (primarily of ignition systems), it was practically impossible to classify such cartridges (Fig. 1, 2).

Besides, due to imperfections in production processes, even cartridges of the same caliber for the same shooting system, but manufactured by different manufacturers, could have significant deviations in the size of the components (Fig. 3).



Fig. 1. 58 Burnside cartridge of American Civil War (1861–1865). It was not completely unitary, because its capsule was loaded into the rifle separately and it ignited the powder charge through a small hole in the bottom of the conical case



Fig. 2. Rimfire cartridges .56-56 Spencer (No. 56 cartridge) and .56-50 Spencer of American Civil War. The name of these cartridges included the 1st number (.56) – the cartridge chamber diameter in inches, and the 2nd number – the bullet diameter



Fig. 3. 7-mm pinfire Lefauchaux cartridges with a different length of the case: to the left – a cartridge of an unknown manufacturer (the length of case is 15.6 mm), in the center – a cartridge of the Belgian factory Charles Fusnot (the length of case is 15.0 mm), to the right – a cartridge of the French factory Gaupillat of the early production release (the length of case is 14.0 mm)

The possibility of ammunition designating standardization appeared after the development of universal metal cases with a central capsule socket (for example,

Daw, Boxer or Berdan systems), which were manufactured with greater precision by means of industrial equipment. Most often the first metal cartridges had cylindrical or cylinder-cone cases and a protruding edge, while their designation usually included an approximate bullet caliber and the name of the inventor or the name of the weapon system under which they were invented. It was the time of beginning the gradual formation of two main ammunition designating systems, which are currently in use.

For the calibers designation, the so-called imperial system was originated in the UK and its colonies. It consists of the nominal diameter of bullet (caliber) in thousandths of an inch, followed by a variety of related data: the name of the designer or company, the type of powder, power, speed, presence or absence of rim, conduct of modernization, etc. Sometimes the cartridge length value was added to the cartridge designation, since new cartridges were often developed by shortening or elongating the cartridge cases of popular ammunition (for example, of .450 Nitro Express 3¼"). The bottle-shaped cases, which were most often obtained by crimping the neck of a cylindrical case suitable for performance, were designated in the imperial system with indication of the initial bullet caliber (diameter) and the bullet caliber of new ammunition (Fig. 4).



Fig. 4. .577/450" Solid Martini-Henry rifle cartridge

Such system of "remaking" cartridges designation is sometimes used even now, especially for Wildcat cartridges, that is, for experimental or newly created and not yet standardized ammunition (Figure 5)¹.



Fig. 5. .338-378 Weatherby Magnum cartridge created on the basis of case for .378 Weatherby Magnum cartridge, the rim of which was reduced to a caliber of .338

The most consistent user of the imperial system was the United States. But the Americans introduced their own changes in it. The designation of the bullet caliber was reduced to hundredths of an inch, followed by the value of the

¹ See: Донец А. .300 Winchester Magnum – лучший из «поясковых» / А. Донец, Д. Адеев // Мир увлечений: Охота&Оружие. — 2013. — № 1(47).

sample of smoke powder and sometimes by the weight of the bullet in grains (1 grain = 0.06479 g) (Fig. 6). After that, in an arbitrary form, the name of the Developer or Firm, the conditional description of bullet shape, the modification of case along its length – Long or Short were added to the designation of cartridges.

After the appearance of smokeless powder and full jacketed bullets, no designation of the weight of charge and bullet was used. Only some popular cartridges have so far retained their original “historical” names indicating the mass of smoky powder (Fig. 7).

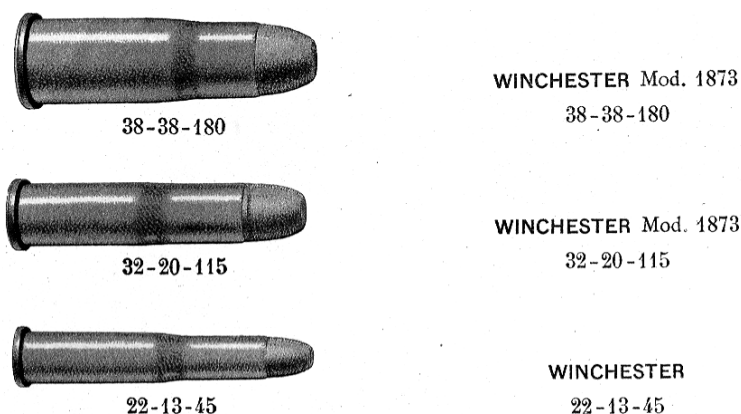


Fig. 6. American smoke powder cartridges in the catalog of the French Firm SFM¹



Fig. 7. Classical American cartridges:
.45-70 Government and .25-20 Winchester Center Fire

¹ See: Société Française des Munitions de Chasse, de Tir et de Guerre, Exportation. — Paris, 1900.

Sometimes in the post-Soviet literature one can find a division of the systems, which designate the calibers in inches, into the imperial system adopted in the UK, and the actual inch system developed in the US. However, the foreign sources¹ do not distinguish between these definitions and use both names (imperial and inch) in parallel, as synonyms. Perhaps the reason for distinguishing between the “British” and the “American” calibers was the well-known differences between the British Imperial system of measurement (imperial units) and the American system (U.S. customary units).

However, the differences² between these systems are more related to volume measures, and the difference between the English and American inches is only 0.0000508001 mm. Therefore, in the weapons world such a small difference in sizes is not taken into account by default, since it does not affect the compatibility of weapons and ammunition of two countries.

A special case of using the Imperial system for cartridges designation was the Russian Empire, which, according to the Imperial Decree of 1835 year³, measured the caliber of small arms ammunition in inches, lines and points: 1 inch – 25.4 mm, 1 line – 2.54 mm and 1 point – 0.254 mm.

In its turn, Europe, which after the French Revolution (1789–1799) changed over to a decimal metric system of measurements, gradually developed its own ammunition designation system applicable to cartridges, which was called metric system.

This system was based on overall dimensions of the case in millimeters (the nominal value of caliber and the length of case) as well as on the configuration of its bottom part: R – Rimmed (with protruding rim), SR – Semi Rimmed (with groove and partially protruding rim), B – Belted (with a belt over the groove), MB – Mauser base and others. After that, in random order, the ammunition designation can include the following additional data: country that took this ammunition for armament, name of the Developer, purpose, caliber updating, weapon system for which it was designed, and others.

However, the metric designation system was not created at once in the form in which we use it today. The metal unitary cartridges, which replaced various types of paper and combined ammunition, required a special precision of manufacturing as well as repetitiveness of processes that only machine production could provide. The role of craftshops and self-made cartridges has sharply decreased. As early as in the era of smokeless powders, large enterprises for the ammunition production began to appear in the cartridge market.

As the production processes were mechanized and the labor productivity was increased, the competition among large manufacturers began to grow.

¹ See: *Barnes F. C. Cartridges of the World* / F. C. Barnes. — (14th ed.). — Gun Digest Books; Caliber: [Электронный ресурс]. — Режим доступа : <https://en.wikipedia.org/wiki/Caliber>.

² See: *Britsko-americká sústava jednotiek* [Электронный ресурс]. — Режим доступа : <https://sk.wikipedia.org/wiki/Britsko-americk>.

³ See: *Метрическая система мер* [Электронный ресурс]. — Режим доступа : https://ru.wikipedia.org/wiki/Метрическая_система_мер.

At the end of XIX century, one of the main methods of marketing struggle for the consumer was the creation of cartridges with solid-drawn cases of all types designed to meet demand in virtually all segments of the cartridge market.

This trend is clearly visible in a series of so-called Schutzen-Patrone, that is, cartridges designed for small sport. For example, the catalog of the German company Lindener Zunhutschen-und Thonwaren-fabrik presents about 65 types of cases for cartridges of this class in caliber from 8 to 13.6 mm with a case length of 28 to 65 mm.

Of course, not all the cartridges developed in the late XIX – early XX century were in demand in the market – most of them were withdrawn from production before the First World War. However, while these munitions were in demand on the market, their great choice and variety forced manufacturers to systematize their products. Large European companies (Lorenz (in the future referred to as DWM), G. Roth, Linden, etc.) compiled detailed catalogs of their own nomenclature of cases and bullets, where a serial digital code was assigned to each position.

In its system of digital codes, the company H. Uttendoerffer (in the future referred to as RWS) based on the symbol of the type of weapons along with the numerical values of case dimensions. When working on drawings for a new case, the Lorenz (DWM) and G. Roth Companies simply assigned a serial number to the cartridge in the production documentation, and this number was not tied to either the caliber of the ammunition or to its overall dimensions. While remaining only in the company's catalog, some of these cases were only promising developments and have never been produced. In its digital codes, the Hanover company Linden encrypted the case dimensions according to the caliber and length. If, however, the cases with the same caliber and length had any design features, then other numbers were added to the code, which made it much more difficult for the customer to find the right case.

At the same time, the usual designations of cartridge cases in the format “caliber × case length” (Table 1) have already been used in parallel with the brand codes in the Linden company catalogs.

Table 1

Examples of brand designations for cartridges of various manufacturers¹

Modern designations	Linden variant 1	Linden variant 2	Lorenz/ DWM	G. Roth	Utendo- erffer/ RWS
11×58R Werndl	11,15×58	№ 11158	№ 132	№ 62	58/11,15m
12,7×44R Remington	12,7×44	№ 13944	№ 17	№ 497	44/12,7
10,35×47R Vetterli	10,8×48	№ 10848	№ 59	№ 58	47,5/10,11b
10×52R Lorenz	10×52	№ 10052	№ 27	№ 71	52/10,25e

¹ See: *Донец А. У истоков... Ч. II. / А. Донец, Д. Адеев // Мир увлечений: Охота&Оружие. — 2014. — № 1(53).*

The systems of brand digital codes for designating ammunition and their components did not justify themselves, since they did not have the necessary versatility. On the one hand, the code designation systems for ammunition of various manufacturers were not unified among themselves, so the customer had to study each system in detail separately. On the other hand, the numerical codes of ammunition designation, as a rule, did not take into account the design and dimensional characteristics of ammunition, so they excluded the possibility to carry out prompt determination of the cartridge/cartridge case type without special company's reference documentation that was not always available to users.

For example, in the DWM company official catalog¹, the 9 × 25 Mauser Export cartridge had a case with code number 487. In the company's catalog² of cases, case No. 487 had 8 modifications: 487, 487I, 487A, 487B, 487C, 487D, 487G and 487K. Moreover, to equip this ammunition, the DWM company offered³ 8 types of bullets with codes 287 – 287, 287I, 287A, 287B, 287C, 287D, 287E and 287J. In the mid-1920s, the catalog of another famous manufacturer – the Austrian company G. Roth – had more than 900 types of cases, each of which was assigned its own nomenclature number⁴. Currently, the system of brand code designations of the late XIX – early XX century is used to identify only old ammunition. Some modern manufacturers use the system of codes to designate cartridge components of their own production. However, these codes serve mainly for intra-factory flow of documents. The basic data on ammunition, which manufacturers indicate in price lists, catalogs, markings of ammunition and on cartridge boxes, are given according to the imperial or metric system.

The influence of the Imperial system was imposed upon internal contradictions in cartridge standards among manufacturers of the European market of the late XIX – early XX. The increasing export of English weapons and ammunition made many European companies to master the production of ammunition from the “imperial line” of calibers. For example, since the late 1870's the German manufacturers borrowed a successful series of .360 Express cartridges from the British by giving a metric designation of the caliber – 9.3 mm. When adapting the cartridges to realities of “metric” cartridge production, the changes were introduced into the basic sizes of British ammunition.

As a result, some European manufacturers (for example, Lorenz firm) produced cartridges of 9.3-mm caliber that could be used in English weapons of .360 calibers, and others (for example, Utendoerffer firm) produced their versions applicable only to weapons of European production⁵.

The main differences between the .360 caliber munitions for the English and European rifles were the flange thickness and the cartridge body conicity. To

¹ See: Каталог продукции фирмы Deutsche Waffen- und Munitionsfabriken. — Karlsruhe. — Ausgabe 1904. — No. 3.

² See: Каталог продукции фирмы Hülsen Verzeichniss der Deutschen Waffen- und Munitionsfabriken. — Karlsruhe. — Ausgabe 1913.

³ See: Каталог продукции фирмы Geschoss-Verzeichniss der Deutschen Waffen- und Munitionsfabriken. — Karlsruhe. — Ausgabe 1912.

⁴ See: Донец А., Адеев Д. У истоков... Ч. II.

⁵ See: Донец А., Адеев Д. У истоков... Ч. II.

reduce confusion in dimensions of 9.3 mm cartridges, the Germans had to introduce special designations for them. Cartridges compatible with English systems received the designation .360 E (E – English, that is, the English model), and ammunition for German rifle systems were called as .360 D (D-Deutsche, that is, the German model). The corresponding marking was applied to the cartridge cases (Fig. 8). Some manufacturers could simultaneously produce both .360 E and .360 D. cartridges.



Fig. 8. Cartridge $9.3 \times 57D$ as a German equivalent of English cartridge of .360 caliber

Reliable explanations of reasons for the appearance of these variants of the same munitions are still unknown. According to one version, the creation of the .360 D cartridge is explained by the error of Utendoerffer company specialists when measuring the initial English cartridge. Besides, the appearance of the .360 D cartridge is connected with the specific requirements of one of the German arms companies. Some researchers explain the creation of non-interchangeable cartridges by competition between English and German gunsmiths – and even between Utendoerffer and Lorenz companies.

In addition to the confusion in the cartridges designation between individual manufacturers, imposition of the imperial system on the metric one, the problem of standardizing the size of ammunition was increasingly felt in Europe of the late XIX – early XX. Even in the scale of one country, each manufacturer produced cartridges according to its own drawings and technical specifications, which differ from the documentation of other cartridge factories by tenths of a millimeter in base dimensions.

The situation was aggravated by the struggle for the market among local gunsmiths, who at the end of the XIX century often produced weapons for cartridges close in size to the cartridges of competitors, but not interchangeable with them. MB (Mauser Base) cartridges listed in the catalogs of German companies Utendoerffer and Lorenz, can serve as an example of this. To eliminate the spontaneous chaos in the ammunition market, manufacturers were forced to develop the joint standards and the system of designations for their products.

The first attempts of standardizing the individual munitions date back to the second half of the 1880s.

As early as in 1886, the Lorenz catalog lists the cases of MB type 52 mm long with the Einheitshülse note, and in 1888, the Roth firm first mentioned the cases Sogen Einheits (abbreviation of Sogenannte Einheitshülse) in its catalog. Both

these terms denoted “single” (i. e., standardized) cases. Hereafter, in 1899–1900, the popular German sport cartridge 8.15 × 46R was standardized.

However, individual steps had almost no effect on the overall picture until September 21, 1909, when in German Erfurt, a well-known conference of German ammunition manufacturers was held, at which agreement was reached on the standardization of commercial cartridges and their designation system.

First of all, it was decided to develop and gradually introduce uniform standards for the size of the most popular ammunition. In addition, the participants agreed on the rules of marking on the cases, which should consist of the manufacturer's code and the caliber of the ammunition with the addition of N or NORM (abbreviation of German word “Normalisiert” – normalized, standardized). After the First World War, ammunition manufacturers gradually stopped using this addition to marking. Finally, the most important result of the Erfurt Conference was the introduction of a unified ammunition designation system, which consisted of the formula “caliber of the cartridge – the length of the cartridge case”, separated by the symbol X (Fig. 9). If necessary, additional data for the identification of the ammunition could be indicated after these parameters. Thus, in 1922, the familiar letter R (from the German word “Rand”) was introduced to designate all the R cartridge cases.

Nevertheless, the process of “normalizing” commercial ammunition stretched for decades – until the middle of the twentieth century.



Fig. 9. General appearance and changes in the marking of cartridge 8.15 × 46R under the influence of European ammunition standardization processes

The decisive event in the standardization of ammunition sizes was the creation of the Permanent International Commission for the Proof of Small Arms (French “Commission internationale permanente pour l’épreuve des armes à feu portatives”, English “Permanent International Commission for the Proof of Small

Arms” – C.I.P.). On July 15, 1914, on the initiative of the director of the Liege testing station (Liège Proof House) Joseph Fraikin, the Permanent International Commission for Firearms Testing was created. But only on July 1, 1969, Germany, Austria, Chile, Spain, France, Italy and Czechoslovakia joined this agreement. Later they were joined by the Czech Republic (instead of Czechoslovak Socialist Republic), Finland, Hungary, Russia, Slovakia, United Arab Emirates and Great Britain¹.

Unlike Europe, in the US the issue of standardization was resolved in favor of creating the own system of standards. In 1926, at the initiative of the government, an association of national manufacturers of firearms, ammunition and their components the Institute of Manufacturers of Sports Arms and Ammunition was founded (The Sporting Arms and Ammunition Manufacturers’ Institute – SAAMI)². Despite the fact that C.I.P. is an international organization and its recommendations are crucial for most weapons manufacturers, SAAMI is also a highly respected organization in the weapons world.

Thus, in the second half of the twentieth century, the metric system strengthened its position in Europe and spread beyond it. After the United Kingdom, since 1965, began to move to the metric system of measures³, the “ideological center” of the Imperial ammunition designation system moved to America.

Now the Imperial and Metric systems exist in parallel on the commercial market. Both systems indicate the nominal value of the ammunition caliber, which does not always correspond to the actual values of the bullet diameter according to normative documents. Most existing munitions have alternative designations in both systems (Fig. 10).

.45 ACP	11,25 mm 1914	11,25 mm Pistolenpatrone
.45 Automatic Colt Pistol	11,25 mm Automatic	632(n)
.45 Automatic 1908	11,25 mm Colt Norwegian	11,3 mm Auto
.45 Automatic Pistol 1908	1914	11,3 mm Auto Colt Pistol
.45 Auto	11,25 mm Norway	11,4×23,5 Colt
.45 Auto Colt M.11	11,25 mm Norwegian	DWM 513
.45 Automatic Colt	11,25 mm Norwegian Colt	GR 941
Government	11,25 mm Norwegian	SAA 7535°
.45 Automatic M.1911	Regulation M.1914	11,43×23



Fig. 10. Variants of designations and markings of cartridge .45 ACS

¹ See: Commission internationale permanente pour l'épreuve des armes à feu portatives [Электронный ресурс]. — Режим доступа : <http://www.cip-bobp.org/historique>.

² See: Sporting Arms and Ammunition Manufacturers' Institute [Электронный ресурс]. — Режим доступа : http://www.saami.org/who_we_are/index.cfm.

³ See: British Weights and Measures Association [Электронный ресурс]. — Режим доступа : <http://www.bwmaonline.com/>.

It is customary to use either the name given by the developer of the ammunition (in one of the systems), or the official departmental designation (often metric) – when used officially.

СИСТЕМИ ПОЗНАЧЕНЬ І СТАНДАРТИЗАЦІЯ КОМЕРЦІЙНИХ ПАТРОНІВ ДО РУЧНОЇ ВОГНЕПАЛЬНОЇ ЗБРОЇ

Адеев Д. В., Донець А. Б., Коноплянко В. В., Гоменюк Д. С.

Розглянуто особливості позначення калібрів боеприпасів до ручної вогнепальної зброї в імперській (дюймовій) і метричній системах, основні варіанти позначення патронів за застарілими стандартами й фірмові коди боеприпасів найбільших європейських виробників кінця XIX – початку XX століття. Надано короткий огляд етапів становлення міжнародної системи стандартизації боеприпасів за системами C.I.P. і SAAMI.

Ключові слова: калібр, боеприпаси, патрон, гільза, імперська система, метрична система, стандартизація, C.I.P., SAAMI.

СИСТЕМЫ ОБОЗНАЧЕНИЙ И СТАНДАРТИЗАЦИЯ КОММЕРЧЕСКИХ ПАТРОНОВ К РУЧНОМУ ОГНЕСТРЕЛЬНОМУ ОРУЖИЮ

Адеев Д. В., Донец А. Б., Коноплянко В. В., Гоменюк Д. С.

Рассмотрены особенности обозначения калибров боеприпасов к ручному огнестрельному оружию в имперской (дюймовой) и метрической системах, основные варианты обозначения патронов по устаревшим стандартам и фирменные коды боеприпасов крупнейших европейских производителей конца XIX – начала XX века. Дан краткий обзор этапов становления международной системы стандартизации боеприпасов по системам C.I.P. и SAAMI.

Ключевые слова: калибр, боеприпас, патрон, гильза, имперская система, метрическая система, стандартизация, C.I.P., SAAMI.

FORENSIC EXAMINATION VIDEO-, SOUND RECORDING

UDC 343.98

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RIFE

MEANS OF COVERT VIDEO SURVEILLANCE AND FEATURES OF THEIR USE IN THE PROCESS OF CRIME INVESTIGATION AND EXPERT RESEARCHES

The review and analysis are given to special technical means of video observation, which are used for hidden video surveillance and recording of events in operational-search activity of law enforcement bodies during disclosure and investigation of crimes. The characteristics of video recordings obtained with the help of special technical means of video surveillance are considered, and features of expert examination of such records are specified.

Keywords: video surveillance means, video recording devices, pin-hole miniature video cameras, expert examination, operational-search activity.

In recent years, the crime situation in Ukraine remains difficult. What happens in the economic, social, political, legal and other spheres of society, directly or indirectly promotes the spread of various types of crime. The law enforcement agencies face the tasks, which make provision for the introduction and use of a wide variety of technical means – operational equipment. The operational equipment also includes the unique means of special equipment, which differ in the specific nature of their design and functionality. As a rule, they have simple controls, they are small in size and weight, easy to use. An example of unique means that are manufactured specifically for operational use are devices designed for the concealed use of a radio transmitter, means and systems of unobserved visual and audible surveillance, devices for information retrieval from communication channels and so on. In law enforcement, special techniques are used to make the materials obtained or recorded by technical means more visible and convincing. One of the most convincing evidence in the trial is an audio-, videorecording made with the help of technical means during the pre-trial investigation, the results of which are provided by the expert in the form of his conclusion. The modern level of technology development, especially, development of information technology, makes possible any manipulation with audio and video materials (from installation to creation), which imposes special requirements on them.

For hidden video shooting, wide use is made of the miniature video cameras with pin-hole lens. Let's consider some means of the hidden video surveillance, which are designed on the basis of pin-hole miniature video cameras (Fig. 1–3). The term “pin-hole” is used in those cases when the plane of the lens diaphragm coincides with the entrance pupil available in front of the front objective lens

(in ordinary lenses the entrance pupil is inside the objective lens)¹. In this case, the distance from the main objective lens to its front edge is understood as a pin-hole.

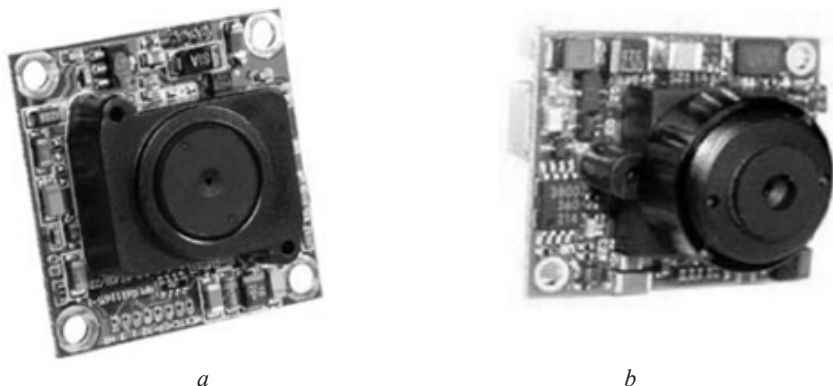


Fig. 1. Open-frame pin-hole miniature video cameras, which are used in systems of hidden video surveillance:
a) SLC-150C (1/3"); *b)* DSP Sony CCD (1/4")

As a rule, the single-element lenses are used in small-scale systems of hidden video surveillance. Such lenses have a small entrance pupil and provide shooting through a hole with diameter of about 1 mm or less. To identify such a hole against a dark background (in case of careful installation) is possible only in the process of a long, laborious examination of the surface. When the lens has a pin-hole, reduced holes of entrance pupil or it locates in the plane of any objects (grids, slits, etc.), this does not reduce the angle of the lens field of view, but only reduces its aperture. The ability to arrange small holes, grids or slits in front of the front lens provides camouflage of the camera for hidden observation.

Video cameras can be secretly installed, for example, in the walls or ceiling. In this case, the size and weight of the video camera do not play a significant role, therefore such systems have better characteristics in comparison with common cameras that are camouflaged under various objects of interior. The miniature dimensions of these cameras allow them to be built even into the screws (Fig. 4). The main disadvantages of these video surveillance systems are the complexity of installation, the inability to change orientation and field of view, to carry out maintenance or repair (for example, lens replacement) and so on².

¹ See: *Хорев А. А.* Средства скрытого видеонаблюдения и съемки (по материалам иностранной печати) / *А. А. Хорев* [Электронный ресурс]. — Режим доступа : <http://www.bnti.ru/showart>.

² See: *Скрытое видеонаблюдение. Мифы* [Электронный ресурс]. — Режим доступа : <http://forum.brandcommerce.biz/viewtopic>.



Fig.2. Normal performance of pin-hole video cameras

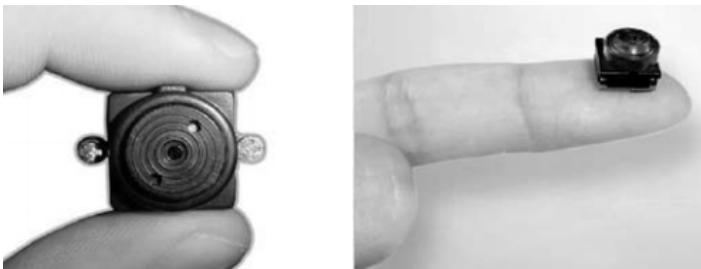


Fig. 3. Miniature performance of pin-hole video cameras



Fig. 4. Pin-hole video cameras built into the screws

The operating time of the camera if it is installed in the devices that are constantly powered by a voltage of 220 V, 50 Hz is practically unlimited. If the camera is built into the small-sized devices, its dimensions play a significant role. The compact cameras with autonomous power supplies are built into small-sized objects. The place of their location is selected depending on the task of video shooting, so as to observe the required object in the field of lens view.

The operating time of video cameras with built-in batteries usually does not exceed several hours.

Many devices of hidden video surveillance are produced on the basis of digital video recorders. Thus, devices can be camouflaged as garments (Fig. 5), accessories (Fig. 6), household items of different sizes and methods of use (Fig. 7, 8)¹.



Fig. 5. Hidden video recording devices built into garments:
a) tie (with remote control); b) button; c) cap; d) belt



Fig. 6. Hidden video recording devices built into accessories, wallies, etc.:
a) sunglasses; b) watch; c) wally; d) breloque

Despite the small sizes, these systems have quite qualitative characteristics. For example, the hidden video recording system built into the pen (Fig. 9), when its size is 13×140 mm, provides continuous recording of sound and video at 736×576 resolution in AVI format for one and half hour. The recording speed is 30 frames per second. The camera is equipped with the charge-coupled device matrix of $\frac{1}{4}$ " format and pin-hole lens with cell diameter of 2.8 mm. The camera field of view is 67° . The camera has 2 to 8 GB of internal storage and the ability to connect an additional micro SD card up to 8 GB. It is also possible to take photographs with a resolution of 1280×960 ².

¹ See: Шпионские штучки: оборудование, устройства, программы [Электронный ресурс]. — Режим доступа : <http://www.gadgetmarket.tv/catalog/>.

² See: Spy cameras [Электронный ресурс]. — Режим доступа : http://ajoka/spy_camera.html.



Fig. 7. Hidden video recording devices built into household items:

a) table clock; b) smoke detector c) lighter; d) book

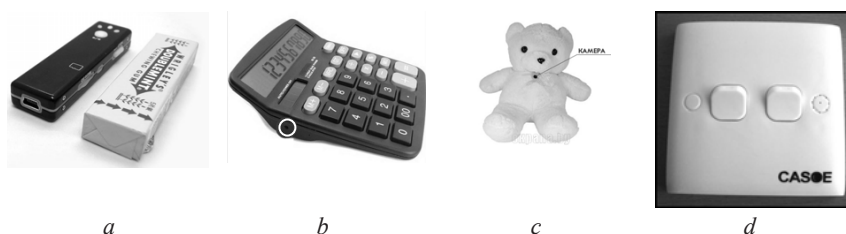


Fig. 8. Hidden video recording devices built into household items:

a) recorder hidden under the package of chewing gum¹; b) calculator; c) toy; d) switch²



Fig. 9. Hidden video recording device built into the ballpoint pen:

1 – button “On/Off”; 2 – camera; 3 – microphone; 4 – button “Reset”; 5 – status indicator; 6 – ballpoint pen; 7 – port USB; 8 – card venter

During hidden video recording by the device built into tie (490 × 40) mm with a video camera (130 × 45 × 10) mm (Fig. 10), it is possible to obtain continuous recording of sound and video at resolution of 640 × 480 in AVI format

¹ See: Маленькие «жучки» – большие неприятности [Электронный ресурс]. — Режим доступа : <http://www.mobilnikam.net/>.

² See: Как найти скрытую камеру в помещении [Электронный ресурс]. — Режим доступа : <http://oxpana.by/stat/43-skrytye-kamery.html>.

up to three hours, and in standby mode – up to two days. The recording speed is 30 frames per second. Such device has a built-in battery that can be recharged¹.

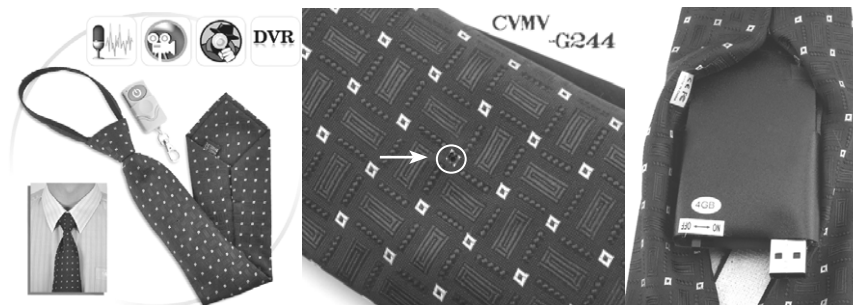


Fig. 10. Hidden video recording device built into the tie

A hidden video recording system built into the clock (Fig. 11) provides continuous recording of sound and video at resolution of 640×480 in AVI format up to one hour and half. The recording speed is 30 frames per second. The camera has 2 to 4 GB of internal storage. It is also possible to take photos with resolution of 720×480 .



Fig. 11. Hidden video recording device built into the wrist watch

Modern special means, their technical capabilities and characteristics are rather widely described in the literature and Internet resources, for example, a detailed review of some hidden video surveillance devices designed on the basis of pin-hole miniature video cameras, given in the article of the Doctor of

¹ See: Скрытая камера в галстукe с пультом ДУ [Электронный ресурс]. — Режим доступу : <http://www.gadgetmarket.tv/catalog/>.

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The whole security industry is based on audio, video registration. More and more often we face a question: whether the audio, video materials can be considered as an evidence in court? According to the legislation, they are not direct evidence, but can only be considered on an equal basis with other evidence after expert research, based on which you can obtain the evidentiary information.

At present, the obstacle for using the digital technologies and the latest technical developments in the criminal process and investigative activities lies in the fear that the evidence obtained by applying the latest technological means can be easily falsified. Moreover, it is quite difficult to carry out expert researches of such recording means. On the other hand, the problem of research methods of video-, audiorecording expertises successfully finds its solution in our country. The foundations of the theory for detecting the traces of record digital processing, methods for studying the audio-, video digital recordings and so on¹ have already been developed. In addition, there is a number of large and well-known companies using their own recording format, the development of which requires a lot of effort and time. If the file system is developed directly for the information recording device (for example, if it took one and half year for a group of specialists from GOAL-Light2003 to develop this file system), even a “rough” counterfeit will take at least 3 months². Currently, there is a sufficient number of video-, sound-recording systems that store time-stamped images inside the record, which are inseparably linked with audio and video data. Some specially designed video-, soundrecording devices (special technical means) leave a “digital signature” in the metadata of files. This is information about the recording device, its serial number or access code, the absence of which excludes viewing/listening to such records. Undoubtedly, it is necessary to give preference to such recording devices due to fact that they provide a much greater level of protection against forgery.

Currently, there is a sufficient number of video-sound recording systems that store time-stamped images inside the record, which are inseparably linked with audio and video data. Some specially designed video, sound recording devices (special technical means) leave a “digital signature” in the metadata of files. This is information about the recording device, its serial number or access code, the absence of which excludes viewing/listening to such records. Undoubtedly, it is necessary to give preference to such recording devices due to fact that they provide a much greater level of protection against forgery.

In order to perform a qualitative fake video recording, and especially to record the actions of a person against the background of the “ordered” object (target), it

¹ See: Безруков Д. В. Використання оперативно-технічних засобів щодо протидії злочинам проти власності підрозділами карного розшуку : дис. ... канд. юрид. наук : 12.00.09 / Безруков Дмитро Вікторович. — Кр. Пір, 2015. — С. 56.

² See: А докажите...! [Електронний ресурс]. — Режим доступу : <http://www.bnti.ru/showart>.

is necessary to have the recorded actions of a person of interest or certain parts of his body against the background of another object (source). The automatic forgery is possible only if the “source” of events is a homogeneous background, which is practically impossible to reproduce in real life (if the artificial conditions were not created). It is important that the “source” and “target” have the same geometric dimensions proportional to the size of obstacles and so on. In the course of expertise, all mentioned factors is researched from the correspondence of the scale of possible “overlaps” to the proportionality of their movements, etc. Most often, a fake can be obtained by “cleaning out” each frame in manual mode. The longer the video, the more time, effort and money will be needed to produce a “qualitative” counterfeit. Moreover, most of software products, with which you can make “corrections” to video images, leave their “tracks” in the metadata of video files. Usually, as experience of expert practice shows, when conducting certain operational (search) investigative actions, several sources of information recording are used. It is clear that to falsify the “ordered” situation of one event from different angles is possible only under artificially created conditions such as a well-shot “feature film”.

In principle, the necessary approach excludes intrusion and introduction of changes in data recorded in digital format, and it allows you to reliably and objectively eliminate doubts about the authenticity of digital video-sound recordings. For example, step-by-step registration of all information about the identification properties, production, storage and movement of audio, video files from user to user up to the investigation in the session of court.

In case of “deliberate” interference in video for the purpose of its forgery, the modern means of video-sound recording examination can find signs of such interference in the metadata of the file, for example, traces of processing with the help of software products, loss of “digital signature”, change/absence/inconsistency of data about the information recording device and so on.

From processual positions, there is no difference between digital and analogue records. As any evidence, they must and can be verified by the court, taking into account their relativity, admissibility and reliability. The fundamental difference between digital and analogue records is that it is much more difficult to determine their authenticity during examination. The first thing that an expert should determine is whether the provided record is original or copy. If analog recording allows to do this (it is known that each copy of re-recording in analog form is much worse in terms of quality parameters than the original one), then as for digital records, the issue whether it is original or copy obviously loses its meaning, because the quality of the digital copy does not differ from the original one. The second thing that an expert should do is to determine the correspondence of tracks of the recording device with the device used for recording. For analog records, this is almost always possible, since in most cases, the use is made of devices removed from the operator and, upon the expert's request, they can be provided to him.

But it is practically impossible for multi-channel digital recorders, with the help of which the listening and sound recording of telephone conversations in the course of investigative work is basically carried out.

At the same time, it is desirable to determine the correspondence of the recording traces with the device used for recording in order to obtain a reliable solution to the issue concerning the presence or absence of editing or copying signs, and it is necessary to study the properties and characteristics of the device used for recording.

Therefore, there are often problems both with the involvement of digital records in the materials of criminal cases, as well as with the execution of their expert researches. Due to the fact that some operational equipment – special technical means used by law enforcement agencies have such access mode as “Top Secret”, and due to the fact that the majority of forensic experts of state specialized research institutions of forensic examinations of the Ministry of Justice of Ukraine have no access to state secrets, the special technical means that were used during the investigative activities and with the help of which video recording of operative (investigative) actions shall be carried out, can not be provided for expert researches. In such a case, it is possible to conduct a study of video and sound recording in order to determine the originality of the recording as well as to determine the recording device, provided that the experimental recordings prepared in a proper way and obtained with the help of this device (without presentation of the device itself) are directly submitted for a comparative expert study.

So, the purpose of any examination is a comprehensive, complete and objective investigation of all the circumstances of the case. At the same time, when carrying out their professional assignment, each of the experts provides the necessary completeness and comprehensiveness of the research.

ЗАСОБИ ПРИХОВАНОГО ВІДЕОСПОСТЕРЕЖЕННЯ ТА ОСОБЛИВОСТІ ЇХ ВИКОРИСТАННЯ В ПРОЦЕСІ РОЗСЛІДУВАННЯ ЗЛОЧИНІВ І ЕКСПЕРТНОГО ДОСЛІДЖЕННЯ

Брендель О.І.

Проведено огляд і аналіз спеціальних технічних засобів відеоспостереження, які використовуються для прихованого відеоспостереження та фіксації подій в оперативно-розшуковій діяльності правоохоронних органів у процесі розкриття й розслідування злочинів. Розглянуто характеристики відеозаписів, отриманих за допомогою спеціальних технічних засобів відео спостереження, та вказано на особливості експертного дослідження таких записів.

Ключові слова: засоби відеоспостереження, відеореєстратори, мініатюрні відеокамери pin-hole, експертне дослідження, оперативно-розшукова діяльність.

СРЕДСТВА СКРЫТОГО ВИДЕОНАБЛЮДЕНИЯ И ОСОБЕННОСТИ ИХ ИСПОЛЬЗОВАНИЯ В ПРОЦЕССЕ РАССЛЕДОВАНИЯ ПРЕСТУПЛЕНИЙ И ЭКСПЕРТНОГО ИССЛЕДОВАНИЯ

Брендель О. И.

Проведен обзор и анализ специальных технических средств видеонаблюдения, которые используются для скрытого видеонаблюдения и фиксации событий

в оперативно-розыскной деятельности правоохранительных органов в процессе раскрытия и расследования преступлений. Рассмотрены характеристики видеозаписей, полученных с помощью специальных технических средств видеонаблюдения, указаны особенности экспертного исследования таких записей.

Ключевые слова: средства видеонаблюдения, видеорекордеры, миниатюрные камеры pin-hole, экспертное исследование, оперативно-розыскная деятельность.

FORENSIC EXAMINATION OF MATERIALS, SUBSTANCES AND PRODUCTS: METHODICAL APPROACHES TO THE PROBLEM SOLVING

UDC 543.544.43 + 343.983.4

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ROLE OF CHEMOMETRICAL METHODS IN FORENSIC EXAMINATION OF PETROLEUM PRODUCTS, FUELS AND LUBRICANTS MATERIALS

The paper shows the expediency and effectiveness of using the chemometric methods in solving the problems of forensic identification at the level of establishing the common group affiliation. The paper gives illustrations of using the principal components method and cluster analysis in a comparative study of 19 samples of gas condensate according to gas-liquid chromatography data. The method of principal components is more obvious in its visual estimation as well as in grouping the objects having similar indicators of their component composition. The cluster analysis allowed to distribute the examined objects into groups from the beginning. This was confirmed during their subsequent pairwise comparison by using the method of "fingerprints".

Keywords: gas chromatography, chemometric, principal components method, cluster analysis, forensic identification, gas condensate.

The practice of forensic examinations related to the research of petroleum products and objects of petrochemical nature shows that in about half of the investigations it is required to identify the presented objects at the level of common generic or group affiliation.

Identification of a single source of object origin is usually not carried out due to the absence of a set of unique identifying signs and the necessary equipment for their establishment. To establish the generic affiliation of samples of unaltered petroleum products is usually not a problem, because it is based on the results of the primary classification study and data on the qualitative composition. Such data can be obtained by using various chemical methods, including thin-layer, gas and liquid chromatography, as well as methods of molecular spectral analysis in the UV and IR regions.

When a common or different group affiliation is established, the execution of research and evaluation of results is a more complex task, since it requires the comparisons of quantitative characteristics of objects that coincide in qualitative chemical composition and have a common generic affiliation. The main method that permits the execution of such studies is gas-liquid chromatography.

When processing and interpreting the data required for comparative analysis, there are difficulties associated with a large number of components in the composition of petroleum products. The correctness of final results is affected not only by the methodology of mathematical processing, but also by the process of direct obtaining the chromatograms, and the uniformity of their automatic marking.

One of the most frequently used methods for studying the petroleum products¹ gave consideration to the question of the need to create automated programs for conducting an identification study. Almost 30 years after the publication of this methodology, such software products remain inaccessible to domestic forensic experts, although the list of objects provided for the expert research has significantly expanded. If we exclude examinations related to cases of fire raising and related crimes, in which the examined objects have a highly altered hydrocarbon composition, the expert chemist usually receives the following objects:

- automobile gasolines;
- aviation fuels;
- Diesel fuels;
- boiler and furnace fuels;
- gas condensate and oil;
- light, medium and heavy distillate fractions as an intermediate product in processing the oil (gas condensate);
- products of processing the organic raw materials (rubber, polyethylene, etc.) used as a fuel and additives to it;
- waste and off-grade petroleum products obtained in non-plant conditions.

The number of objects provided for the examination by an expert can be very large even within the framework of a single criminal proceeding. In cases involving the illegal release of petroleum products and the extraction of oil and

¹ See: Криминалистическое исследование нефтепродуктов и горючесмазочных материалов : метод. пособие для экспертов, следователей и судей / [И. А. Золотаревская, Е. В. Шевырева, М. Л. Карабач и др.]. — М. : ВНИИСЭ, 1987. — Т. 1, 2.

gas condensate from pipelines, the number of objects often reaches several tens and can exceed 100 samples only in one examination.

In such conditions, even comparison of data on the qualitative composition in establishing the generic affiliation is a laborious and complex process, and quantitative identification is the most labor-intensive stage in the implementation of expert investigations. The absence of ready-made software solutions in the arsenal of experts to compare the results of examining the large groups of objects forces them to find more accessible methods, which can be implemented by using the accessible programs – chemometric methods.

Chemometric is a chemical discipline in which mathematical and statistical methods are used to determine optimal plans and methods of measurement, as well as to obtain the most important information in the analysis of experimental data¹. The use of chemometric methods during forensic examinations was first mentioned in the scientific work on forensic investigation of light fractions of gas condensates². The use of such methods as cluster analysis, analysis of principal components and artificial neural networks proved effectiveness in the classification analysis and discrimination of groups with objects relating to petroleum products of one type, but obtained in different ways.

The possibilities of using the chemometric methods in forensic examination of materials, substances and products were discussed at the conference devoted to modern trends in the development of criminalistics and forensic examinations. It was suggested, in particular, to single out the objects having the closest parameters of composition or physicochemical properties³ by chemometric methods.

Currently, on the basis of the Kharkov RIFE, together with the specialists of National Technical University “KhPI” a new methodology is being developed to establish criteria for identifying the objects of petrochemical nature⁴. Chemometric methods, such as cluster analysis and analysis of principal components, are used in this paper to single out objects in one sample, in which they have the largest or smallest similarity of the component composition obtained by gas-liquid chromatography.

¹ See: Родионова О. Е. Хемометрический подход к исследованию больших массивов химических данных / О. Е. Родионова // Рос. хим. журн. (Журнал Рос. хим. об-ва им. Д. И. Менделеева). — 2006. — Т. L, № 2. — С. 128–144.

² See: Методичні рекомендації з криміналістичного дослідження легких фракцій газових конденсатів : звіт про НДР (закл.) / Харків. НДІСЕ ; кер. А. Ф. Клімчук ; викон. В. І. Кривошеєв [та ін.]. — № ДР 0109U001197. — X., 2010. — 54 с.

³ See: Хемометрические методы в криминалистической экспертизе материалов, веществ и изделий // Современные тенденции развития криминалистики и судебной экспертизы в России и Украины : материалы междунар. науч.-практ. конф. в рамках проекта «Российско-украинские криминалистические чтения на Слобожанщине», 25–26 марта 2011 г. : в 2 т. / [В. А. Руднев, А. П. Бойченко, А. Ф. Климчук, П. В. Карножицкий]. — Белгород : Изд-во БелГУ. — 2011. — Т. II. — С. 114–117.

⁴ See: Методика встановлення критеріїв ідентифікації об'єктів нафтохімічної природи : звіт про НДР (проміж.) / Харків. НДІСЕ ; кер. В. А. Руднев : викон. А. Ф. Клімчук [та ін.]. — № ДР 0114U001658. — X., 2015. — 36 с.

Numerous scientific publications and printed issues¹ are devoted to the application and possibilities of chemometric approaches. They include information about the mathematical apparatus and specifics of applying these methods. The purpose of this article is to show the possibilities of applying the chemometric approach when conducting forensic examination of petroleum products, fuels and lubricants. The introduction of similar data processing tools into practice would significantly reduce the time required for carrying out the examinations with a large number of objects.

It should be noted that at this stage of the generally accessible chemometric basis development, such an approach can be applied only at the initial stage of comparison – when selecting objects that can belong to one or different groups, with a view to significantly reduce the time required for their identification. The final decision should be still taken directly by the expert.

The data for research are the concentration values of representative identified components (hydrocarbons) obtained by gas-liquid chromatography method. The gas chromatographic analysis (data collection) was carried out by gas chromatograph “Kristall 2000M” under the following technical conditions: data control-and-collection program – Chromatek-Analytik 2.5; detector type – flame ionized; column – Restek, 50 m × 0.25 mm; stationary phase – polydimethylsiloxane; detector temperature – 240 °C; evaporator temperature – 230 °C; consumption of carrier gas – 20 ml/min; duration of analysis – 90 min.

Temperature programming: initial column temperature – 50 °C; duration of the isotherm – 20 minutes; heating rate – 4 °C/min; maximum column temperature – 290 °C; duration of analysis – 120 min.

Program Statistica 10 (StatSoft, Inc.) was used for the chemometric processing of gas chromatographic data.

The objects of study are 19 samples of gas condensate and products of its processing (wide distillate fractions). submitted. The results of the gas chromatographic study are given in Table. The visualization of the applied principal components method (PCM) is shown in Fig. 1.

Upon the results of the study by the principal components method can be single out the projection into the plane formed by the first two factors explaining in total more than 80% of variations for original variables.

Evaluating the results visually, we can distinguish three main areas of grouped objects in the figure:

- area 1 – objects No 5, 16–19 (total 5 objects);
- area 2 – objects No 6, 8–15 (total 9 objects);
- area 3 – objects No 1–4 (total 4 objects);
- object No 7 is visually located separately from other allocated areas.

¹ See: *Mevik B.-H.* The pls Package: Principal component and Partial least square regression in R / B.-H. Mevik, R. Wehrens // *Journal of Statistical Software.* — 2007. — Vol. 18, Is. 2. — P. 1–24; *Факторный, дискриминантный и кластерный анализ* / [Дж.-О. Ким, Ч. У. Мьюллер, У. Р. Клекка и др.] ; под ред. И. С. Енюкова. — М. : Финансы и статистика, 1989. — 215 с.; *Gan G.* Data clustering: theory, algorithms and application. / G. Gan, C. Ma, J. Wu // *ASA-SIAM Series on statistics and applied probability.* — SIAM, Philadelphia, ASA, Alexandria, VA, 2007. — 488 p.

Table

Results of gas chromatographic study of the submitted objects

Object №	Content of component, % of peak area											
	C ₆	C ₇	C ₈	C ₉	C ₁₀	C ₁₁	C ₁₂	C ₁₃	C ₁₄	C ₁₅	ben- zol	to- luol
1	3,55	3,63	2,82	2,07	1,64	1,40	1,08	1,09	0,69	0,55	3,30	7,74
2	3,55	3,53	2,72	2,05	1,69	1,52	1,20	1,25	0,87	0,72	3,25	7,01
3	3,84	3,55	2,77	2,03	1,63	1,40	1,09	1,10	0,73	0,58	3,29	7,20
4	3,83	3,64	2,81	2,03	1,65	1,41	1,08	1,07	0,72	0,55	3,44	7,38
5	2,33	2,95	2,31	1,81	1,67	1,59	1,57	1,82	1,41	1,32	1,80	5,82
6	3,29	3,46	2,92	2,41	2,14	2,11	1,73	1,74	1,31	1,03	1,85	4,46
7	2,64	2,58	2,00	1,55	1,36	1,30	1,17	1,66	0,92	0,69	3,02	7,71
8	3,13	3,37	2,88	2,46	2,22	2,28	1,91	1,97	1,57	1,24	1,31	3,20
9	3,38	3,32	2,68	2,14	2,09	2,32	1,39	1,85	1,28	0,96	6,00	7,51
10	3,84	3,52	2,60	2,34	1,95	1,70	1,55	1,37	1,19	0,97	0,76	2,18
11	3,64	3,43	2,79	2,41	2,08	1,86	1,84	1,59	1,30	1,13	0,83	2,04
12	3,93	3,53	2,71	2,18	1,78	1,58	1,41	1,30	1,12	0,94	0,70	2,21
13	3,83	3,57	2,84	2,28	1,91	1,85	1,86	1,71	1,35	1,12	0,85	2,30
14	4,12	3,86	3,08	2,67	2,01	1,75	1,67	1,56	1,25	1,00	0,80	2,16
15	4,06	3,67	2,82	2,29	1,87	1,64	1,49	1,43	1,20	0,99	0,74	2,08
16	2,52	2,31	1,90	1,64	1,48	1,62	1,33	1,19	1,46	1,27	1,02	2,75
17	2,38	2,28	1,91	1,68	1,51	1,68	1,37	1,27	1,51	1,38	0,97	2,55
18	2,48	2,29	1,89	1,66	1,49	1,62	1,30	1,26	1,39	1,27	1,07	2,68
19	2,49	2,38	1,99	1,75	1,60	1,67	1,45	1,37	1,55	1,45	1,04	2,83

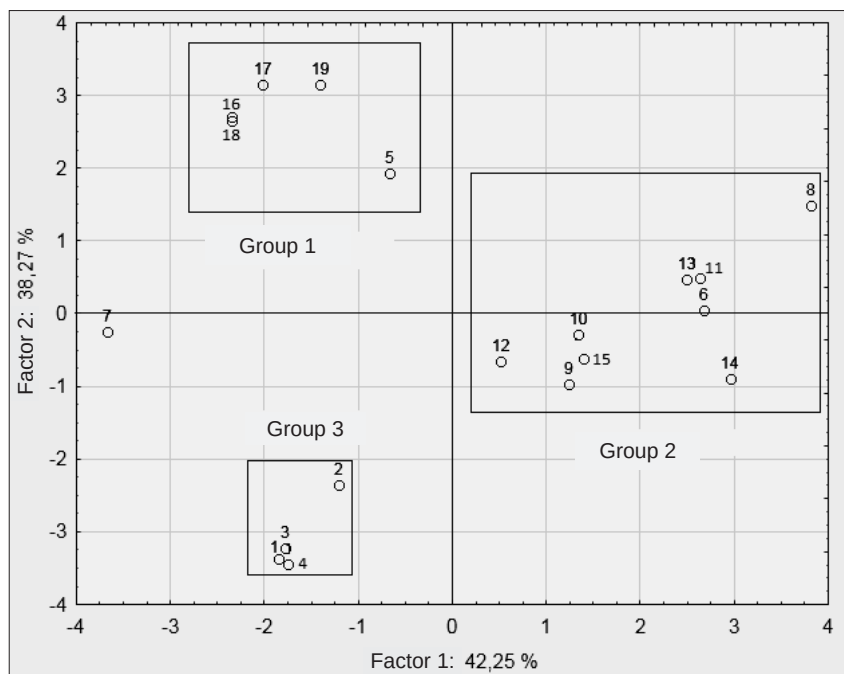


Fig. 1. Visualization of the projection of the submitted objects on the plane of the first two principal components (allocation of groups into rectangular areas – manually)

Hereinafter, the comparative study was conducted in the following way:

— gas chromatographic data taken from the table were grouped according to Fig. 1 (here the results of the research are already presented in the table in a grouped form);

— comparison was made in groups, after which the objects, which evidently differed in the parameters of the component composition were discarded.

So, the object No 5 was not considered as related to the group of objects No. 16–19, since the content of benzol and toluol in it was substantially higher (approximately 2 times) than in these objects. After screening, the following groups were identified: a) objects No. 1–4 (total 4 objects); b) objects No 10–15 (total 6 objects); c) objects No. 16–19 (total 4 objects). Objects No. 5–9 do not belong to any of the listed groups and also differ among themselves;

— relative quantitative composition was calculated in the form of the ratio of concentrations of different components (for each object in the group), after which the objects were compared in pairs again. This allowed us to follow the general recommendations for establishing a common group affiliation as per the

current methodology¹, as well as to make a partial leveling of deviations introduced by automatic marking of peaks;

— a pairwise comparison of objects among themselves within each group was carried out by using the method of “fingerprints” – of overlaying spectra on each other. In this case, special attention was paid to the chromatographic peaks of hydrocarbons most stable to evaporation, since insignificant differences in the content of gaseous and lightest liquid hydrocarbons (*n*- and isopentane) could be associated with changes in composition that occurred during the expert study.

Upon results of the comparison, it was established that the objects inside the groups a), b) and c) coincide when the chromatogram channels are superimposed.

We also established the reasons for some differences in the composition of object No. 2 from objects 1, 3, 4 – changes caused by automatic marking of the chromatogram channel (changes in the chromatography technique, random deviations in the automatic instrument operation, etc.). Thus, as a result of the study, three groups of objects were identified, in each of which the submitted fluid samples had a common group affiliation.

In addition, as an example, we present the capabilities of the cluster analysis method to identify possible common groups from the data in the table. In the case of cluster analysis, the objects are automatically divided into groups, which reduces subjectivity in carrying out comparative analysis, as in the method of principal components.

From the existing approaches of clustering, the method of full coupling was chosen. It makes possible to single out several groups of objects at once, and to calculate the Euclidean distances by the following formula²

$$d(x; y) = \sqrt{\sum_{i=1}^n (x_i - y_i)^2},$$

where $d(x; y)$ is the calculated distance between the objects x and y ; $(x_i - y_i)$ is the difference between the corresponding coordinates of the objects x and y in n -dimensional space.

The result of clustering is shown in Fig. 2.

Upon the results of the executed research, by using the cluster analysis method in an automatic mode, we identified the following groups of objects:

- a) No. 1–4 (total 4 objects);
- b) No. 10–15 (total 6 objects);
- c) No. 16–19 (total 4 objects);

Objects No. 5–9 (total 5 objects) were clustered together among themselves or with other groups at a much greater distance than within groups a), b) and c).

¹ See: Криминалистическое исследование нефтепродуктов и горючесмазочных материалов.

² See: Портал Знаний. Глобальный интеллектуальный ресурс. Statsoft [Электронный ресурс]. — Режим доступа : <http://statistica.ru/glossary/general/evklidovo-rasstoyanie/>.

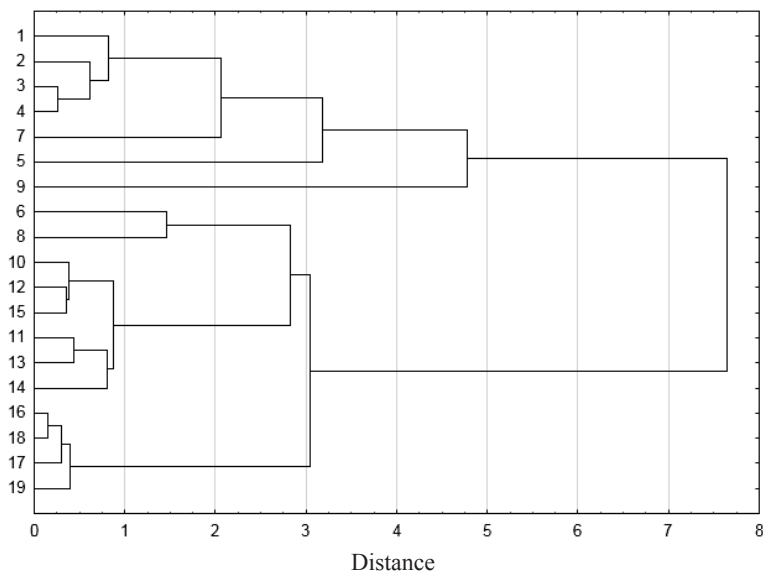


Fig. 2. Application of the cluster analysis method to the amount of gas chromatographic data

Cluster analysis made it possible to distinguish three groups of objects that could have a common group affiliation (within groups), as well as a disengaged group of objects which were differed from each other and described by three groups – a), b), c).

The results of applying the cluster analysis correspond to the results obtained by using the principal components method, and are confirmed by a more detailed study in pairwise or group comparison by superimposing the channels of chromatograms on each other.

In conclusion, we can draw the following deductions:

- the use of chemometric methods in the identification study greatly simplifies and speeds up the examination;
- the methods of the principal components and cluster analysis have sufficient simplicity of their implementation, can be used without special study of the theory of chemometrics and well visualize the obtained results;
- the complex application of an automatic approach to the analysis of data subject to identification and individual expert evaluation of results allows to avoid subjectivism in comparison and to arrange objects that have common quantitative characteristics into groups;
- at this level of development of expert technology, chemometric methods cannot be used for automatic comparison of objects of petrochemical nature without subsequent verification and evaluation of results by an expert;

— with the help of chemometric methods, we can easily identify the objects that differ significantly in their composition (characteristics) from other objects provided for research. So they can be excluded from further identification procedures, thereby simplifying and speeding up the examination.

**РОЛЬ ХЕМОМЕТРИЧНИХ МЕТОДІВ
У КРИМІНАЛІСТИЧНІЙ ЕКСПЕРТИЗИ НАФТОПРОДУКТІВ
І ПАЛИВНО-МАСТИЛЬНИХ МАТЕРІАЛІВ**

**Руднев В. А., Клімчук А. Ф., Нардід Л. В.,
Даньшина К. М., Карножицький П. В.**

Показано доцільність та ефективність застосування хемометричних методів для вирішення завдань криміналістичної ідентифікації на рівні встановлення спільної групової належності. Проілюстровано використання методів головних компонент і кластерного аналізу при проведенні порівняльного дослідження 19 зразків газового конденсату за даними газорідинної хроматографії. Метод головних компонент є більш наочним при візуальному оцінюванні та групуванні об'єктів, що мають найбільш близькі показники компонентного складу. Кластерний аналіз дозволив первісно розподілити досліджувані об'єкти за групами, що далі підтвердилося при попарному їх звірванні за методом «відбитків пальців».

Ключові слова: газова хроматографія, хемометрика, метод головних компонент, кластерний аналіз, криміналістична ідентифікація, газовий конденсат.

**РОЛЬ ХЕМОМЕТРИЧЕСКИХ МЕТОДОВ
В КРИМИНАЛИСТИЧЕСКОЙ ЭКСПЕРТИЗЕ
НЕФТЕПРОДУКТОВ И ГОРЮЧЕ-СМАЗОЧНЫХ МАТЕРИАЛОВ**

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Показаны целесообразность и эффективность использования хемометрических методов в решении задач криминалистической идентификации на уровне установления общей групповой принадлежности. Проиллюстрировано применение методов главных компонент и кластерного анализа при проведении сравнительного исследования 19 образцов газового конденсата по данным газожидкостной хроматографии. Метод главных компонент является более наглядным при визуальной оценке и группировке объектов, имеющих близкие показатели компонентного состава. Кластерный анализ позволил изначально распределить исследуемые объекты по группам, что подтвердилось в ходе последующего их попарного сличения по методу «отпечатков пальцев».

Ключевые слова: газовая хроматография, хемометрика, метод главных компонент, кластерный анализ, криминалистическая идентификация, газовый конденсат.

UDC 343.98+663.63/.64+543.3/.555

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METHODOLOGICAL ISSUES OF BOTTLED MINERAL WATER RESEARCH

The paper suggests a new indicator of natural water quality – a coefficient of identification as a slope of the relationship inverse electrical conductivity from degree of research water dilution by distilled water – to establish the fact that bottled drinking and mineral waters do not comply with normative requirements. An example is given for the identification of tap water among 10 trademarks of bottled drinking water.

Keywords: drinking water identification examination, conductometric method, identification coefficient, identification criteria.

The widespread distribution of poor-quality, falsified food products, in particular, bottled mineral water, drinking water and mineral packaged water in the Ukrainian market (drinking water is a food product suitable for human consumption¹) has become the reason to single out the water identification expertize as a special type of expert activity and this caused the practical need for works on such identification.

This expertize can be considered as one of types of the integrated commodity and chemical examination, since the object of research are the product commodity characteristics. The definition of the concept of identification is given in the Law of Ukraine "On the quality and safety of food and raw materials"²: identification – the procedure for confirming the compliance of organoleptic, biological, physical and chemical parameters and properties specific to a given type of food products, with the parameters and properties,

¹ See: Про основні принципи та вимоги до безпечності та якості харчових продуктів : Закон України від 23 груд. 1997 р. № 771/97-ВР (зі змінами та допов.) [Електронний ресурс] — Режим доступу : <http://zakon0.rada.gov.ua/laws/show/771/97-вр>.

² See: Про внесення змін до Закону України «Про якість та безпеку харчових продуктів та продовольчої сировини» : Закон України від 6 верес. 2005 р. № 2809-IV (зі змінами та допов.) [Електронний ресурс]. — Режим доступу : <http://zakon5.rada.gov.ua/laws/show/2809-15>.

which are indicated in the labeling of this food product, as well as the procedure for confirming the generally defined name of this type of product, trademark and/or commercial (company) name.

The need of forming the scientific and methodological foundations of the identification expertise of drinking and mineral bottled water, as well as the need of improving the means and methods for its execution, especially, establishing the fact of non-compliance with normative requirements, is caused by the following reasons. Firstly, it is caused by the appearance of a significant number of imported drinking and mineral packaged waters on the Ukrainian market. Many of them are poorly studied. Secondly, the change in production technologies of many traditional drinking and mineral packaged waters led to the emergence of waters with new consumer properties. In the past twenty years, the production of drinking and mineral packaged water in Ukraine has moved from enterprises with well-established technological cycles, strict control and qualified personnel to the small business, where it is impossible to ensure proper production control of products being manufactured. The third important reason is widespread distribution of falsified drinking and mineral packaged water on the Ukrainian market, because the cost of such water is 500 times higher than the cost of tap water. Also, the reason for the falsification of drinking and mineral packaged water in Ukraine is the imperfection of the regulatory and legal framework, lack of a clear mechanism for conducting the procedure of water identification, a shortage of staff with the necessary level of competence to carry out such identification and to identify falsified good ¹.

The Law of Ukraine “On Protection of Consumer’s Rights” adopted in 1991, guaranteed the right to “necessary and reliable information when purchasing the goods”². To ensure this right, strict state control is required in all areas related to the production and sale of drinking and mineral packaged waters. The execution of identification expertise reveals nonconformance of drinking and mineral packaged waters to normative requirements.

The Law of Ukraine “On Basic Principles and Requirements for Safety and Quality of Food Products” defines the concept of “falsified food products” – these are products that are specially modified (fake) and (or) those that have hidden properties and quality, information about which is consciously incomplete or unreliable.

If during comprehensive commodity and chemical examination for identifying the drinking and mineral bottled water, a negative result of the identification part (water falsification) is obtained, then it is not necessary to establish the belonging of the water sample under examination to any kind of its trademarks.

¹ See: Голинько О. Н. Об актуальности пересмотра законодательно-нормативных документов в сфере безопасности пищевых продуктов / О. Н. Голинько, Н. П. Левицкая, Н. Е. Чумак // Продукты и ингредиенты. — 2005. — № 2. — С. 46–47; Юхновський О. Продовольче право в Україні: проблеми і перспективи / О. Юхновський, Л. Зінченко // Голос України. — 2006. — 5 квіт., № 62(3812). — С. 7.

² See: Про захист прав споживачів : Закон України від 12 трав. 1991 р. № 1023-ХІІ (зі змінами та допов.) [Електронний ресурс]. — Режим доступу : <http://zakon5.rada.gov.ua/laws/show/1023-12>.

According to the Law of Ukraine “On the quality and safety of food products and food raw materials”, identification activities are carried out according to the relevant criteria. The task of establishing criteria and conducting research in accord with them includes the determination and comparison of properties (indicators) of the objects under examination. The choice of criteria depends on the conditions, objects, their interaction, the purpose of identification.

The criterion of identification is the attribute of a particular product, which is suitable for establishing its conformity (identity) to the sample, information in shipping documents, normative and technical requirements, as well as for establishing its belonging to a group of homogeneous goods.

The criteria indicated on the label of the container of packaged water in accordance with ДСанПіІН 2.2.4-171-10¹ can serve as general criteria for an identification expertise of drinking and mineral bottled water. These are the following criteria:

- 1) its name (for example, “Drinking water”);
- 2) type (treated, untreated (natural));
- 3) artificially-mineralized, artificially-fluorinated, artificially-iodinated;
- 4) with the optimum content of mineral substances;
- 5) (strong-, medium-, weak-) carbonated or non-carbonated;
- 6) composition (“drinking water” and a list of introduced substances, in particular, preserving agents, macro- and microelements);
- 7) actual values of indicators of physiological usefulness of the mineral composition of drinking water in accordance with encl. 4 to ДСанПіІН 2.2.4-171-10;
- 8) storage conditions;
- 9) volume of container;
- 10) date of manufacture and expiry date;
- 11) name, location and phone number of the manufacturer and the place of its manufacture;
- 12) type of source water;
- 13) location of the underground source of drinking water supply, the number and depth of well;
- 14) batch number of production;
- 15) name of the normative document that defines the requirements for the quality of drinking water.

The indicators being used for identification purposes must meet the following criteria²:

- a) be characteristic and specific for a specific name, species or group of homogeneous products;

¹ See: Гігієнічні вимоги до води питної, призначеної для споживання людиною : ДСанПіІН 2.2.4-171-10 : наказ М-ва охорони здоров'я України від 12 трав. 2010 р. № 40 [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/z0452-10/>.

² See: Коломієць Т. Методологічні засади ідентифікації споживчих товарів / Т. Коломієць, Н. Мережко, В. Осієвська // Товари і ринки. — 2012. — № 2. — С. 48–53.

b) have relative stability in the storage of products within the established warranty periods;

c) their falsification must be technically impossible and economically inexpedient;

d) have reliable methods of their determination with provision of comparability and repeatability of results.

The search for identification indicators and objective methods for their determination is an urgent task of the modern expertise for identification of drinking and mineral bottled water. Now the indicators being used in identification relate to the quality of the examined water. These indicators are defined in normative documents.

For most bottled drinking waters, the normative document that allows to carry out the qualitative identification today is ДСанПіН 2.2.4-171-10 and the recommended document is ДСТУ 7225:2014¹, for mineral bottled waters, such a document is ДСТУ 878-93² or ГОСТ 13273-88³. Also, a number of bottled waters are manufactured according to specifications developed directly by the manufacturer of products. Although there is ambiguity about the possibility of applying these or other standards⁴ both for drinking packaged waters and for mineral waters.

There are no separate normative documents that regulate the identification of bottled waters in Ukraine.

For today, there are two problems in the identification of bottled water. On the one hand, if we consider the identification of bottled waters as a correspondence to the physicochemical indicators given on the label, then it is indicated for drinking waters of a certain trademark. As for medicinal mineral waters, the complete information about them may not even be shown on the label and, respectively, not reported to the consumer. The estimation of the conformity of bottled water to these physicochemical parameters requires the use of instrumental methods. This makes this procedure cumbersome and expensive.

On the other hand, some trademarks do not have clearly determine identification indicators that meet the identification criteria of bottled water. This leads to ambiguity of the procedure for identifying (establishing compliance) of the bottled water with the declared criteria.

Separately, it should be noted, that there is a lack of international unification of information, which must be indicated on the label of bottled water. This makes

¹ See: Вода питна. Вимоги та методи контролювання якості : ДСТУ 7225:2014. — К. : Мінекономрозвитку України, 2014. — 30 с.

² See: Води мінеральні питні. Технічні умови : ДСТУ 878-93. — К. : Держспоживстандарт України, 1993. — 90 с.

³ See: Воды минеральные питьевые лечебные и лечебно-столовые. Технические условия : ГОСТ 13273-88. — М. : Изд-во стандартов, 2004. — 33 с.

⁴ See: Украинское водное сообщество. Информационный портал. Что стоит за новым стандартом качества воды: мнения экспертов [Электронный ресурс]. — Режим доступа : <http://waternet.ua/news/newsletter/102/>; Обіюх Н. М. Правові аспекти використання природних мінеральних вод в Україні / Н. М. Обіюх // Наук. вісн. нац. ун-ту біоресурсів і природокористування України. — 2011. — № 165. — Ч. 1. Право. — С. 192–199.

it difficult to identify such trademarks of water. If we regard the packaged water as an analyte, the chemical identification will be a classification of this water by the chemical compounds contained in it. It is known that the wide salt composition of natural waters is their individual characteristic, which makes it possible to assign them to a certain group or type of water¹ or to a separate water object².

In this case, the temperature dependence of the refractive index³, electrical conductivity, salt composition⁴ and content of heavy metals act as a parameter of identification.

However, these procedures are rather cumbersome and assume the existence of special conditions, a large amount of data, the receipt of which is quite costly.

So, both the regulatory and chemical identification of bottled water require the presence of an identification indicator that would reliably help to establish the conformity of the water trademark or to prove its nonconformity to the established criterion, for example, to the name or mineralization.

We propose to identify the bottled waters by using the method of direct conductometry in such a way⁵:

1. Select an aliquot of the water to be examined, analyze, and measure its electrical conductivity with taking into account the temperature coefficient.

2. Dilute the water under examination with distilled water n times, where $n = (1-2)$ and measure the electrical conductivity of the diluted solutions.

3. Construct a relationship "degree of dilution – inverse electrical conductivity of the solution" in the coordinates.

4. Calculate the slope of the obtained functional relationship, which is an identification coefficient (K_{id}) of water under examination.

5. For identification, use K_{id} and the electrical conductivity of initial water under examination. When carrying out identification examinations of bottled

¹ See: Мильман Б. Л. Введение в химическую идентификацию / Б. М. Мильман. — СПб. : BBM, 2008. — 180 с.

² See: Identification of water samples from different springs and rivers of Kharkiv: Comparison of methods for multivariate data analysis / [Ya. N. Pushkarova, A. B. Sledzevskaya, A. V. Panteleimonov et al.] // Moscow University Chemistry Bulletin. — 2013. — Vol. 68, № 1. — P. 60–66.

³ See: Кириченко А. Я. Идентификация питьевой воды природных источников Харьковского региона с использованием температурной зависимости их коэффициента преломления / А. Я. Кириченко, Г. В. Голубничая // Радифізика та електроніка. — 2011. — Т. 2(16), № 1. — С. 81–84.

⁴ See: Воробьев И. И. Применение измерения электропроводности для характеристики химического состава природных вод / И. И. Воробьев. — М. : Изд-во АН СССР, 1963. — 144 с.

⁵ See: Пат. 103096 Україна МПК G 01 N 27/00, G 01 N 15/00, G 01 N 33/18 Спосіб ідентифікації водного розчину середньої та високої мінералізації / О. Є. Васюков, В. А. Андронов, В. М. Лобойченко та ін. ; заявник та патентовласник Національний університет цивільного захисту України. — № а 201200566; заявл. 18.01.2012; опубл. 10.09.2013, Бюл. № 17; Пат. 89251 Україна. МПК (2014.01) G 01 N 27/00, G 01 N 15/00. Спосіб ідентифікації водного розчину / О. Є. Васюков, В. М. Лобойченко, А. І. Люзовий та ін. ; заявник та патентовласник Національний університет цивільного захисту України. — № u 201313968; заявл. 02.12.2013; опубл. 10.04.2014, Бюл. № 7.

waters, use any conductivity meter which relative error does not exceed 2%. An example of identifying a coded sample (of tap water) is shown in the figure (water X).

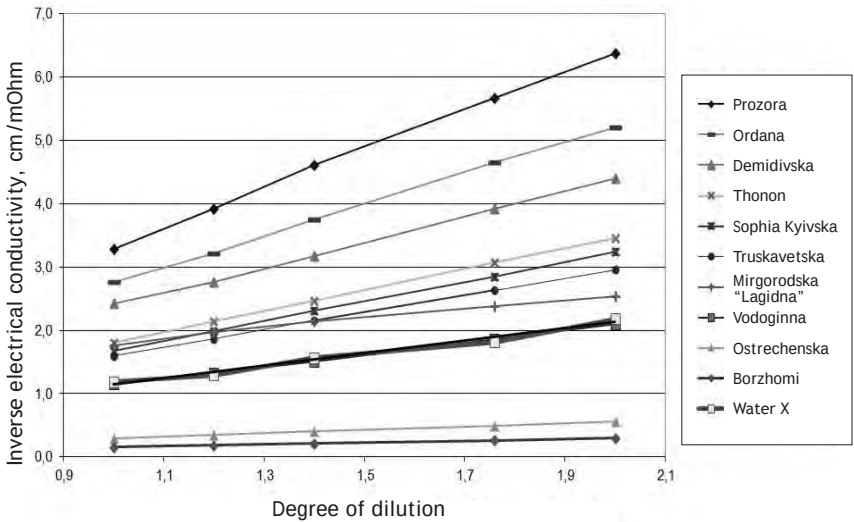


Figure. Relationships "inverse electrical conductivity – degree of dilution of 11 examination water with distilled water"

The table gives quantitative characteristics of the obtained relationships "inverse electrical conductivity – dilution degree of examination waters" calculated with using the Microsoft Excel software. From the obtained data, it follows that the K_{ld} (0.9815) of tap water practically coincides with the K_{ld} (0.9527) of water X. The difference between them makes up 3%. So, by using K_{ld} indicator, it is possible to establish falsification of mineral waters of well-known trademarks with tap water.

Table

Characteristics of relationships "reverse electrical conductivity (y) – degree of dilution (x) of examination water with distilled water"

No.	Water trademark	Equations	Reliability of approximations R ²
1	Prozora	$y = 3.0902 x + 0.2207$	0.9991
2	Ordana	$y = 2.4732 x + 0.2760$	0.9996
3	Demidivska	$y = 1.9968 x + 0.3948$	0.9989
4	Thonon	$y = 1.6499 x + 0.1563$	0.9999
5	Sophia Kyivska	$y = 1.5502 x + 0.1322$	0.9998

No.	Water trademark	Equations	Reliability of approximations R^2
6	Truskavetska	$y = 1.3625x + 0.2365$	0.9997
7	Mirgorodska "Lagidna"	$y = 0.7530x + 1.0487$	0.9907
8	Vodoginna	$y = 0.9815x + 0.1646$	0.9787
9	Ostreichenska	$y = 0.2562x + 0.0460$	0.9987
10	Borzhomi	$y = 0.1414x + 0.0158$	1
11	Water X	$y = 0.9527x + 0.1859$	0.9995

Thus, upon the results of examinations, we can draw the following conclusions:

1. Identification expertise of drinking and mineral bottled water can be considered as one of the types of integrated commodity and chemical examination.

2. In order to establish the fact that bottled drinking and mineral waters do not comply with normative requirements, we proposed a new indicator of the quality of natural waters – a coefficient of identification as a slope of the relationship "reverse electrical conductivity – degree of examination water dilution by distilled water". An example is given for the identification of tap water among 10 brands of bottled drinking water.

МЕТОДИЧНІ ПИТАННЯ ДОСЛІДЖЕННЯ БУТИЛЬОВАНИХ МІНЕРАЛЬНИХ ВОД

Васюков О. Є., Лобойченко В. М., Сабадаш В. В.

Запропоновано новий показник якості природних вод для встановлення факту невідповідності бутильованих питних і мінеральних вод нормативним вимогам – коефіцієнт ідентифікації як тангенс кута нахилу залежності оберненої електропровідності від ступеня розведення дослідженої води водою дистильованою. Показано приклад ідентифікації водогінної води серед 10 брендів бутильованих питних вод.

Ключові слова: ідентифікаційна експертиза питної води, кондуктометричний метод, коефіцієнт ідентифікації, критерії ідентифікації.

МЕТОДИЧЕСКИЕ ВОПРОСЫ ИССЛЕДОВАНИЯ БУТИЛИРОВАННЫХ МИНЕРАЛЬНЫХ ВОД

Васюков А. Е., Лобойченко В. М., Сабадаш В. В.

Предложен новый показатель качества природных вод для установления факта несоответствия бутилированных питьевых и минеральных вод нормативным требованиям – коэффициент идентификации как тангенс угла наклона зависимости обратной электропроводности от степени разведения исследуемой воды дистиллированной водой. Представлен пример идентификации водопроводной воды среди 10 брендов бутилированных питьевых вод.

Ключевые слова: идентификационная экспертиза питьевой воды, кондуктометрический метод, коэффициент идентификации, критерии идентификации.

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EXPERT STUDY OF TRICYCLIC ANTIDEPRESSANTS

Consideration is given to the methods of examining the tricyclic antidepressants (tianeptine, amitriptyline, imipramine, doxepin, clomipramine). We selected the most sensitive reagents allowing to differentiate and identify these medicines; carried out their examinations by thin-layer chromatography; selected the organic solvent systems and obtained chromatographic characteristics. The IR spectroscopy method was used to determine the main absorption bands typical for medicinal substances under examination.

Keywords: tricyclic antidepressants, tianeptine, amitriptyline, imipramine, doxepin, clomipramine, qualitative reactions, thin-layer chromatography, IR spectroscopy, absorption bands.

The list of medicines, the abuse of which is often noted on the territory of Ukraine, is expanded and replenished with new medicines every year. Thus, the medicines of a tricyclic antidepressant group are increasingly becoming the objects of expert researches. This is the most common group of antidepressants, which are often used by doctors to treat depressive and panic disorders.

The antidepressant activity of this group medicines was discovered in 1957 in imipramine, which has a tricyclic system in its structure. Therefore, this group got its name owing to their joint chemical structure, as the system consisting of two benzene rings articulated with a central seven-membered ring. Tricyclic antidepressants are chemically, pharmacologically and toxicologically very similar to the antipsychotics phenothiazine series¹. However, along with the effectiveness in the treatment of depressive disorders, the use of this group of medicines in a dosage exceeding the therapeutic dosage tens times can cause a powerful stimulating effect. Apart from such medicines, the drug-dependent population makes use of a coaxil drug (tianeptine is an active ingredient), the abuse of which leads to severe side effects, complications, drug dependence, severe toxic effects (loss of vision, extensive gangrene caused by intravenous injections of a coaxil solution), and often to a lethal end.

¹ See: Лекарственные средства в психофармакологии / Ю. И. Губский, В. А. Шаповалова, И. И. Кутько, В. В. Шаповалов ; под ред. Ю. И. Губского. — К. : Здоров'я, 1997. — С. 2.

As for other representatives of this group of medicines, it should be noted that they increasingly become the objects of examination in the chemical-toxicological and forensic laboratories, since their sale in Ukraine is not controlled, that is to say, it is not subject to item-quantitative accounting in the networks of pharmacy institutions. As a result of their uncontrolled use, the acute poisoning and deaths occur.

So, there is a need to create sensitive and low-cost methods for examining the drugs of this group to reduce the timing and to have a rapid response in chemical and toxicological examinations.

For this purpose, we conducted examinations of tianeptine (trade names "Coaxil", "Sodium Tianeptine"), amitriptyline (trade name "Amytriptyline"), imipramine (trade name "Melipramine"), doxepin (trade name "Doxepin"), clomipramine (trade names "Anafranil", "Clofranil"); determined the most sensitive qualitative chemical reactions, selected the systems, which have suitable separate characteristics for thin-layer chromatography, conducted IR-spectroscopy examinations to identify and differentiate these drugs.

Below are the main physicochemical characteristics and structural formulas for chosen representatives of this group of drugs (Figures 1–5)¹.

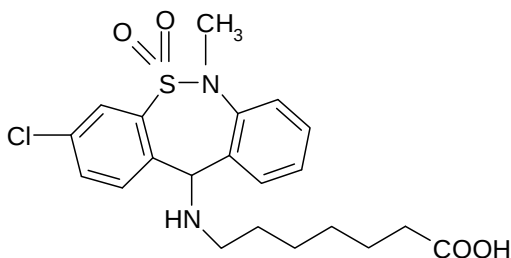


Fig. 1. Structural formula of tianeptine

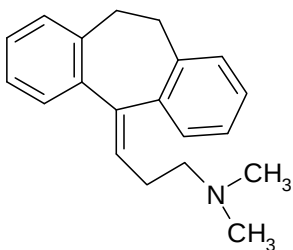


Fig. 2. Structural formula of amitriptyline

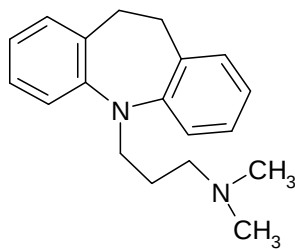


Fig. 3. Structural formula of imipramine

¹ See: Clarke's Analysis of Drugs and Poisons in pharmaceuticals, body fluids and postmortem material / Consulting Editions A. C. Moffat, M. D. Osselson, B. Widdop. — Fourth Editions. — © Pharmaceutical Press, 2011.

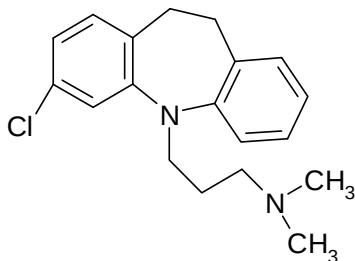


Fig. 4. Structural formula of doxepin

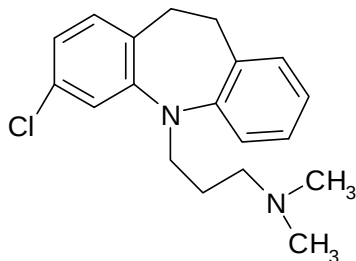


Fig. 5. Structural formula of clomipramine

In appearance, tricyclic antidepressants are crystalline powders of white to yellow color, readily soluble in medium- and high-polar organic solvents.

At the first stage of examination tianeptine, amitriptyline, imipramine, doxepin and clomipramine were isolated (extracted) from the certain drugs to produce pure samples of active substances. Then the qualitative chemical reactions were carried out with using the most sensitive reagents, despite the chemical structure of this group preparations. For this purpose, the following reagents were used: Marki reagent (1 ml of formalin in 9 ml of concentrated sulfuric acid), Mandelin reagent (10 mg of ammonium vanadate in 2 ml of concentrated sulfuric acid), Lieberman reagent (1 g of sodium nitrite in 10 ml of concentrated sulfuric acid), FPN reagent (5 ml of 5% ferric chloride solution, 45 ml of 20% perchloric acid solution, 50 ml of 50% nitric acid solution), Erdmann reagent (20 ml of concentrated sulfuric acid, 10 drops of 30% solution of nitric acid – in 100 ml of water) and concentrated sulfuric acid. The use of the Dragendorff reagent to conduct qualitative reactions is not advisable in this case, since the (brown) color of medicinal substance, narcotic drugs and psychotropic substances with the reagent is typical for all medicines containing a tertiary nitrogen atom. The obtained results are shown in Table 1, 2.

Table 1

Color of substances under examination

Sample of substance	Coloring with using the basic reagents		
	Marki	FPN	H ₂ SO ₄
Tianeptine	yellow	–	–
Amitriptyline	brownish-orange	–	orange, becomes red-orange with time
Imipramine	–	blue, becomes dark blue with time	–

Sample of substance	Coloring with using the basic reagents		
	Marki	FPN	H ₂ SO ₄
Doxepin	red, becomes brown with time	–	orange
Clomipramine	–	blue, becomes dark blue with time	–

Table 2

Color of substances under examination

Sample of substance	Coloring with using the basic reagents		
	Mandelin	Lieberman	Erdmann
Tianeptine	violet	olive green	–
Amitriptyline	brownish-orange	brown	yellow-orange
Imipramine	blue	blue, becomes dark blue with time	green
Doxepin	brown	dark brown	brown
Clomipramine	dark blue	blue	green

As can be seen from the tables, for the qualitative detection of tianeptine, amitriptyline, imipramine, doxepin and clomipramine, the reagents of choice are Mandelin and Lieberman, which make it possible to differentiate medicinal substances from each other already at the stage of qualitative chemical reactions. However, it should be noted that the use of these qualitative reactions is not the final result and the further examination requires the use of instrumental methods of analysis.

One of these methods is a relatively inexpensive, but no less accurate method of examination, such as thin-layer chromatography. The chromatographic characteristics were determined in various systems of organic solvents. Sorbfil plates were used for thin layer chromatography. Reagents Dragendorf and Lieberman were used as revealing reagents. The examinations were carried out in the following systems of organic solvents: toluene – acetone – ethanol – 25% ammonia solution (9:9:1.4:0.6) – system 1; ethylacetate-methanol-25% ammonia solution (85:10:5) -system 2; acetone – system 3; methanol – ammonia (100:1.5) – system 4. The obtained results are shown in Tables 3, 4.

Table 3

Chromatographic mobility of research substances

Sample of substance	Values of R_f		Coloring of chromatography zones with reagents	
	System 1	System 2	Dragendorff	Mandelin
Tianeptine	0,04	0,05	brown	brown-yellow
Amitriptyline	0,76	0,74	brown	brown
Imipramine	0,63	0,64	brown	dark blue
Doxepin	0,65	0,69	brown	black
Clomipramine	0,73	0,73	brown	dark blue

Table 4

Chromatographic mobility of research substances

Зразок речовини	Values of R_f		Coloring of chromatography zones with reagents	
	Система 3	Система 4	Dragendorff	Mandelin
Tianeptine	0,26	0,88	brown	brown-yellow
Amitriptyline	0,34	0,73	brown	brown
Imipramine	0,30	0,60	brown	dark blue
Doxepin	0,31	0,64	brown	black
Clomipramine	0,33	0,65	brown	dark blue

Analyzing the obtained results of chromatographic mobility of tianeptine, amitriptyline, imipramine, doxepin, clomipramine, given in the corresponding tables, it can be concluded that the most positive separate characteristics were obtained when using system 3. In this case, the values of R_f in all used systems of organic solvents are very close to each other, therefore, in order to increase the selectivity of this method, it is necessary to have samples of these substances ("witnesses").

When selecting among instrumental methods, in addition to thin-layer chromatography, it is advisable to use the method of molecular spectral analysis in the infrared spectral regions. However, as the expert practice shows, tianeptine, amitriptyline, imipramine, doxepin and clomipramine come for examination mainly in the form of tablets, powders or solutions (aqueous solutions or together with alcohol-containing mixtures), and along with the active substances

they contain fillers or other components being used in the pharmaceutical industry. Taking this into account, unlike other instrumental methods, IR spectra of such mixtures may not give correct results on the content of active components. Therefore, the examination by this method requires extraction (isolation) of the active substances.

In this case, we crushed the tablet (part of the tablet), homogenized and dissolved it in 1–2 ml of water, added a few drops of a 25% ammonia solution to pH = 7–8 and 1–2 ml of chloroform.

We carefully shook and collected the lower chloroform layer. It was evaporated until a dry residue was obtained. We added KBr to it, formed a compressed tablet by means of press and examined it in the mode of light reflection on an IR Fourier spectrometer under the following conditions: spectrum registration range: -4000 – 40 cm^{-1} , resolution ability – 4 cm^{-1} , the number of scans – automatically; scanning speed – 1 mm/s , scanning mode – in reflected light; detector – TGS. At the time of examination, we obtained the results given in Table 5.

Table 5

Absorption bands of research substances

Sample of substance	Absorption bands with wave numbers (cm^{-1})
Tianeptine	746, 769, 1280, 1294, 1347, 1710
Amitriptyline	757, 771, 746, 969, 1015, 1258,
Imipramine	741, 747, 756, 767, 1230, 1111,
Doxepin	750, 769, 1006, 1197, 1291, 1290,
Clomipramine	755, 771, 746, 965, 1014, 1257,

The spectra of tianeptine, amitriptyline, imipramine, and doxepin are shown in Fig. 6–9 for clarity of the examinations conducted to establish the molecular composition.

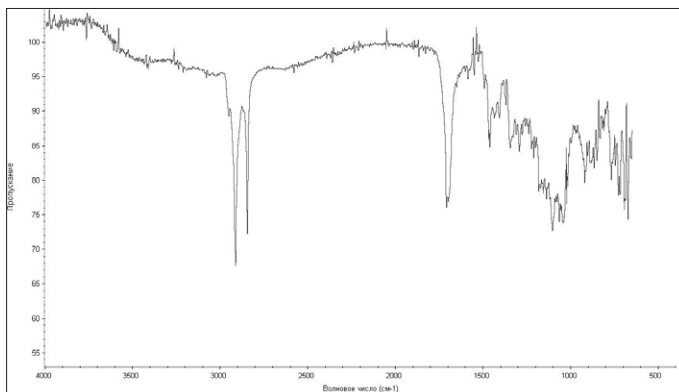


Fig. 6. IR spectrum of tianeptine

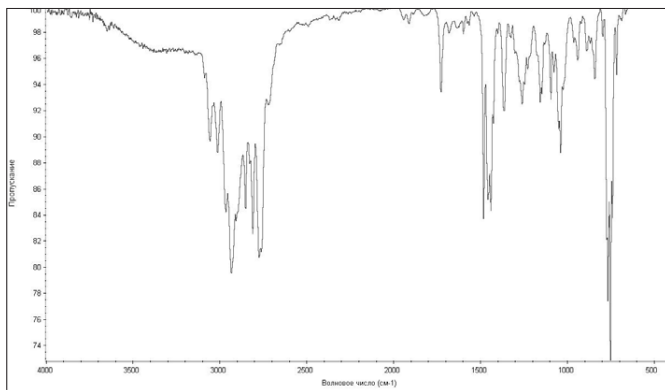


Fig. 7. IR spectrum of amitriptyline

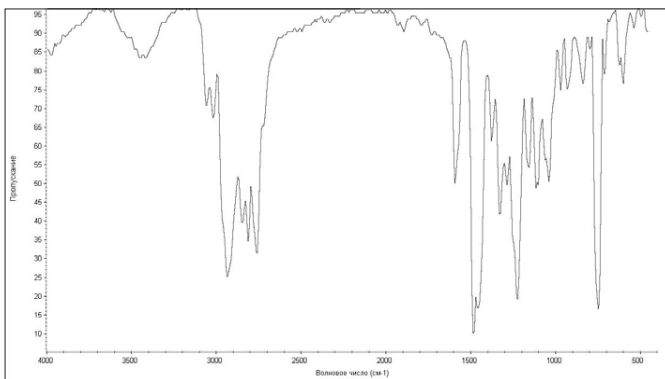


Fig. 8. IR spectrum of imipramine

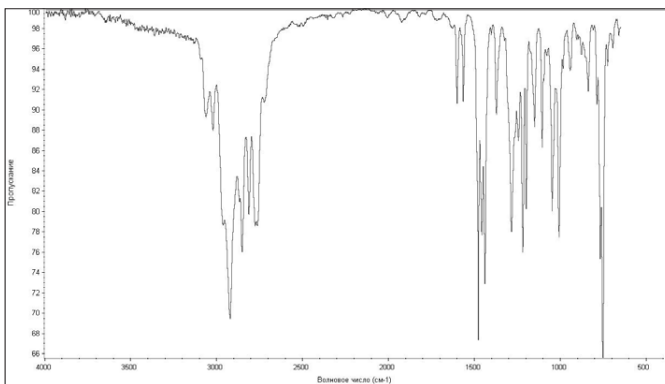


Fig. 9. IR spectrum of doxepin

On the basis of the obtained experimental data, we chose the most selective qualitative chemical reactions, determined the chromatographic characteristics and parameters of IR spectroscopy of the most common tricyclic antidepressants. The complex of the obtained results for the qualitative determination of the tricyclic antidepressant group medicines (tianeptine, amitriptyline, imipramine, doxepin, clomipramine) can be used in expert institutions of the Ministry of Justice of Ukraine, the Ministry of Internal Affairs of Ukraine and chemotoxicological laboratories.

ЕКСПЕРТНЕ ДОСЛІДЖЕННЯ ТРИЦИКЛІЧНИХ АНТИДЕПРЕСАНТІВ

Зарубіна М. В., Сич І. А., Сич І. В.

Розглянуто методи дослідження трициклічних антидепресантів (тіанептину, амітриптиліну, імipраміну, докsepіну, кломіпраміну). Підібрано найбільш чутливі реактиви, що дозволяють диференціювати та ідентифікувати зазначені лікарські засоби. Проведено їх дослідження методом тонкошарової хроматографії, підібрано системи органічних розчинників і отримано хроматографічні характеристики. Методом ІЧ-спектроскопії визначено основні смуги поглинання, характерні для лікарських речовин, що досліджувалися.

Ключові слова: трициклічні антидепресанти, тіанептин, амітриптилін, імipрамін, докsepін, кломіпрамін, якісні реакції, тонкошарова хроматографія, ІЧ-спектрометрія, смуги поглинання.

ЭКСПЕРТНОЕ ИССЛЕДОВАНИЕ ТРИЦИКЛИЧЕСКИХ АНТИДЕПРЕССАНТОВ

Зарубина М. В., Сыч И. А., Сыч И. В.

Рассмотрены методы исследования трициклических антидепрессантов (тианептина, амитриптилина, имипрамина, докsepина, кломипрамина). Подобраны наиболее чувствительные реактивы, позволяющие дифференцировать и идентифицировать эти лечебные средства. Проведено их исследование методом тонкослойной хроматографии, подобраны системы органических растворителей и получены хроматографические характеристики. Методом ИК-спектроскопии определены основные полосы поглощения, характерные для исследуемых лекарственных веществ.

Ключевые слова: трициклические антидепрессанты, тianeптин, амитриптилин, докsepин, имипрамин, кломипрамин, качественные реакции, тонкослойная хроматография, ИК-спектрометрия, полосы поглощения.

FORENSIC ENGINEERING EXAMINATION: METHODICAL APPROACHES TO THE PROBLEM SOLVING

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EXPERT EVALUATION OF ROAD REACTIONS DISTRIBUTION BETWEEN CAR WHEELS

The expert methodology for evaluating the road reaction distribution between vehicle wheels has been developed to determine the maximum values of speed, steering angle and the turning radius of the car on the condition of safe movement, as well as to determine the time of loss of its stability when entering and exiting the turn.

Keywords: expert evaluation, stability, car, turn, road reaction, traffic safety.

A significant part of road accidents is related to the loss of traffic stability and position of vehicles¹. These operational properties are significantly influenced by the distribution of normal and lateral road reactions between the wheels of one axle of the car².

Currently, in expert practice, there are no methodological provisions related to examining the dependence of normal road reactions on the most important

¹ See: Клец Д. М. Концепція забезпечення стабільності показників стійкості та керованості автомобілів : автореф. дис. на здобуття наук. ступеня д-ра техн. наук : спец. 05.22.20 «Експлуатація та ремонт засобів транспорту» / Д. М. Клец. — Х., 2015. — 40 с.

² See: Подригало М. А. Распределение реакций дороги между колесами одной оси автомобиля / М. А. Подригало, Д. М. Клец, О. А. Назарько // Вісник СНУ ім. В. Даля. — 2010. — № 6(148). — С. 26–30.

design and performance characteristics of the car as well as on its movement parameters. Therefore, the evaluation of the car stability in maneuvering with taking into account the distribution of road reactions between car wheels is a topical issue.

The estimated figures of the vehicle stability and methods for evaluating the results of tests are defined by RD 37.001.005-86 "Methodology for testing and evaluating the stability of vehicle driving"¹. However, this document no longer meets the increasing demands of active vehicle safety and does not meet a number of modern international standards².

The works of E. A. Chudakov and Ya. M. Pevzner suggest a method for evaluating the distribution of lateral reactions between the wheels of one axle of the car. In this case, the distribution of lateral reactions in the plane of road is considered in terms of achieving the limiting values in adhesion³.

The scientists of the Kharkov National Automobile and Highway University⁴ proposed a design scheme (Fig. 1) to determine the normal and lateral reactions on the wheels of one axis (on different sides) of the car by setting up the equations of statics.

The following accepted designations are shown in Fig. 1: P – centripetal force; m – car mass which falls on axle; V – linear speed of car; R – turning radius of car; R_z' – normal road reaction on the inner, less loaded wheel; R_z'' – normal road reaction on the outer, more loaded wheel; β – angle of the transverse slope of road; h – height of the center of car mass; B – wheel track; α – angle of lateral stability of car; R_y' – lateral road reaction on the inner, less loaded wheel; R_y'' – lateral road reaction on the outer, more loaded wheel; P_Σ – total force; R' and R'' – components of the normal reaction of road, respectively, on the inner, less loaded wheel, and on the outer, more loaded wheel; G – gravity.

In this case, the problem of finding the lateral reactions on wheels becomes statically determinable. The proposed relationships allow us to determine the normal and lateral reactions of the road on wheels for the case when the car is moving on the transverse slope and in its driving on a turn. However, the task to determine the moment of losing the car stability against rollover was not raised.

Thus, the questions of determining the ratio of road reactions on the wheels of the car when it is performing a maneuver and evaluation of its stability require additional studies.

¹ See: Методика испытаний и оценки устойчивости управления автотранспортными средствами : РД 37.001.005-86. — М. : Минавтопром, 1986. — 24 с.

² See: Шадрин С. С. Методика расчетной оценки управляемости и устойчивости автомобиля на основе результатов полигонных испытаний : автореф. дис. на соискание уч. степени канд. техн. наук : спец. 05.05.03 «Колесные и гусеничные машины» / С. С. Шадрин. — М., 2009. — 32 с.

³ See: Певзнер Я. М. Исследование движения автомобиля при заносе : дис. ... канд. техн. наук : 02.02.02 / Певзнер Яков Мануилович. — М., 1937. — 100 с.; Чудakov Е. А. Боковая устойчивость автомобиля при торможении / Е. А. Чудakov. — М. : Машгиз, 1952. — 183 с.

⁴ See: Подригало М. А., Клец Д. М., Назарько О. А. Указ. работа.

$$R_y'' = \left[1 - \frac{h}{B} \left(\operatorname{tg} \alpha - \frac{V^2}{gR} \right) \right] \cdot \frac{mV^2}{R}, \quad (4)$$

where g – acceleration of gravity.

The transverse stability angle of the car is determined from the known ratio¹

$$\alpha = \operatorname{arctg} \frac{B}{2 \cdot h}. \quad (5)$$

The ratio of lateral reactions on wheels is equal to the ratio of normal reactions and is equal to the ratio of total reactions on the wheels of one axis of the car². Using relations (1) and (2), we can write the expression for determining the ratio of normal reactions on wheels in the following form:

$$\frac{R_z'}{R_z''} = \frac{\frac{h}{B} \left(\operatorname{tg} \alpha - \frac{V^2}{gR} \right) G}{\left[1 - \frac{h}{B} \left(\operatorname{tg} \alpha - \frac{V^2}{gR} \right) \right] G}. \quad (6)$$

In this case the loss of stability of the vehicle against rollover will occur upon the following condition $R_z' / R_z'' \leq 0$. When $R_z' / R_z'' = 0$ the car will be in a state of indifferent balance, on the verge of losing its stability.

Let's determine at what radius R_0 of car turning the ratio of normal reactions will be zero, i.e., the normal reaction of the road on the inner, less loaded wheel $R_z' = 0$. For this purpose, we equate the right side of expression (6) to zero

$$\frac{\frac{h}{B} \left(\operatorname{tg} \alpha - \frac{V^2}{g \cdot R_0} \right) G}{\left[1 - \frac{h}{B} \left(\operatorname{tg} \alpha - \frac{V^2}{g \cdot R_0} \right) \right] G} = 0. \quad (7)$$

Solving the expression (7) with respect to the car turning radius, we obtain

$$R_0 = \frac{V^2}{g \cdot \operatorname{tg} \alpha}. \quad (8)$$

Assuming that the turning radius of car is equal to the ratio of its wheelbase L to the tangent of the average steering angle θ , we transform expression (8) to the following form

$$\frac{L}{\operatorname{tg} \theta} = \frac{V^2}{g \cdot \operatorname{tg} \alpha}. \quad (9)$$

¹ See: Методика испытаний и оценки устойчивости управления автотранспортными средствами : РД 37.001.005-86.

² See: Подригало М. А., Клец Д. М., Назарько О. А. Указ. работа.

With the help of expression (9), we determine the car steering angle θ_0 , at which condition $R'_z / R''_z = 0$ is satisfied

$$\theta_0 = \arctg \left(\frac{L \cdot g \cdot \tg \alpha}{V^2} \right). \quad (10)$$

Taking into account the dependence (5), we write expression (10) in the following form

$$\theta_0 = \arctg \left(\frac{L \cdot g \cdot B}{2 \cdot h \cdot V^2} \right). \quad (11)$$

With the sinusoidal law of steering angle variation, the following ratio is true¹

$$\theta = A_\alpha \cdot \sin(\Omega \cdot t); \quad (12)$$

where A_α – amplitude of steering wheels turning; Ω – angular frequency of change in angular speed of steering wheels turning

$$\Omega = 2 \frac{\pi}{t_M}; \quad (13)$$

t_M – total time for maneuvering.

Let's determine time of condition $R'_z / R''_z = 0$ fulfillment by equating the expressions (11) and (12)

$$A_\alpha \cdot \sin(\Omega \cdot t) = \arctg \left(\frac{L \cdot g \cdot B}{2 \cdot h \cdot V^2} \right). \quad (14)$$

The solution of equation (14) has the following form

$$t_1 = \frac{1}{\Omega} \cdot \arcsin \left(\frac{\arctg \left(\frac{L \cdot g \cdot B}{2 \cdot h \cdot V^2} \right)}{A_\alpha} \right); \quad (15)$$

$$t_2 = -\frac{1}{\Omega} \cdot \arcsin \left(\frac{\arctg \left(\frac{L \cdot g \cdot B}{2 \cdot h \cdot V^2} \right) - \pi}{A_\alpha} \right). \quad (16)$$

¹ See: Бобошко А. А. Нетрадиционные способы маневрирования колесных машин / А. А. Бобошко — Х. : Изд-во ХНАДУ, 2006. — 172 с.

Moment of time t_1 corresponds to entering a turn and moment of time t_2 – to exit from the turn.

Let's determine at what speed V_0 of car driving on a turn, the ratio of normal reactions will be equal to zero, i.e. the normal road reaction on the inner, less loaded wheel $R_z' = 0$. Solving expression (7) in relation to V_0 , we obtain

$$V_0 = \sqrt{R \cdot g \cdot \operatorname{tg} \alpha}; \quad (17)$$

wherefrom

$$V_0 = \sqrt{\frac{L}{\operatorname{tg} \theta} \cdot g \cdot \frac{B}{2 \cdot h}}. \quad (18)$$

Let's determine the relation of the ratio of normal reactions on the car wheels to the turning radius and car speed on the example Mercedes-Benz E 350 4Matic (Fig. 2).

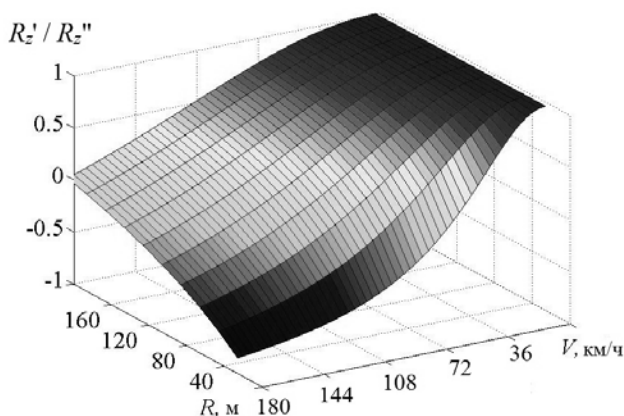


Fig. 2. 3D-surface showing the relationship of R_z' / R_z'' (R, V)

Analysis of Fig. 2 shows that when the research vehicle enters a turn of 200 m radius or more, stability under the condition that $R_z' / R_z'' \geq 0$ remains at any speed. The maximum value of speed in the event of safe movement of the research car on turn with a radius of 100 m makes up 130 km/h, with a radius of 50 m – 90 km/h and with a radius of 30 m – 68 km/h. The error in the results of modelling, in comparison with the results obtained by the Swedish researchers¹, does not exceed 7 %.

Thus, the proposed expert methodology for evaluating the distribution of road reactions between vehicle wheels allows the determination of maximum values

¹ See: Resultat i Teknikens Världs älgtest [Электронный ресурс] — Режим доступа: <http://teknikensvarld.se/algtest/>.

of speed, steering angle and the turning radius of the car on the condition of safe movement, as well as the time of losing its stability when entering and exiting the turn.

ЕКСПЕРТНА ОЦІНКА РОЗПОДІЛУ РЕАКЦІЙ ДОРОГИ МІЖ КОЛЕСАМИ АВТОМОБІЛЯ

Клец Д. М., Болдовський В. М., Варлахов В. О.

Розроблено експертну методичку оцінювання розподілу реакцій дороги між колесами автомобіля, яка дозволяє визначати максимальні значення швидкості, кута повороту керованих коліс і радіуса повороту автомобіля за умовою безпечного руху, а також момент часу втрати стійкості при вході та виході з повороту.

Ключові слова: експертна оцінка, стійкість, автомобіль, поворот, реакції дороги, безпека руху.

ЭКСПЕРТНАЯ ОЦЕНКА РАСПРЕДЕЛЕНИЯ РЕАКЦИЙ ДОРОГИ МЕЖДУ КОЛЕСАМИ АВТОМОБИЛЯ

Клец Д. М., Болдовский В. Н., Варлахов В. А.

Разработана экспертная методика оценки распределения реакций дороги между колесами автомобиля, которая позволяет определять максимальные значения скорости, угла поворота управляемых колес и радиуса поворота автомобиля по условию безопасного движения, а также момент времени потери устойчивости при входе и выходе из поворота.

Ключевые слова: экспертная оценка, устойчивость, автомобиль, поворот, реакции дороги, безопасность движения.

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TECHNICAL EVALUATION OF DRIVERS' ACTIONS AT THE SIGNAL CONTROLLED CROSSROAD WHILE SIGNAL CHANGING FROM GREEN LIGHT TO STOPLIGHT

Consideration is given to the questions arising by experts when conducting the forensic autotechnical expertise (expert examinations) during the technical analysis of vehicle driver's actions on the traffic light-regulated crossroads, when the traffic light changes from traffic allowing light signal to traffic prohibiting light signal (yellow) on the crossroad, with taking into account the provided video recording of the traffic accident.

Keywords: traffic accident, traffic light signals, crossroad, vehicle, video recording.

Due to the fact that now, drivers started installing the digital video recorders (DVR) on their vehicles, while the outdoor cameras are installed on the buildings and structures, then during the forensic autotechnical expertise (expert examination) there is a need for a technical analysis of road traffic situations, taking into account video records that are received for examination. This article, in our opinion, for the first time deals with a rather important issue that arises when carrying out a technical assessment of the actions of drivers whose vehicles have become participants in a road traffic accident with taking into account the mechanism of the road accident development fixed on the video recording.

The definition, classification and procedure for recording the road traffic accidents are regulated by special approved by Order No. 595 of the Cabinet of Ministers of Ukraine dated August 3, 1993. They establish a unified procedure for state and departmental registration of road traffic accidents and are mandatory for execution throughout the territory of Ukraine. So, according to this resolution, a road traffic accident (RTA) is an event that occurred during the movement of a vehicle (V), as a result of which people were killed or injured or material damage was caused. It should be noted that in this case, the cars, motorcycles, motor scooters, motorized carriages, mopeds, trams, trolleybuses, tractors and animal-drawn transport (excluding riding and baggage animals) belong to the vehicles.

According to the classification of RTAs, a collision is an accident during which vehicles, that moved, collided with each other or with the rolling stock of a railway, or when one of the vehicles suddenly stopped.

Most RTAs occur at intersections. Since the intersection is the main place of the confluence and crossing of transport and pedestrian flows, then a significant number of accidents involving car collisions and run down on pedestrians occur at intersections. As a rule, the drivers, when driving through the traffic light-regulated intersection, try to end its passing at a yellow traffic signal or to turn left before the oncoming vehicle.

According to the general provisions of the Road Traffic Regulations of Ukraine (RTR of Ukraine), the intersection is the place of crossing, junction or ramification of roads on the same level, the boundary of which is the conditional lines between the beginning of roadway edge roundings of any one of roads. The place where the exit from the adjacent territory to the road is not considered as an intersection.

In accordance with the requirements of item 16.1 of the RTR of Ukraine, the intersection where the order of travel is determined by traffic light signals or by an operator is considered to be traffic light-regulated. At such intersection, priority signs are non-operational.

In the event of a traffic light stop or its operation in the blinking mode of yellow signal and without a traffic constable, the intersection is considered to be uncontrolled, and drivers should be guided by the uncontrolled intersection passage rules as well as by the priority signs set at the intersection.

During the technical assessment of drivers' actions at the traffic light-regulated intersection, the autoengineer experts have the following questions: how

each of the drivers should act when crossing the intersection, if an accident occurred at change of traffic light from allowing traffic light signal to prohibiting traffic light signal (yellow).

The further case decision making by the investigator, judge, prosecutor (by the body that appointed the forensic autotechnical expertise or expert examination) will depend from the conclusion of the forensic autotechnical expertise or expert examination.

Let us consider an example of the forensic autotechnical expertise, investigation of cross-collision of a vehicle on the traffic light-regulated intersection at traffic signals change. The mechanism of the RTA development was recorded by an external surveillance camera. Therefore, the investigation was carried out with taking into account the RTA video recording.

The expertise deals with the following questions:

1. On what signal of a traffic light did the vehicle move according to the video recording?

2. How should the RTA participants act in this traffic situation in accordance with the RTR of Ukraine?

3. Do the actions of driver I. I. Ivanov have any inconsistencies with RTR of Ukraine and which ones are causally related to the road traffic accident?

4. Do the actions of driver P. P. Petrova have any inconsistencies with RTR of Ukraine and which ones are causally related to the road traffic accident?

Brief incident details and output data.

On September 4, 2015 at about 20 o'clock 40 min, at the traffic light-regulated intersection of Nauka Avenue and Kultura Street, there was a collision of the Ford Fiesta car driven by I. I. Ivanov, who was driving along Nauka Avenue, with a Renault car driven by P. P. Petrova, who was driving along the Kultura Street. The road traffic accident took place in the dark, with artificial illumination, at the traffic light-regulated intersection, on the dry asphalt-concrete covering of the roadway. The width of the roadway of the Nauka Avenue in the direction of Ford Fiesta car movement has 4 lanes for traffic, which are separated by a discontinuous line of road marking. The total width of the roadway is 12.7 m. Total width of the Kultura Street roadway in the direction of Renault car movement makes up 7 m.

According to the explanations of driver I. I. Ivanov, it follows that he was driving a Ford Fiesta car along Nauka Avenue to the center.

At the intersection with Kultura Street, when driving through the green light, as evidenced by the DVR recording, the car received a blow from the passenger side. He moved from the extreme right row, but after the strike, he found himself in the far left row with the front wheel on the separating bed.

In response to the expert's request, driver I. I. Ivanov explained that the car Ford Fiesta moved in the far right lane at a speed of about 35 km/h.

He did not apply braking measures for the reason that he did not see obstacles in front of him for further movement. Renault car was moving along the Kultura Street, in which lane and with what speed, it can be seen on the video materials that are attached to the case. The Renault vehicle driver did not use braking.

According to the explanation of the driver P.P. Petrova, it follows that she was driving a Renault car, approaching along the Kultura Street to the intersection with Lenin Avenue.

Approaching the traffic light at a speed of about 50 km/h and being a meter from the traffic light, on which the green light with the time indicator 3 was switched on, she began to cross the intersection between the 2 and 1 indications of the green light indicator. After having looked to the left and saw that all road users were standing, she expected that they would give her the road.

According to item 16.8 of the Road Traffic Regulations of Ukraine, she as a driver who went to the intersection at a traffic allowing light signal, must move in the intended direction at the exit from the intersection, regardless of traffic lights. The visual examination of the video recording shows that from the moment of the video beginning, there is a record of the roadway, which has four lanes for movement in one direction, the traffic flows of the opposite direction are separated by a distribution lawn with a fence. The traffic lanes of passing vehicles are divided by a discontinuous line of road marking. In this case, the car on which the DVR is installed, moves straight along the roadway in the second lane of traffic relative to the right border of the roadway.

At the entrance to the intersection, at which a red traffic light signal is on, the car with the DVR rearranges to the right. Partially occupying the second lane and the extreme right lane of traffic, it reduces the driving speed.

After that it accelerates and moves straight through the intersection.

In the process of further movement of the car with the DVR, the red and yellow signals are switched on at the traffic light in the direction of its movement, while the car with the DVR continues its moving and drives out to the intersection.

Since the beginning of the video recording, which corresponds to the time mark "04-09-2015 20:40:15", there is a roadway intersection, which is illuminated by external lighting.

Three cars are moving through the intersection, from left to right with respect to the image on the screen. On the roadway, which is located in the upper right corner of the video image, in the transverse direction of its movement, we can see a traffic light object similar to a pedestrian object, on which a red traffic light signal is switched on.

At time mark "04-09-2015 20:40:32" in the upper left part of the video image, there is a car that moves directly through the intersection.

At time line "04-09-2015 20:40:33" in the upper left part of the video image there is a car that drives out to the intersection and moves right through the intersection, from right to left, relative to the direction of the car moving in the upper left part of the video image along the intersection. Then, there is a collision of these vehicles. At the same time mark on the pedestrian traffic light object, on which the red traffic light was switched on, a green traffic light signal is switched on.

After the initial contact, vehicles were moving in the direction of their movement, while turning around their axes clockwise.

In the time period "04-09-2015 20:40:39" vehicles stopped.

According to the accident materials it follows that the Ford Fiesta car was moving along the Nauka Avenue roadway, which has four lanes for traffic in one direction. From the analysis of the video image it follows that the car moving along the roadway through the intersection and visible in the upper left part of the video image is a Ford Fiesta car that was driven by the driver I. I. Ivanov.

At the traffic light-regulated intersection of Nauka Avenue and Kultura Street, there was a collision of the Ford Fiesta car driven by I. I. Ivanov, who was driving along Nauka Avenue, with the Renault car driven by P. P. Petrova, who was driving along the Kultura Street. Proceeding from this, a car that moves along the roadway located to the right of the Ford Fiesta car on a video image, a car that drives out to the intersection and moves straight through the intersection from right to left relative to the direction of the Ford Fiesta car movement is a Renault car that was driven by driver P. P. Petrova.

During the passage of the car with the DVR through the intersection, there is a sharp blurring of the frame accompanied by the characteristic sounds of vehicle-to-vehicle contact. After that, the video image disappears (it is a black screen) and the rest of the video is not restored without interrupting the audio track. Let's determine how much time has passed since the Renault car driving out to the Nauka Avenue roadway prior to the moment when a green signal turned on at the traffic light located in the upper right corner of the video image resembling a pedestrian traffic light object.

The visual inspection of the submitted video recording with multiple frame-by-frame viewing revealed that on the 7th frame of the time mark "04-09-2015 20:40:33" we can find out how a Renault car drives out to the roadway of Nauka Avenue, and on the 19th frame of the same time mark, the green traffic light signal lights up in the upper right corner of the video image.

That is, the time since the Renault car drives out to the roadway of Nauka Avenue, before the green signal lights up on the pedestrian traffic light located in the upper right corner of the video image, is equal to 0.565 sec, which follows from the calculation:

$$t_{AB} = \frac{K_{M33}}{K_{33}} = \frac{13}{23} = 0,565 \text{ s,}$$

where K_{M33} – the number of frames in the time frame "04-09-2015 20:40:33" (from the 7th to the 19th frame), during which the Renault car drives out to the roadway of Nauka Avenue prior to the moment when a green signal lights up on the pedestrian traffic light – 13 frames; K_{33} – the total number of frames in the "04-09-2015 20:40:33" second – 23 frames.

As a result of a visual analysis of video recordings, it was established that in this case there was a cross-collision of the Ford Fiesta car with the Renault car. At the same time, it is established that the Ford Fiesta car passed a traffic light located in the direction of its movement before the near boundary of the intersection, when there were red and yellow signals. It was also found that at the time of departure of Ford Fiesta and Renault cars, a red traffic light signal switched on at the traffic light located in the upper right corner of the video image.

From the traffic diagram and operation cyclogram of traffic light objects Nauka Avenue – Kultura Street follows that the movement at this intersection is regulated by traffic lights, which operate in a three-phase scheme (Fig. 1, 2). From the analysis of the traffic lights operation cyclogram, it follows that the traffic light ST 4 regulates the direction of traffic No. 2, that is, the direction by which the Ford Fiesta car was driving. Traffic light ST 7 regulates the direction of traffic No. 3, that is, the direction by which the Renault car was driving. Pedestrian traffic light SP 8 regulates the direction of pedestrian traffic No. 7, i.e. it is the traffic light located in the upper right corner of the video image.

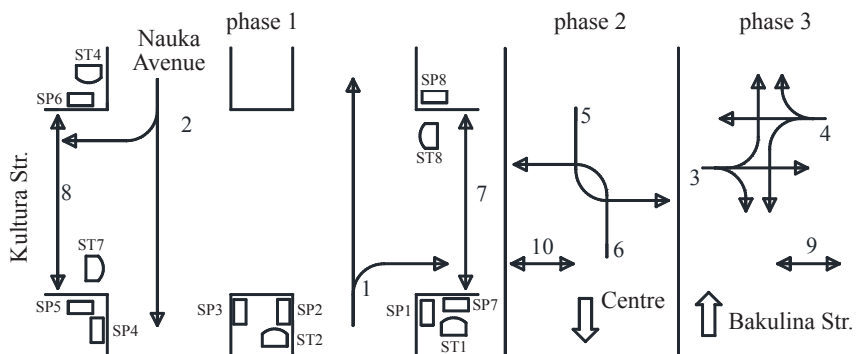


Fig. 1. Traffic diagram

From the analysis of the operation cycle of traffic lights ST 4, ST 7, SP 8 it follows that at the traffic light ST 4 in the first phase, the green signal is switched on for 20 seconds, then the green traffic light starts flashing for 3 seconds, after which the green signal switches off and the yellow traffic light signal switches on, and it is on for 3 seconds in the first phase, then in the second phase, the yellow signal switches off and the red traffic light signal switches on, and it is on for 22 seconds in the second phase and for 23 seconds in the third phase, then in the third phase, along with the red signal the yellow traffic light signal switches on and it is on for 3 seconds, then the cycle of traffic light ST 4 operation is repeated.

At the traffic light CT 7 in the first phase, the red traffic light signal is switched on for 26 seconds and for 19 seconds in the second phase, then in the second phase, along with the red signal, the yellow traffic light signal switches on, and it is on for 3 seconds, then in the third phase, the red signal together with the yellow signal of the traffic light switch off and the green signal switch on, and it is on for 20 seconds, then the green traffic light starts blinking for 3 seconds, after which the green traffic light signal switches off and the yellow signal is switched on for 3 seconds, then the cycle of traffic light ST 7 operation is repeated.

At the traffic light SP 8 in the first phase, the green traffic light signal is switched on for 20 seconds, the green traffic light starts flashing for 3 se-

conds, after which the green traffic light signal switches off while the red signal switches on and it is switched on for 3 seconds in the first phase, for 22 seconds in the second phase and for 26 seconds in the third phase, then the cycle of traffic light SP 8 operation is repeated.

From the described operation cycle of traffic lights ST 4, ST 7, SP 8 and video recording, it follows that the collision occurred in the third phase of the transient cycle time of traffic lights at the Nauka Avenue – Kultura Street intersection, when the traffic prohibiting signals were switched on in the direction of Ford Fiesta and Renault cars movement.

According to the time calculated on the basis of the video recording since the moment when the Renault car drives out to the Nauka Avenue roadway until the green signal switches on at the pedestrian traffic light located in the upper right corner of the video (0.565 seconds) as well as according to the time (3 seconds) of switching on the yellow signal of traffic light ST 7, it follows that at the time of the Renault car departure in the direction of its movement, a yellow traffic light signal was switched on, and it was switched on for 2.435 seconds, which follows from the following calculation:

$$t_B = t_K - t_{AB} = 3 - 0.565 = 2.435 \text{ s,}$$

where $t_K - 3$ seconds is the time during which the yellow signal was switched on at the traffic light ST 7; $t_{AB} - 0.565$ seconds is the time calculated on the basis of the video recording since the moment when the Renault car drives out to the Nauka Avenue roadway until the green signal switches on at the pedestrian traffic light SP 8.

From the conducted research it follows that the Ford Fiesta car and the Renault car drove out to the intersection of Nauka Avenue – Kultura Street at prohibiting signals of the traffic light. At that, the Ford Fiesta car was driving out to the intersection when the traffic light red signal together with the yellow signal were switched on in the direction of its movement, while the Renault car was driving out to the intersection when the traffic light yellow signal was switched on in the direction of its movement.

Based on the traffic diagram, at the traffic light CT 7 in the third phase, a green traffic light signal is switched on, which is switched on for 20 seconds, and then the green traffic light starts flashing for 3 seconds, after which the green traffic light signal switches off while the yellow traffic light signal switches on, and it is switched on for 3 seconds, then the cycle of traffic light ST 7 operation is repeated.

Let's see whether driver P. P. Petrova had the opportunity to stop the Renault car driven by her before the near-border of the intersection of Nauka Avenue from the moment when the yellow traffic light switched on.

According to the explanation of the driver P. P. Petrova it follows that the Renault driven by her was moving at a speed of 50 km/h when approaching the intersection.

The conducted researches established that at the moment of the Renault car leaving in the direction of its movement, a yellow signal was switched on at the traffic light for 2.435 s.

Direc- tion No	Traffic light No	Phase 1		Phase 2		Phase 3	
		Tmain	Tint	Tmain	Tint	Tmain	Tint
1	ST 1, 2	green signal	green flashin signal	yellow signal	red signal		red signal together with yellow signal
2	ST 3, 4	green signal	green flashin signal	yellow signal			red signal together with yellow signal
3	ST 6, 7			red signal	red signal together with yellow signal	green flashin signal	yellow signal
4	ST 8, 9			red signal	red signal together with yellow signal	green flashin signal	yellow signal
5	STP 3			green signal	green flashin signal		
6	STP 2			green signal	green flashin signal		
7	СП 7, 8	green signal	green flashin signal		red signal		
8	СП 5, 6	green signal	green flashin signal		red signal		
9	СП 1, 2			red signal		green flashin signal	red signal
10	СП 3, 4			red signal	green flashin signal	red signal	
		20 s	3 s	3 s	3 s	20 s	3 s
Tcycle – 74 s							

Fig. 2. The cyclogram of traffic light functioning

Let's determine at what distance was the Renault car from the near border of Nauka Avenue intersection.

$$S_a = \frac{V_a \cdot t_B}{3,6} = \frac{50 \cdot 2,435}{3,6} = 33,8 \text{ m},$$

where $V_a - 50 \text{ km/h}$ is the Renault car speed according to the explanation of driver P.P. Petrova; $t_B - 2.435 \text{ s}$ is the time during which the traffic light yellow signal was switched on in the direction of Renault car movement prior to its departure to the Nauka Avenue roadway.

The length of the Renault car stopping distance at a speed of 50 km/h under these road conditions is $S_3 = 26,8 \text{ m}$, which follows from the calculation:

$$\begin{aligned} S_7 &= (t_1 + t_2 + 0,5 \cdot t_3) \cdot \frac{V_0}{3,6} + \frac{V_0^2}{26 \cdot j} = \\ &= (0,6 + 0,2 + 0,5 \cdot 0,25) \cdot \frac{50}{3,6} + \frac{50^2}{26 \cdot 6,9} = 26,8 \text{ m}, \end{aligned}$$

where $t_1 - 0.6 \text{ s}$ is the situational value of Renault car driver's response time in a given traffic situation; $t_2 - 0.2 \text{ s}$ is the time of Renault car brake actuation delay; $t_3 - 0.25 \text{ s}$ is the time of rising the Renault car deceleration during emergency braking at the scene of the accident; $j - 6.9 \text{ m/s}^2$ is the stable deceleration of the Renault car during its emergency braking on dry asphalt concrete pavement of the roadway of the horizontal profile; $V_a - 50 \text{ km/h}$ is the speed of the Renault car before the road accident.

So, when comparing the calculated value of the Renault car stopping distance ($S_3 = 26,8 \text{ m}$) on the scene of accident with the Renault car remoteness ($S_a = 33,8 \text{ m}$) from the near border of Nauka Avenue roadway when the traffic light yellow signal was switched on, it should be concluded that in this traffic situation the Renault car driver P. P. Petrova had the technical ability to stop the Renault car prior to the near border of the Science Avenue roadway at the moment when the traffic light yellow signal switched on in the direction of her movement.

Therefore, in this traffic situation, when the traffic light showed a yellow prohibiting signal, the Renault car driver P.P. Petrova had to stop her Renault car before the traffic light and not to drive out to the intersection, i. e. she had to fulfill the requirements of a traffic light signal prohibiting movement.

In other words, she had to act in accordance with the requirements of sub-item 8.7.3 r), items 8.10 and 8.11 of the Road Traffic Regulations of Ukraine, where it is indicated that:

sub-item 8.7.3. Traffic signals have the following denotations:

r) yellow signal prohibits movement and warns of the impending signal change;

item 8.10. In the event that the traffic light or the traffic adjuster shows a signal (except for the reverse signal) that prohibits movement, the driver should

stop before the road marking 1.12 (stop line), road sign 5.62 “Stopping place” if they are not available: – then no closer than 10 m to the nearest rail before the railway crossing, before the traffic lights, pedestrian crossing, and if they are not available and in all other cases – before the intersected roadway, without creating obstacles for the movement of pedestrians;

Item 8.11. When the yellow signal switches on or the traffic adjuster raises the hand upwards, the drivers, who can not stop the vehicle in the place specified in item 8.10 of these Rules without resorting to emergency braking, are allowed to move further provided that traffic safety is ensured.

In this road traffic situation, the technical opportunity for the Renault car driver P. P. Petrova to avoid a collision is specified by the fulfillment of the requirements of sub-item 8.7.3 r), items 8.10 and 8.11 of the Road Traffic Regulations of Ukraine, for which she had no technical obstacles.

Since the car Renault moved to the traffic light prohibition signal resulting in a collision with a Ford Fiesta car, it should be noted that the actions of its driver did not meet the requirements of the sub-item 8.7.3 r), items 8.10 and 8.10 of the RTR of Ukraine and from a technical point of view they were in the causal relationship with the occurrence of an accident.

In this traffic situation, the driver of a Ford Fiesta car driver I. I. Ivanov, when the traffic light showed a red signal along with a yellow signal prohibiting traffic, had to stop his Ford Fiesta car in front of a traffic light and not to drive out to the intersection.

That is, he had to comply with the traffic light prohibiting signal. In other words, he had to act in accordance with the requirements of sub-item 8.7.3 e), which state the following: the combination of red and yellow signals prohibits movement and informs about the forthcoming activation of the green signal. In this road traffic situation, the technical opportunity for the Ford Fiesta driver I. I. Ivanov to avoid a collision was specified by the fulfillment of the requirements of the sub-item 8.7.3 e) and item 8.10 of the RTR of Ukraine, for which he had no technical obstacles.

Since the car Ford Fiesta moved to the traffic light prohibiting signal, resulting in a collision with a car Renault, it should be noted that the actions of its driver did not meet the requirements of the sub-item 8.7.3 e) and item 8.10 of the RTR of Ukraine and from a technical point of view, they were in the causal relationship with the occurrence of this accident.

Thus, as follows from the above example of the traffic situation, which took place at a regulated intersection at the change of traffic light signals, before carrying out his research, the expert must have the following initial data:

speed of the vehicle before the road accident, on what traffic signal they moved at the time of departure to the intersection, at what distance from the near border of the intersection was the vehicle at the moment of switching on the yellow traffic light signal, that is, those initial data, without which it is impossible to carry out a full technical analysis of the traffic situation and to perform calculations, consequently, it is also impossible to resolve the issues of the forensic auto-technical expertise (expert examination) in full volume.

Upon availability of a video recording with the traffic accident mechanism as well as with the transport or pedestrian traffic light objects fixed on it, it is possible to determine on what traffic signal the vehicles were driving out by expert means according to the cyclogram of their operation. If the traffic light object is not fixed on the video recording of the traffic accident mechanism, then it is not possible to determine at what signals of the traffic light the collision of vehicles took place, and the further technical analysis of drivers' actions shall be carried out according to the version offered by each of them, that is, the video recording in this case is not informative.

**ТЕХНІЧНА ОЦІНКА ДІЙ ВОДІЇВ НА РЕГУЛЬОВАНОМУ
ПЕРЕХРЕСТІ ПРИ ЗМІНЕННІ СИГНАЛУ СВІТЛОФОРА
З ДОЗВОЛЯЮЧОГО РУХ НА ЗАБОРОНЯЮЧИЙ**

Лубенцов А. В., Свідерський О. О.

Розглянуто питання, які виникають у експертів під час проведення судових автотехнічних експертиз (експертних досліджень) при технічному аналізі дій водіїв транспортних засобів на регульованих перехрестях, при змінінні сигналу світлофора з дозволяючого рух по перехрестю на забороняючий рух (жовтий), з урахуванням наданого відеозапису дорожньо-транспортної пригоди.

Ключові слова: дорожньо-транспортна пригода, сигнали світлофора, перехрестя, транспортний засіб, відеозапис.

**ТЕХНИЧЕСКАЯ ОЦЕНКА ДЕЙСТВИЙ ВОДИТЕЛЕЙ
НА РЕГУЛИРУЕМОМ ПЕРЕКРЕСТКЕ ПРИ ИЗМЕНЕНИИ
СИГНАЛА СВЕТОФОРА С РАЗРЕШАЮЩЕГО ДВИЖЕНИЕ
НА ЗАПРЕЩАЮЩИЙ**

Лубенцов А. В., Свидерский А. А.

Рассмотрены вопросы, которые возникают у экспертов во время проведения судебных автотехнических экспертиз (экспертных исследований) при техническом анализе действий водителей транспортных средств на регулируемых перекрестках, при изменении сигнала светофора с разрешающего движение по перекрестку на запрещающий движение (желтый), с учетом представленной видеозаписи дорожно-транспортного происшествия.

Ключевые слова: дорожно-транспортное происшествие, сигналы светофора, перекресток, транспортное средство, видеозапись.

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EXPERT RESEARCH OF TRAFFIC ACCIDENTS RELATED TO RUN DOWN ON PEDESTRIANS IN THE CASE OF INAPPROPRIATE TECHNICAL CONSTRUCTION OF PEDESTRIAN CROSSING

Consideration is given to the questions raised by experts when conducting the forensic autotechnical examinations (expert research) in the event of run down on pedestrians who crossed the roadway on a ground unregulated pedestrian crossing.

Keywords: road traffic accident, ground unregulated pedestrian crossing, pedestrian, run down on pedestrian.

The expert practice of forensic autotechnical examinations has shown that in almost 30% of all examinations appointed by forensic investigating bodies, the run down on pedestrians by vehicles are subject to researches. At the same time, about 50% of this expert researches are the run down on pedestrians by vehicles who crossed the roadway on the unregulated pedestrian crossing.

So far, the expert practice of autotechnical examinations relating to run down on pedestrians who crossed the roadway on the ground unregulated pedestrian crossing, has no single methodology for conducting such researches. The method of examining the run down on pedestrians by vehicles does not classify the researches by the criterion of whether a run down of pedestrians was made on an unregulated (regulated) pedestrian crossing. The only difference in the study of cases when a pedestrian is ran down on the ground unregulated pedestrian crossing is an application of situational time 0.8 s of the driver's reaction for a danger when calculating the stopping distance¹.

The technical evaluation of actions of the driver who has ran down a pedestrian on the unregulated pedestrian crossing, in the absence of other vehicles moving in the same direction and slowing down before the unregulated pedestrian crossing, is associated with an assessment of the driver's actions conformity with the requirements of items 12.3 and 18.1 of the Road Traffic Regulations of Ukraine (RTR of Ukraine). That is, when carrying out this research, the expert determines whether the driver could give a road to the pedestrian by applying measures for emergency braking, immediately from the moment of the danger occurrence. In this case, experts usually consider the

¹ See: Суворов Ю. Б. Применение дифференцированных значений времени реакции водителя в экспертной практике / Ю. В. Суворов ; под ред. В. А. Иларионова, А. К. Педенчука, В. Н. Янина. — М. : ВНИИСЭ, 1987. — 20 с.

moment when a pedestrian enters a pedestrian crossing as the moment of a danger occurrence for the driver's movement.

When carrying out a technical assessment of driver's actions, nearly always, no assessment is made for technical equipment and technical facilities of ground unregulated pedestrian crossings.

In connection with improper financing of organizations responsible for locating, repairing and timely updating of technical means for road traffic organization, that is to say, for road signs, road markings and other things, the technical and operational state of road traffic management equipment sometimes has a wear of up to 100%. This circumstance leads to the fact that road users are not sufficiently informed or untimely aware of the traffic organization at the location of a ground unregulated crossing. That is, a pedestrian who approaches a pedestrian crossing to cross the roadway sees the road markings on it, even if its operational state no longer meets the regulatory requirements, as it is in close proximity to him.

Before a pedestrian leaves the pedestrian crossing, the vehicle driver is at some distance from the road marking, therefore, if the road marking designating a ground unregulated pedestrian crossing is in bad operating condition, the driver is deprived of the opportunity to determine in advance that there is a ground unregulated pedestrian crossing ahead of him, and accordingly, he does not have the opportunity to analyze in advance the possible actions of a pedestrian that approaches the roadway.

The same applies to pedestrian accidents in the dark during the absence of external illumination on the ground unregulated pedestrian crossings. That is, when approaching the pedestrian crossing, the pedestrian has the opportunity to see the vehicle at a considerable distance from the pedestrian crossing, as vehicles in the dark move with the external lighting switched on. Upon estimating the distance and making sure of safety, he begins the passage of the roadway on the ground unregulated pedestrian crossing, as stipulated in the requirements of items 4.7 and 4.14 of the RTR of Ukraine.

The driver, approaching the ground pedestrian crossing, where there is no exterior lighting, can see the pedestrian at the last moment, just before the run down of a pedestrian by the vehicle. In this traffic situation, the driver is also deprived of the opportunity to determine in advance: firstly, that there is a ground unregulated pedestrian crossing ahead of him, and secondly, he cannot to reveal in time that a pedestrian is moving along it. At the same time, according to the requirements of item 4.4 of the RTR of Ukraine at night and in conditions of poor visibility, the pedestrians moving along the roadway or along the roadside should somehow help to define themselves.

To date, the expert practice for technical analysis of vehicle driver's actions when a pedestrian has been ran down on the ground unregulated pedestrian crossing that has not been properly identified, has no unified approach to the technical assessment of the driver's actions in the event of a road traffic accident (RTA).

This problem has not been properly solved both in theoretical and in practical aspects. This creates the conditions for a different approach to the technical assessment of drivers' actions in the analysis of the circumstances of a road traffic accident.

The establishment of undue technical facilities of ground pedestrian crossings belongs to the expert specialty 10.16 "Road-technical examinations".

In general, reference and normative literature on the theory and practice of forensic autotechnical and road-technical examinations does not include works that would concern problems of this kind, since this requires the comprehensive road-technical and autotechnical studies in order to determine the conformity of equipment, its location, operational condition of technical facilities and engineering arrangements in the areas of unregulated pedestrian crossings.

Let's consider the example when a pedestrian has been knocked down on the unregulated pedestrian crossing, which did not have the proper technical facilities.

To carry out the comprehensive forensic autotechnical and road-technical examination, the Kharkiv RIFE received the materials of criminal proceedings in relation to the fact that the pedestrian has been ran down by the Renault car.

In the course of studying the materials of this criminal proceedings, the experts established that a pedestrian has been ran down at night in a settlement, which is indicated by the traffic sign 5.47 "Beginning of the settlement" (Name and beginning of the built-up area of the settlement, where the requirements of traffic road regulations of Ukraine, which determine the order of traffic in settlements are invalid). Before the pedestrian has been ran down, he moved from left to right with respect to the direction of Renault car movement. From the moment of entering the pedestrian crossing to the moment when he has been ran down, the pedestrian passed the distance of about 18 m. The visibility of the pedestrian from the workplace of the Renault car driver was 20.8 m, and his speed was 100 km/h. The road, where the accident occurred, belongs to the 1st technical category.

The expert examination posed the following questions: whether the road traffic arrangement provided road safety in the investigated road section and whether the road conditions inconsistent with the requirements of regulatory documents were in the causal relationship with the accident.

When analyzing the materials of the case, it was found that there was no outside lighting at the scene of the accident, as it is indicated in the requirements of the sub-item 4.5.6 DBN B.2.3-4:2007¹, because it was simply not provided during the overhaul of the road section where the road traffic accident took place.

Since no external lighting was provided, then, in order to ensure road safety, it was necessary in addition to install the warning sign 1.32 "pedestri-

¹ See: Споруди транспорту. Автомобільні дороги. Ч. I. Проектування. Ч. II. Будівництво : ДБН В.2.3-4:2007 [Електронний ресурс] // Інформаційна довідникова система «Будстандарт». — Режим доступу : <http://budstandart.com/> версія 3.1.0.

an crossing” and to introduce a local speed limit in front of the pedestrian crossing by a stepped restriction of vehicle speed, with a step of not more than 20 km/h and speed of at least 40 km/h. That is, traffic signs 3.29 “Maximum speed limit” should be installed additionally.

Since the external lighting was not provided and was absent on the ground pedestrian crossing of auto-road of the Ist technical category, while the additional means of traffic organization were not installed, it was impossible for road users to take early measures for the safe passage of a ground pedestrian crossing without creating a danger to pedestrians crossing the roadway. Thus it was concluded that road safety was not ensured on the road section where the pedestrian was ran down. Therefore, from a technical point of view, the inconsistencies with the general requirements of sec. 3 of GOST 3587-97¹, sub-items 10.3.1, 10.3.2, 10.3.33, 10.5.25 DSTU 4100-2002² and item 4.5.6 DBN B.2.3-4:2007 were in causal relationship with the occurrence of this RTA.

In the decree on the appointment of the forensic road-technical examination, the investigator did not raise questions regarding the technical evaluation of the Renault car driver's actions in this road traffic situation. However, when studying the materials of criminal proceedings, we established the circumstances, which were important for making an objective decision in the case. Therefore, in accordance with the requirements of Articles 69, 102 of the Code of Criminal Procedure of Ukraine and item 2.1 of the Instruction on the appointment and conduct of forensic expertise and expert examinations, the experts indicated the following circumstances in their conclusion.

During the investigative experiment, it was established that the Renault car driver did not have the technical ability (due to the degree of illumination of the pedestrian crossing) to see the pedestrian (pedestrians) on the entire route of his movement through the roadway along the unregulated pedestrian crossing.

Therefore, it was stated in the conclusion that the actions of the Renault car driver are also causally related to the occurrence of this accident, that is to say, there is an inconsistency of his actions with the requirements of item 18.1 of the RTR of Ukraine. Since it is the restricted visibility of the unregulated pedestrian crossing zone that serves as the main information sign of the fact that at a pedestrian crossing, the visibility on which is limited, there may be a pedestrian, to whom the Renault car driver should give a prerogative right to cross the auto-road.

Therefore, when approaching the pedestrian crossing, the visibility of road signs and marking of which is not good, the Renault car driver should choose in advance a safe speed mode (driving speed) in order by a timely and not by an emergency decrease in speed to have the technical ability to give way to a pedestrian, who may appear in the restricted visibility zone of a pedestrian cross-

¹ See: Автомобільні дороги, вулиці та залізничні переїзди. Безпека дорожнього руху. Вимоги до експлуатаційного стану : ДСТУ 3587-97 [Електронний ресурс] // Інформаційна довідникова система «Будстандарт».

² See: Знаки дорожні. Загальні технічні умови. Правила застосування : ДСТУ 4100-2002 [Електронний ресурс] // Інформаційна довідникова система “Будстандарт”.

sing, and has a priority right of movement.

For today, the experts of the Kharkiv RIFE have performed the first attempt to define a unified approach to the technical assessment of drivers' actions in road traffic accidents when the pedestrian has been ran down in case of the improper technical facilities of a ground unregulated pedestrian crossing. That is to say, the method "Expert researches of the driver's actions during the road traffic accident in case of the improper technical facilities of pedestrian crossings and intersections" was developed. In this technique, the team of authors proposed an algorithm for expert research on evaluating the drivers' actions and determining the influence of improper equipment, its application, location, operational condition of equipment and engineering arrangements of ground unregulated intersections on the occurrence of accidents.

Summing up what has been said, we believe that in examining the events when the pedestrians have been ran down by vehicles during the passage of the roadway on the ground unregulated pedestrian crossing, it is also necessary to give an expert evaluation of the technical arrangements of these pedestrian crossings, technical and operational indicators of their arrangements, or to point out to the investigator about identifying the facts of improper arrangements of the ground unregulated pedestrian crossings and how does this affect the establishment of all circumstances that could have caused this type of road traffic accident.

ЕКСПЕРТНЕ ДОСЛІДЖЕННЯ ДОРОЖНЬО-ТРАНСПОРТНИХ ПОДІЙ, ПОВ'ЯЗАНИХ ІЗ НАЇЗДОМ НА ПІШОХОДІВ ПРИ НЕНАЛЕЖНОМУ ТЕХНІЧНОМУ ОБЛАШТУВАННІ ПІШОХІДНОГО ПЕРЕХОДУ

Ольхов В. С., Степко В. О., Панасенко О. М.

Розглянуто питання, які виникають у експертів під час проведення судових автотехнічних експертиз (експертних досліджень) при наїзді на пішоходів, які перетинали проїзну частину по наземному нерегульованому пішохідному переході.

Ключові слова: дорожньо-транспортна пригода, наземний нерегульований пішохідний перехід, пішохід, наїзд на пішохода.

ЭКСПЕРТНОЕ ИССЛЕДОВАНИЕ ДОРОЖНО-ТРАНСПОРТНЫХ ПРОИСШЕСТВИЙ, ОТНОСЯЩИХСЯ К НАЕЗДАМ НА ПЕШЕХОДОВ ПРИ НЕНАДЛЕЖАЩЕМ ТЕХНИЧЕСКОМ ОБУСТРОЙСТВЕ ПЕШЕХОДНОГО ПЕРЕХОДА

Ольхов В. С., Степко В. А., Панасенко А. Н.

Рассмотрены вопросы, возникающие у экспертов при проведении судебных автотехнических экспертиз (экспертных исследований) при наезде на пешеходов, которые пересекали проезжую часть по наземному нерегулируемому пешеходному переходу.

Ключевые слова: дорожно-транспортное происшествие, наземный нерегулируемый пешеходный переход, пешеход, наезд на пешехода.

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FEATURES OF EXPERT RESEARCH IN THE FIELD OF LABOR PROTECTION AND SAFETY OF LIFE ACTIVITY OF MINORS

The paper analyzes the legal basis of international and national normative legal acts in the field of protection and observance of minors' labor rights. Definition is given to problematic issues arisen during expert researches in the field of labor protection and life safety of minors; the ways how to improve the observance and protection of minors' labor rights are suggested.

Keywords: minors, protection of labor rights, labor protection and life safety of minors, control.

The priority task of the Ukrainian state is to create conditions for the citizens of Ukraine for full exercise of their rights to work, ensure equal opportunities in choosing a profession and a kind of work activity, for which purpose, the state implements programs of vocational education, training and retraining of personnel in accordance with social needs. Along with the right to work under Article 43 of the Constitution of Ukraine, every citizen is guaranteed the right to appropriate, safe and healthy working conditions.

The Law of Ukraine "On Labor Protection" defines the basic provisions for the implementation of the constitutional right of employees to the protection of their lives and health in the course of work, as well as to the appropriate, safe and healthy working conditions, prevention of occupational hazards and occupational injuries, elimination of harmful production factors. With the participation of the relevant government authorities, it regulates the relationship between the employer and the employee on issues of safety, occupational health and the working environment, and it establishes a unified procedure for labor protection in Ukraine. This law specifies that labor protection is a system of legal, social and economic, organizational and technical, sanitary and hygienic, medical and preventive measures and means aimed at saving the life, health and fitness to work of a person in the process of professional activity. Attention to the defense and protection of rights in the field of labor law relations was paid by such scientists as Yu. N. Andreev, A. A. Abramova, N. G. Aleksandrov, M. I. Baru, G. S. Goncharova, V. V. Zhernakov, A. S. Ioffe, M. I. Inshin, A. V. Lavrinenko, A. M. Lushnikov, M. V. Lushnikova, K. Yu. Melnik, S. A. Muromtsev, S. M. Prilipko, A. P. Sergeev, V. M. Skobelkin, G. P. Tarkhov, Yu. K. Tolstoy, G. I. Chanyshhev, V. I. Shcherbina, A. N. Yaroshenko and other scientists. These scientists have made a significant contribution to scientific developments in the protection and observance of labor rights and duties of employees.

However, the protection of the minors' labor rights occupies a special place among the legal norms and their observance today is an urgent problem that needs to be improved. According to Article 187 of the Labor Code of Ukraine (hereinafter referred to as the Labor Code), minors are persons of both sexes who have not attained the age of 18 years. At the same time, Art. 32 of the Civil Code of Ukraine (hereinafter referred to as the Civil Code) states that minors are persons at the age from 14 to 18 years, while persons under 14 years of age are considered children (Art. 31 of the Civil Code). However, this does not contradict the Labor Code, since labor of persons aged up to 14 years is absolutely not allowed under any conditions (Art. 188 of the Labor Code).

According to the estimates of the international labor organization only in some developing countries, about 256 million children aged from 5 to 14 years are workers, of whom about 120 million are full-time workers¹.

Most of all, child labor is used in Asia (61%, or 153 million children), in Africa (32%, or 80 million children) and in Latin America (7%, or 17.5 million children). As for Ukraine, there are more than 60000 such children, at least one child dies, and 15 children are injured during agricultural work in Ukraine every year². Often violations of labor laws for minors are related to their work in harmful conditions, the length of a working day, undue record keeping and the delay in payment of wages³. The fight against these violations remains weak and its level does not prevent new violations.

The actuality of the topic under consideration lies in the fact that in the labor market, young people are a large category, and its readiness for work is a vital component of successful economic development of society in the future. The importance of this resource is constantly growing. At the same time, those who, except for youth and ambitiousness, cannot basically offer anything to the employer, feel an acute need for special attention from public and state structures. Now in Ukraine there are more than 11 million young citizens, who make up about 22% of the country's population. In recent years, the situation that has developed on employment and labor protection for minors is rather tense and it has a tendency to deteriorate. The aggravation of socio-economic problems, the imperfection of the legal framework, the lack of effective mechanisms of state support for young people during the period of social formation and development significantly complicated the restoration of the intellectual potential and labor resources of the state, adversely affected the material situation of the youth, its health, physical and spiritual development, led to a growth of unemployment for the youth and aggravation of the criminal situation in the society. The struggle of domestic enterprises for their survival leads to a deterioration of working conditions, including those of minors.

¹ See: Дані ООН [Електронний ресурс]. — Режим доступу : <http://life.pravda.com.ua/society/2015/06/12/195584>.

² See: Особливості експлуатації дитячої праці / за матеріалами С. М. Русіна [Електронний ресурс]. — Режим доступу : <http://www.bsmu.edu.ua/uk/news/digest/>.

³ See: Права дитини в Україні системно порушуються : звіт громадської організації «Спільна мета» [Електронний ресурс]. — Режим доступу : <http://maidanua.org/2013/06/>.

The main problem in using the work of minors is that today in Ukraine there is no systematic and serious control over the illegal use of child labor, especially in agriculture and the advertising business.

The purpose of the article is to study national regulations governing the observance and protection of the minors' rights to work, as well as to analyze the implementation of state policy in the field of labor protection for minors, and to identify the specific features of the legal regulation of labor protection for minors.

The first international document, which raised the issue of child's rights, is the Geneva Declaration of 1924. It was aimed at creating conditions that ensure the normal physical and mental development of the child, the child's right to help, proper upbringing and protection. In 1959, the Declaration on the Rights of the Child was adopted. It concerned not only the vital needs of the child, but also his need for love and understanding; stressed the need to keep the unity of the family, prenatal and postnatal care for the mother and child, proclaimed the right to name and nationality. Besides, the Declaration provided for compulsory and free primary education, the prohibition of child labor until a certain age, the child's right to play and create¹.

The Convention on the Rights of the Child adopted by the UN General Assembly in 1989 became a document where it is stated that humanity is obliged to give children all the best, to ensure childhood, which guarantees the future development of adult citizens. The purpose of this Convention is to establish standards for the protection of children from neglect and offense, which they face to some extent daily in all countries. It takes into account the different cultural, political and economic characteristics of countries. The interests of the child are brought to the fore in this document. Ukraine ratified the Convention of 1991 and made appropriate changes in national legislation.

In the legislation of Ukraine, these legal relations are regulated by Ch. XIII of the Labor Code. Thus, in accordance with Art. 187 minors are equal in rights to adults in employment relations, but as regards labor protection, working hours, holidays and other working conditions, minors exercise the appropriate privileges established by the current legislation.

The legal basis for the minors' labor protection is the relevant articles of the Labor Code, the Law of Ukraine "On Labor Protection", the list of industries, professions, specialties and works on which it is prohibited to use the labor of persons under the age of 18 years, a list of medical contraindications for work in various branches of manufacture, such as heavy work and work with harmful or dangerous working conditions, underground works.

It is also forbidden to engage persons under the age of 18 years for lifting and moving the things, which weight exceeds the limits established for them. These working conditions, as well as the marginal standards are approved by the Ministry of Health of Ukraine by agreement with the State Committee of Ukraine on Occupational Safety.

¹ See: Декларація прав дитини від 20 листоп. 1959 р. [Електронний ресурс]. — Режим доступу : http://zakon.rada.gov.ua/laws/show/995_384.

Children who have reached the age of 15 years can perform “light work” upon consent of their parents, but the law does not provide a clear definition of this term. Children who have reached the age of 14 years can legally perform certain types of work in the framework of vocational training.

All persons under the age of 18 years are employed only after a preliminary medical examination and in the future, before reaching the age of 21 years, they are annually subject to mandatory medical examination. When concluding a labor contract with a minor, all enterprises and organizations exercise the specified reserved quota for employment and vocational training of young people who have completed general education schools and professional educational institutions, as well as other persons under the age of 18 years.

Minors are employed after concluding the labor contract, and not the civil law contract. The labor contract differs from civil contracts by the fact that the employee performs work of a certain kind in accordance with his profession, specialty, position and qualification¹. He performs a certain labor function in the activities of the enterprise, organization or institution and observes the working hours and internal labor regulations. The employer is obliged to provide the employee with work according to his labor function, as well as with working conditions stipulated by the labor legislation and the collective agreement.

In expert practice, there are often cases when a contract is concluded with employees, including minors, but the employee is subordinated to the officials of the enterprise, undertakes to comply with the rules of internal labor regulations and receives a fee not for the work done, but for hours worked. Proceeding from the listed signs, the employee actually performs work under the employment contract concluded orally. The fact that an employment contract is concluded with an employee instead of a labor contract is an indirect indication of the employer's desire to evade responsibility or pay taxes.

It should be noted that the specificity of the labor relations of young people mainly relies on two grounds: the existence of the labor legal personality of young people and the existence of differentiation in the legal regulation of working conditions and its protection. This specificity becomes apparent through the prism of the mechanism of legal regulation of young workers' labor activity. Along with the general laws, which regulate working hours and rest periods of employees, the current labor legislation contains a number of special rules aimed at further reducing the working hours and increasing the rest time for minors in order to create the most favorable working conditions for their physical and mental development as well as to improve the general educational level, which is also advisable to consider as additional measures for protection of young people's labor.

Article 192 of the Labor Code and Art. 11 of the Law of Ukraine “On Labor Protection” prohibit the involvement of persons under the age of 18 years in night and overtime work as well as in work on weekends. Overtime work is al-

¹ See: Про практику розгляду судами трудових спорів : постанова Пленуму Верховного Суду України від 6 листоп. 1992 р. № 9 (зі змінами, унесеними постановами від 1 квіт. 1994 р. № 4, від 26 жовт. 1995 р. № 18, від 25 трав. 1998 р. № 15) [Електронний ресурс]. — Режим доступу : zakon.rada.gov.ua/laws/show/v0009700-92.

so not allowed in the days of classes for young people, who study in general education schools and vocational schools in off-work hours (Art. 220 of the Labor Code). In view of the article content, it is prohibited to involve minors in work at night shifts. Besides, they should not be involved in work at the evening shift, if it ends after 22.00 pm.

Legal measures for the protection of young workers include provisions that prohibit the employment of adolescents in work with harmful and difficult working conditions and underground work, as well as norms that specify the maximum standards for lifting and moving. Thus, in accordance with Art. 190 of the Labor Code, it is prohibited to employ the persons under the age of 18 years in heavy work and work with harmful or dangerous working conditions, as well as in underground work. But, if minors acquire professions related to hard work and work with harmful or dangerous working conditions, they can undergo industrial practice or industrial training at enterprises, institutions, organizations with harmful working conditions, which are certified and comply with regulatory enactments on labor protection¹. This is a legal conflict, because if the legislation of Ukraine contains a list of hard work and work with harmful hazardous working conditions, on which the application of minors' labor is prohibited, then why it is permitted to pass industrial practice or training on these works². In addition, Part 2 of Art. 180 of the Labor Code of Ukraine prohibits the involvement of persons under the age of 18 years in lifting and moving of things, the weight of which exceeds the limits established for them. The limiting standards of lifting and moving the weights by minors are approved by the Order No. 59 of the Ministry of Health of Ukraine dated March 22, 1996³. The Order established that persons under the age of 18 years cannot be assigned to work, which is connected with lifting, restraining or moving the heavy loads.

When getting a job, most minors do not know that they have a special set of rights, and some employers use this fact. Therefore, one of the factors of implementing the occupational safety standards is to inform the persons, who have not reached the legal age, of their rights.

In addition to ignorance of minors and their parents about their rights, the main problem in the use of minors' labor is the implementation of due control by state bodies for illegal employment, because of which the majority of minors remain deprived of rights, and therefore socially unprotected. Therefore, the opportunity to bring the dishonest employers to responsibility for violation

¹ See: Положення про порядок трудового і професійного навчання неповнолітніх професіям, пов'язаним з роботами з шкідливими та важкими умовами праці, а також з роботами підвищеної безпеки : наказ Держ. ком. України по нагляду за охороною праці від 30.12.1996 № 130 // Кодекс законів про працю України з постійними матеріалами / укл.: В. С. Ковальський, Л. П. Ляшко. — К. : Юрінком Інтер, 2004. — Ч. II. — С. 352–359.

² See: Перелік важких робіт і робіт із шкідливими і небезпечними умовами праці, на яких забороняється застосування праці неповнолітніх : наказ М-ва охорони здоров'я України від 31.03.1994 № 46 // Ibid. — С. 280–351.

³ See: Граничні норми підіймання і переміщення важких речей неповнолітніми : наказ М-ва охорони здоров'я України від 22.03.1996 № 59 // Ibid. — С. 359–361.

of labor legislation is possible, as a rule, provided that minors or their parents appeal to law enforcement bodies.

Upon such appeals to law enforcement agencies, the forensic examinations on labor protection and life safety are appointed in the Kharkiv RIFE. The issues, that are put before the experts, more often refer not only to the facts of traumatizing, but also to the working conditions and to the termination of the employment contract with the minor, including the urgent termination, when the continuation of his activity threatens the health of the minor or violates his legitimate interests.

In the expert practice on labor protection and life safety of minors, there are usually cases, when some employers threaten to dismiss or they dismiss the minors without paying wages for the worked time period because of disagreement on working conditions or their changes in the course of the work. Among the performed examinations, were, for example, examinations with the following circumstances of the case.

Parents of the 17-years school girl, who got a job as a cleaner, submit an application to the employer for the dismissal of their daughter due to the fact that the minor has a chronic respiratory disease, and the work she did was connected with the use of disinfectant solutions, which the employer did not indicate when she was employed. Parents demanded the release of their daughter with the payment for actually worked time, because work with the use of disinfectant solutions can lead to an exacerbation of the disease. In such circumstances, the employer is obliged, in accordance with Art. 191 of the Labor Code, to hire a person under the age of 18 years only after the preliminary medical examination and then send this person to undergo mandatory medical examination every year until reaching the age of 21. After the establishment of the fact that work adversely affects the health of a minor, the latter should be immediately released from this work or transferred to an easier one.

Another example. A labor contract concluded with a minor provides for the fulfillment of the obligations to distribute promotional materials. The manager convinces the employee that these obligations also include the advertising products unloading, which occupies a significant part of the working time. In such circumstances, it is prohibited to involve persons under the age of 18 years in lifting and moving things that exceed the marginal norms specified for them. Teenagers cannot be assigned to work connected with lifting, restraining or moving heavy loads. The weight of a single load and the total weight of loads that teenagers should raise and move must not exceed the marginal norms specified in the tables of the Order No. 59 of the Ministry of Health of Ukraine dated March 22, 1996. Moreover, in the event that the labor contract did not provide for the fulfillment of the duties of lifting and moving the weights, the employee has the right to refuse to perform obligations not stipulated by the labor contract.

The examples of examinations from the expert practice show, that some employers neglect their duties in the field of labor protection. According to the current legislation, the enterprises must have healthy and safe working conditions, the provision of which is the duty of the employer, who bears personal responsibility for this in accordance with the requirements of Art. 153 of the

of the Labor Code. Industrial buildings, technological processes must meet the requirements that ensure healthy and safe working conditions in accordance with sanitary and hygienic standards.

The performance of a labor protection audit is introduced by law. If an internal audit conducted by the employer does not meet the established requirements, he must conduct an external audit. Such legislative requirements make it possible to improve the production situation in respect to labor protection issues. The employer must ensure the proper organization of workplaces, create working conditions that do not cause harm to the health of workers and comply with sanitary standards. To carry out nomenclatural sanitary and hygienic measures for labor protection, the employer should allocate funds and necessary material resources. The procedure for using these funds is determined by the collective agreement and is controlled by the labor collective.

The duty of the employer is to provide labor and technological discipline; organize the proper schedule of work and rest; carry out the systematic training of employees, improve their knowledge and skills in the field of labor protection; carry out briefings, advanced training in labor safety, production sanitary, fire safety and other rules. In addition to the stated responsibilities of employers, the state bodies that supervise and monitor compliance with labor legislation, including occupational safety standards, must introduce effective control over the working conditions of teenagers at enterprises of various forms of ownership, especially in rural areas to identify the facts of involving the minors in such working conditions, when work can harm their physical or mental state.

Youth is the future of the state, a vital component of the successful economic development of the society in future, therefore, the protection of minors requires considerable attention on the part of the authorities. The transition to market relations in the sphere of labor and employment under the conditions of economic restructuring led to the emergence of a fundamentally new situation in social and labor relations. This situation was especially difficult for young people, who, due to the specifics of socio-psychological characteristics, were not sufficiently prepared for the current realities of the labor market. It is necessary to develop and implement nation-wide programs that will not focus on the maintenance of bodies that supposedly contribute to the employment of young people, but on creating an employer's interest in hiring such employees. The state and society should not passively expect an independent establishment of the labor market for young people; a scientifically grounded policy is needed for regulating youth employment and achieving its effective level.

ОСОБЛИВОСТІ ЕКСПЕРТНОГО ДОСЛІДЖЕННЯ В ГАЛУЗІ ОХОРОНИ ПРАЦІ ТА БЕЗПЕКИ ЖИТТЄДІЯЛЬНОСТІ НЕПОВНОЛІТНІХ

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Проаналізовано правову основу міжнародних і національних нормативно-правових актів у сфері захисту та дотримання трудових прав неповнолітніх. Визначено проблемні питання при проведенні експертних досліджень у галузі охорони праці та безпеки життєдіяльності неповнолітніх, запропоновано шляхи удосконалення щодо дотримання й захисту трудових прав неповнолітніх.

Ключові слова: неповнолітні, захист трудових прав, охорона праці та безпека життєдіяльності неповнолітніх, контроль.

**ОСОБЕННОСТИ ЭКСПЕРТНОГО ИССЛЕДОВАНИЯ
В ОБЛАСТИ ОХРАНЫ ТРУДА И БЕЗОПАСНОСТИ
ЖИЗНЕДЕЯТЕЛЬНОСТИ НЕСОВЕРШЕННОЛЕТНИХ**

Малиновская Т. Н., Дмитриев В. А.

Проанализировано правовую основу международных и национальных нормативно-правовых актов в сфере защиты и соблюдения трудовых прав несовершеннолетних. Выделены проблемные вопросы при проведении экспертных исследований в области охраны труда и безопасности жизнедеятельности несовершеннолетних, предложены пути усовершенствования по соблюдению и защите трудовых прав несовершеннолетних.

Ключевые слова: несовершеннолетние, защита трудовых прав, охрана труда и безопасность жизнедеятельности несовершеннолетних, контроль.

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**PROBLEMATIC ISSUES OF LAND AND TECHNICAL
EXAMINATION IN DETERMINING BOUNDARIES OF
NEIGHBORING LAND PLOTS**

Consideration is given to the issues on determining the boundaries of neighboring land plots of various forms of ownership and their using by individuals and legal entities within bounds of populated areas in land and technical examinations and expert studies. The paper contains normative and legal acts regulating the issues on determining the boundaries of land plots and their using.

Keywords: land plot, actual boundaries of the land plot, determination of boundaries of land plots, barriers, fences.

Scientific and methodological recommendations on preparing and assigning the forensic examinations and expert studies¹ identify the following main objectives of the land and technical examination:

- determination of actual use of land plots, i. e. physical characteristics of land plots (configuration, area, measurements, etc.);
- determination of the conformity of the actual location of buildings, structures and other objects relative to the boundaries of land plots to their location in the relevant technical documentation;

¹ See: 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 М-ва юстиції України від 8 жовт. 1998 р. № 53/5 (зі змінами та доповн.) [Електронний ресурс]. — Режим доступу : <http://zakon4.rada.gov.ua/laws/show/z0705-98>.

- determination of the compliance of actual land use so far as it relates to violation of boundaries and imposition of land plots with the title documents and land management documentation for these land plots;

- determination of the possibility of distribution (order of using) of land plots, development of options for their distribution (order of using);

- determination of possible options for approaches and driveways to land plots; establishment of a land servitude.

The specified tasks are put before the expert in land technical examinations and expert researches of criminal, civil, economic and administrative cases. At the same time, it is urgent to solve problems related to determining the boundaries of the investigated land plots according to the title documents and their actual boundaries.

In the algorithm for conducting the land and technical examinations and expert researches, the initial task of the expert is to investigate the issue of correspondence between the actual location of the turning points on the external boundaries of the land plot and the data of title documents. In accordance with Art. 79 of the Land Code of Ukraine¹ (hereinafter – LCU), a land plot is a part of the earth surface with established boundaries, definite location, with certain rights related to it. The ownership of a land plot extends within its boundaries to the surface (ground) layer, as well as to water objects, forests and perennial plantations that are arranged on it, unless otherwise provided by law and does not violate the rights of others. The ownership of the land plot is extended to the space above and below the surface of the plot, to the height and depth required for the construction of residential, household and other buildings and structures. According to Art. 79¹, the formation of a land plot means the definition of a land plot as an object of civil rights.

The formation of a land plot provides for the determination of its area, boundaries and the introduction of information about it into the State Land Cadastre; the land plot is considered to be formed from the moment of assigning the cadastral number to it; the land plot may be an object of civil rights exclusively from the moment of its formation (except for cases of sublease, easement with respect to parts of land plots) and state registration of ownership of it; state registration of rights to land plots is carried out after state registration of land plots in the State Land Cadastre. According to Art. 125, the ownership of a land plot, the right of permanent use and the right to lease a land plot arise from the moment of state registration of these rights, which are registered in accordance with the Law of Ukraine “On State Registration of Rights to Immovable Property and their Encumbrances”².

¹ See: Земельний кодекс України : Закон України від 25.10.2001 № 2768-III // Відом. Верхов. Ради України. — 2002. — № 3–4. — Ст. 27 (зі змінами та допов.).

² See: Про державну реєстрацію речових прав на нерухоме майно та їх обтяжень : Закон України від 25 груд. 2015 р. № 1127 (зі змінами та допов.) // Офіц. вісн. України. — 2016. — № 2. — Ст. 108.

According to Art. 1 of the Law of Ukraine “On Land Management”¹, the land survey is a set of works on establishing or restoring in full-scale (on the ground) the boundaries of administrative-territorial units, the boundaries of land plots of landowners, land users, including tenants by marking them with boundary marks of the established standard form; the plan of the land plot is a graphic image that reflects the location, external boundaries of the land plot and boundaries of the lands limited in use or limited (encumbered) by the rights of other persons (land easements), as well as the location of immovable property objects and natural resources on the land plot.

The technical instructions for determining the boundaries of land plots of common and common shared ownership of individuals and legal entities on the built-up territory in populated areas² specify that the border consists of the material ground marks that indicate the boundaries of a land plot or it is a conditional line on the surface that separates two inventoried plots; the establishment of borders is the process of fixing the boundaries of property in a legal document with a coherent and registered exact line of delimitation.

The requirements of Article 1 of the Law of Ukraine “On the State Land Cadastre”³ define that the State Land Cadastre is a unified state geoinformation system of data about lands located within the state boundaries of Ukraine, their purposive appointment, limitations in their using, as well as of data on quantitative and qualitative characteristics of lands, their assessment, the distribution of land between owners and users; the state registration of a land plot is the introduction of information provided in this Law in respect of a land plot formation into the State Land Cadastre and assignment of a cadastral number to it. On January 1, 2013, the automated system “National Cadastral System”⁴ (NCS) was put into effect. To perform Art. 36 of the Law of Ukraine “On the State Land Cadastre”, Goszemagentstvo (State Land Agency) of Ukraine opened free access to the public cadastral map, which contains information on the cadastral number of the land plot, its boundaries, area, form of ownership and purposive appointment in accordance with the classifier.

Thus, in accordance with the normative legal acts of Ukraine in the field of land relations, the boundaries between land plots are the corners of turning points on the border of adjacent inventoried land plots registered in the State Land

¹ See: Про землеустрій : Закон України від 22.05.2003 № 858-IV // Відом. Верхов. Ради України. — 2003. — № 36. — Ст. 282 (зі змінами та допов.).

² See: Технічні вказівки щодо визначення меж земельних ділянок спільної та спільної часткової власності фізичних і юридичних осіб на забудованій території у населених пунктах / Держкомзем України від 18.05.1998 // Землевпорядний вісн. — 1998. — № 3.

³ See: Про Державний земельний кадастр : Закон України від 07.07.2011 №3613-VI // Відом. Верхов. Ради України. — 2012. — № 8. — Ст. 61 (зі змінами та допов.).

⁴ See: Національна кадастрова система [Електронний ресурс]. — Режим доступу : <http://terland.gov.ua/683>.

Cadastral. The data on the registered boundaries of land plots are reflected graphically in the “Public Cadastral Map of Ukraine”¹.

In accordance with Art. 55 of the Law of Ukraine “On Land Management” the establishment of the boundaries of the land plot in full-scale (on the ground) is carried out in accordance with the topographic and geodetic and cartographic materials and is performed on the basis of technical documentation on land management, which determines the location of turning points of land plot boundaries in full-scale (on the ground).

In its turn, according to requirements of item 2.8 of the Instruction on the establishment (restoration) of land plot boundaries in full-scale (on the ground) and their fixing with boundary marks², an act of acceptance and transfer of boundary marks for storage is drawn up. It is included in the land management documentation after completion of works on determining the land plot boundaries in full-scale (on the ground) and fixing them with boundary marks.

In practice, the boundaries between neighboring land plots of settlements, as a rule, are established by barrier-fences of various types and designs, or by other linear structures and walls of houses, household buildings and structures.

Instruction on the procedure for conducting the technical inventory for objects of immovable property³ determines the general characteristics of the household plots including fencing of the plot, palings, walls, etc., which separate one plot from another (from the street, travelway etc.). It should be only on the borders determined by the relevant local government executive bodies.

According to item 3.3 of the Instruction on the establishment (restoration) of the boundaries of land plots in full-scale (on the ground) and their fixing with boundary marks, it is stated that when fixing the land plot boundaries, which coincide with road structures, fences, hedges, facades of buildings and other linear structures, and which pass along the asphalt or concrete surface, the laying of a landmark is carried out to a depth equal to the length of the embedded dowel, so that the upper base with a metal mark remains on the surface.

An analysis of the mentioned sources shows that the exact location of boundaries of the land plot in relation to fences and barriers is not defined in any of the normative acts.

¹ See: Публічна кадастрова карта України [Електронний ресурс]. — Режим доступу : <http://map.land.gov.ua/kadastrova-karta>.

² See: Про затвердження Інструкції про встановлення (відновлення) меж земельних ділянок в натурі (на місцевості) та їх закріплення межовими знаками : наказ Держкомзему України від 18.05.2010 № 376 (зі змінами та доповн.) [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/z0391-10>.

³ See: Про затвердження Інструкції про порядок проведення технічної інвентаризації об'єктів нерухомого майна : наказ Міністерства будівництва, архітектури та житлової політики України від 24.05.2001 № 127 // Офіц. вісн. України. — 2001. — № 28. — Ст. 1290 (зі змінами та допов.).

According to item 3.1 of the Methodology on violations of adjacent land use borders¹, it is stated that when determining the order of land use, the direct measurement of a plot should be taken along centerlines of the fence between the plots as well as along the external side of the fences facing the street, lane and square.

When performing the land-technical examinations and expert studies by practically full-scale surveys of adjacent household boundaries, it is usually determined that the boundaries of the investigated land plots coincide with the fences that are installed by one of the neighbors. Very rarely, we can meet borders established by fences, which were installed by each of the neighbors individually, or by agreement between them. At the same time, the fences are of various designs including combined design, they have different thickness, band or columnar foundations made of different materials: wood, iron, stone and so on.

When analyzing the data of full-scale surveys and geodesic survey of the actual use of adjacent land plots, it turns out that the fences, which separate them, as a rule, are not always located on the land plot of their owner.

It is stated in the technical documentation for items of immovable property, in technical passports and inventory records under examination that each of the fences of adjacent households is usually inventoried, has its own inventory value and is defined as the property of one of neighbors. In accordance with Art. 79 of the Law of Ukraine, immovable property (including barriers, fences, buildings and linear structures, facing of buildings) should be located on the land plot of their owner.

When the land plot boundaries are passing along the walls of houses, household buildings and structures, then due to installation of external heat-insulation of walls and their facing with facade systems, the change of the actual land plot boundary also takes place. It means that the barriers, fences, external insulation of walls and their facing with facade systems of a significant thickness (which are installed along the border of adjacent land plots) can give a deviation of the actual border from the data of title documents, if they are arranged outside over a distance of more than 0.1 m. That exceeds the permissible root-mean-square error of the boundary mark location for cities of regional significance in accordance with item 3.10 of the Instructions on the establishment (restoration) of land plot boundaries in full-scale (on the ground) and on their fixing with landmarks.

Thus, when carrying out examinations on the compliance of the established boundaries of adjacent land plots with the requirements of land legislation, the expert must determine to whom of the neighbors the barriers, fences, buildings and line structures (which define these actual boundaries) belong, and whether there is an increase in thickness of walls of buildings and structures, along which the joint border passes, due to external heat insulation of walls or their facing by facade systems. It is determined by conducting an inquiry of neighbors or by

¹ See: Методика порушення меж суміжного землекористування, реєстраційний код 10.7.02 // Реєстр методик Міністерства юстиції України [Електронний ресурс]. — Режим доступу : <http://tmpse.minjust.gov.ua/>.

drawing up an appropriate application and agreeing this issue with the customer of examination.

It is also necessary to investigate the existence of agreements on the joint installation of immovable property items on the common border or availability of the agreement on the installation of immovable property on another person's land plot. In the absence of such approvals and agreements, the actual boundary of the land plot should be considered the outer planes of buildings (with taking into account the external heat insulation of the walls or their facing by facade systems), as well as the external planes which pass through the most prominent points of the barriers, fences and line structures belonging to the owner of immovable property.

Considering the above, we propose to update the expert methodological base on the violation of boundaries of adjacent land use.

ПРОБЛЕМНІ ПИТАННЯ ЗЕМЕЛЬНО-ТЕХНІЧНОЇ ЕКСПЕРТИЗИ З ВИЗНАЧЕННЯ МЕЖ СУМІЖНИХ ЗЕМЕЛЬНИХ ДІЛЯНОК

Таранець Т. А.

Розглянуто питання визначення меж суміжних земельних ділянок різних форм власності та користування ними фізичними і юридичними особами в межах населених пунктів при проведенні земельно-технічних експертиз та експертних досліджень. Наведено нормативно-правові акти, які регулюють питання встановлення меж земельних ділянок і їх експлуатації.

Ключові слова: земельна ділянка, фактичні межі земельної ділянки, установлення меж земельних ділянок, огорожі, паркани.

ПРОБЛЕМНЫЕ ВОПРОСЫ ЗЕМЕЛЬНО-ТЕХНИЧЕСКОЙ ЭКСПЕРТИЗЫ ПРИ ОПРЕДЕЛЕНИИ ГРАНИЦ СОСЕДНИХ ЗЕМЕЛЬНЫХ УЧАСТКОВ

Таранец Т. А.

Рассмотрен вопрос определения границ соседних земельных участков разных форм собственности и пользования ими физическими и юридическими лицами в пределах населенных пунктов при проведении земельно-технических экспертиз и экспертных исследований. Приведены нормативно-правовые акты, которые регулируют вопросы установления границ земельных участков и их эксплуатации.

Ключевые слова: земельный участок, фактические границы земельного участка, определение границ земельного участка, ограждения, заборы.

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MODEL OF SHOCK WAVE PROPAGATION IN COMMUNICATION PREMISES

The paper offers a physical model of the formation and propagation of a shock wave in the communication premise as in the channel with walls of different rigidity. The authors prove a need for the installation of blast relief panels in communication premises of buildings with increased explosion hazard.

Keywords: physical model, shock wave, communication premise, explosion hazard, easily droppable construction.

When inspecting construction sites affected by accidental explosions, there is often a need to explain the causes of visible damage to building structures. In industrial buildings of categories “A” and “B”, the main attention in their designing is usually paid to the premises with increased explosive and fire hazard. They are equipped with blast relief panels (BRP) which are most often located in window and door openings. In the event of an emergency explosion, a shock wave (SW) destroys the BRP, and the premise overpressure quickly decreases. In such premises, the structures are designed for possible blast effects, while in the communication premises, where after overcoming the BRPs the shock wave spreads and building structures are exposed to its impact, it is difficult to predict what result will be. It means a selectivity of SW destructive effect, since when some building structures are destroyed on the path of its moving, other similar structures remain practically intact. Another important problem is to improve safety in the communication premises, to which the shock wave penetrated and where it is spreading, to reduce overpressure on its front.

An example of communication premises can be corridors, tunnels, which are of considerable length in industrial buildings. The corridor can be thought of as a semi-enclosed space (channel) in which the energy of the shock wave dissipates more slowly than in the large premise or in the open space¹. At the same time, there is an increase of energy losses due to air heating and friction when the shock

¹ See: Селиванов В. В. Ударные и детонационные волны. Методы исследования / В. В. Селиванов, В. С. Соловьев, Н. Н. Сысоев. — М.: Изд-во МГУ, 1990. — 256 с.

wave interacts with the channel walls. The walls of the channel, as reflection surfaces, also influence the process of formation and propagation of the shock wave and have an effect on its intensity. In this sense, it is of interest to study the interaction of walls (partitions) of the corridor with a shock wave to predict the behavior of these building structures during the explosion. The well-known publications give consideration to problems of accounting for the behavior of a shock wave in channels with a variable cross-section, but it is assumed that their walls are equally rigid¹. However, in real construction sites, the corridor walls often differ in design and material.

This paper is devoted to the formulation of recommendations on safety improving for building structures of communication premises in buildings with increased explosive danger on the basis of forming a physical model of formation and propagation of a shock wave in the channel with walls of different rigidity, i.e., when one of the walls is noticeably deformed in comparison with the other.

To demonstrate the formation and propagation of a shock wave in a channel with rigid walls, the model shown in Figure (a) is used. After the explosion, a curvilinear surface of the shock wave front is formed at the beginning of the channel. The incident shock wave (ISW) propagates in undisturbed air medium, while the reflected shock waves (RSWs) propagate in the medium compressed and heated by the propagated ISW. Under these conditions, the reflected shock waves have higher velocities than the incident shock wave, and they are able to catch and merge with it. The region, where the reflected shock waves merge with the incident shock wave is called the “triple point”. In the described process, the triple points, arising at the channel surface, move to its center; consequently, a full merging of the reflected shock waves with the incident shock wave occurs, and a head shock wave (HSW) with a flat front is formed. The dynamic pressure at the HSW front greatly exceeds the pressure at the fronts of the reflected and incident shock waves. Formation of the HSW flat front takes place in the zone of 4–8 typical dimensions of the channel section.

There are empirical relationships for the characteristics of the head shock wave in a channel with rigid walls²:

$$\Delta p = \left(a \frac{fm}{xS} + b \sqrt{\frac{fm}{xS}} \right) e^{-\beta x}; \quad (1)$$

$$I = c \frac{fm}{S} e^{-\frac{\beta x}{2d}}; \quad (2)$$

¹ See: *Шевляков А. Г. Расчет составной строительной конструкции на динамическую нагрузку, создаваемую плоской волной давления* / А. Г. Шевляков // *Архитектура оболочек и прочностной расчет тонкостенных строительных и машиностроительных конструкций сложной формы* : тез. докл. Междунар. науч. конф. — М. : Изд-во РУДН, 2001. — С. 81–82.

² See: *Взрывные явления: оценка и последствия* : в 2-х кн. : пер. с англ. / [У. Бейкер, П. Кокс, П. Уэстрайн и др.] ; под ред. Я. Б. Зельдовича, Б. Е. Гельфанда. — М. : Мир, 1986. — Кн. 1. — 319 с.

$$\tau = q \frac{x}{c_0} \sqrt[6]{\frac{fm}{xS}}, \quad (3)$$

where Δp – overpressure, MPa; I – specific impulse, Pa·s; τ – compression phase time, s; a, b, c, q – empirical coefficients; f – coefficient of effectiveness of the explosive substance in comparison with trotyl; m – explosive substance mass, kg; x – SW traveled distance, m; S – cross-sectional area of channel, m²; β – reduced coefficient of aerodynamic resistance of channel; d – reduced width of channel, m; c_0 – sound speed, m/s.

During the SW propagation, channel walls are subjected to a load characterized by the reduced pressure $\bar{p}$

$$\bar{p} = \frac{pF\sqrt{E}}{A\sqrt{R^3}} \quad (4)$$

and reduced impulse $\bar{I}$

$$\bar{I} = \frac{Ih\sqrt{E}}{AR\sqrt{\rho}}, \quad (5)$$

where F – SW impact area, m²; E – modulus of wall material elasticity, MPa; h – wall thickness, m; A – cross-sectional area of wall, m²; R – ultimate strength of wall material, MPa; ρ – wall material density, N/m².

Analysis of given formulas shows that if the opposite walls are structurally different and consist of different materials, but their relative deformation under the SW impact is small ($R_2 \approx R_1$; $E_2 \approx E_1$), then the SW propagation occurs in the channel according to the mechanism shown in (Fig. a).

If however one of the walls of the channel is movable and/or easily deformable ($R_2 < R_1$; $E_2 < E_1$), then the reduced impulse acting on it decreases. Consequently, the RSW velocity decreases, the formation zone of the HSW flat front increases, while the SW front as if turns to the side of the non-rigid wall (Fig. b). The pressure on this wall becomes greater, which can lead to its destruction. At the same time, the geometry of the HSW flat front is also violated, and to form a new flat front of the HSW, a zone with a length of 4–8 typical dimensions of channel section is required. It is also necessary to take into account that additional energy is expended to destruct the wall and to form a new flat front of the head shock wave. The degree of SW attenuation depends on the value of wall damage, i.e., the ratio of the area of wall fracture to the area of channel section.

The model considered explains the behavior of building structures in the lengthy communication premises at SW impact on them. If in the corridor, one wall is formed by a capital wall and the other by a partition with considerably smaller rigidity, then during the SW propagation along the length of the corridor, the partition breaks down fragmentarily along zones of the possible formation of a flat front of the HSW. Moreover, the destroyed part of the partition can be followed by the part with minimal damage.

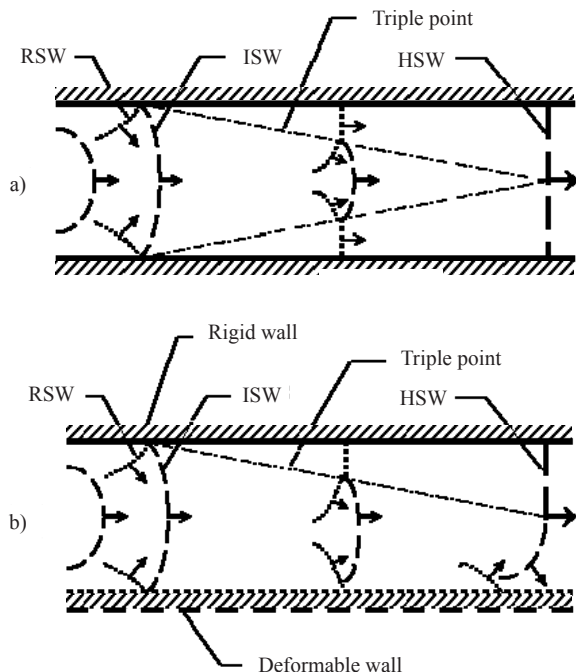


Figure. Model of formation and propagation of SW in the channel:
a) with rigid walls; b) with rigid wall and deformable wall

The proposed model allows to substantiate the method of safety improving in communication premises of buildings with increased explosion hazard. For this purpose, it is necessary to make provision for blast relief panels (easily removable structures) in the form of inserts (partitions) covering the expanders to arrange them along the communication premise with an interval 4–8 size of the width of this premise. Such arrangement in the communication premises will prevent the HSW formation; facilitate the overpressure decrease at the front of the shock wave and its damping.

The proposed physical model of the formation and propagation of SW in the channel with walls of different rigidity can be used to explain the varying degree of damage to building structures in communication premises during explosions. This model can also be used to develop an algorithm for the numerical calculation of SW propagation in the channel with walls of different rigidity.

The presented model shows that to improve safety in communication premises of construction sites, in which there is a possibility of emergency internal explosions, it is necessary to provide for the blast relief panels. The blast relief panels should be arranged along the communication premise with an interval 4–8 size of the width of this premise.

МОДЕЛЬ ПОШИРЕННЯ УДАРНОЇ ХВИЛІ В КОМУНІКАЦІЙНИХ ПРИМІЩЕННЯХ

Васильченко О. В., Рябінін І. М., Сирых В. М.

Запропоновано фізичну модель утворення й поширення ударної хвилі в комунікаційному приміщенні як у каналі зі стінками різної жорсткості. Обґрунтовано необхідність улаштування легкоскладаних конструкцій у комунікаційних приміщеннях будівель із підвищеною вибухонебезпекою.

Ключові слова: фізична модель, ударна хвиля, комунікаційне приміщення, вибухонебезпека, легкоскладана конструкція.

МОДЕЛЬ РАСПРОСТРАНЕНИЯ УДАРНОЙ ВОЛНЫ В КОММУНИКАЦИОННЫХ ПОМЕЩЕНИЯХ

Васильченко А. В., Рябинин И. Н., Сых В. Н.

Предложена физическая модель образования и распространения ударной волны в коммуникационном помещении, как в канале со стенками разной жесткости. Обоснована необходимость устройства легкобрасываемых конструкций в коммуникационных помещениях зданий с повышенной взрывоопасностью.

Ключевые слова: физическая модель, ударная волна, коммуникационное помещение, взрывоопасность, легкобрасываемая конструкция.

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HAZARD ANALYSIS FOR EXPLOSION OF THE METHANE CYLINDER

Consideration is given to specifics of the explosion of 50 and 80-liter methane cylinders at various operating temperatures. The authors calculated the following parameters of methane-air mixture: radius of the fireball, speed of its spread and amount of the released heat energy. The paper analyzes the fire hazard in the event of damage to methane cylinders of vehicles.

Keywords: methane, cylinder, methane-air mixture, explosion.

In recent years, there has been a significant increase in the use of methane gas cylinders for gas fuel systems of vehicles. Methane is used as an alternative fuel for cars due to cheapness and stable quality characteristics. It is stored in compressed form in the metal, metal-plastic or composite cylinders with a volume of 25 to 80 liters.

During intensive and long-term use, the cylinders can be damaged due to corrosion and mechanical influences, as well as due to a weakened control of their condition during operation. This can cause the explosion of cylinders and the occurrence of a fire.

The experience of using the gas cylinders with compressed methane in automobile transport shows that the most dangerous operation is filling the cylinders with gas at the gas filling station¹. It was at this moment that explosions of the methane-air mixture were fixed, followed by fire damage to equipment and building structures just at that moment the methane-air mixture explosions were fixed with subsequent fire damage to equipment and building structures (see Figure).

Due to the fact that it is not always possible to determine the cylinder condition reliably, the assessment of the hazard at explosion of a methane cylinder in the gas-fuel system of vehicles becomes an actual problem in terms of shock wave occurrence and creation of conditions for fire development.

S. I. Taubkin devoted his monograph² to forecasting and investigating the consequences of emergency explosions, which occur in case of gas-air mixture ignition at the places of production. At that, the expected character and level of destruction of building structures and buildings (facilities) are considered as the main aspects of emergency explosion consequences. Along with other issues, this work examines the specifics of using the methane cylinders on motor vehicles and the basic requirements for their safe using.



Figure. Damage to vehicles and building structures as a result of methane-air mixture explosion at the multifuel filling station

¹ See: Газобаллонные автомобили : справочник / [А. И. Морев, В. И. Ерохов, Б. А. Бекетов и др.]. — М. : Транспорт, 1992. — 175 с.

² See: Таубкин С. И. Пожар и взрыв, особенности их экспертизы / С. И. Таубкин. — М. : ВНИИПО МВД России, 1999. — 600 с.

To determine the safety requirements for possible explosions of compressed methane cylinders installed on the vehicles, it is necessary to clarify the expected scale of damage to structures and equipment.

The aim of the paper is to analyze the danger of a shock wave occurrence and the probability of ignition of substances and building materials after the methane cylinder explodes in the gas-fuel system of vehicle.

The explosion of the pressurized methane cylinder refers to the combined explosions accompanied by energy release upon the sequential development of physical and chemical explosions. Their action is fully or partially summarized. In this case, the physical processes of the cylinder body destruction and energy release are accompanied by releasing the gas into the surrounding space with the formation of a methane-air cloud (fireball), which quickly burns out. The temperature in zones of these phenomena exceeds the ignition temperature of almost all combustible substances.

The formation and rapid burning of a methane-air cloud is typical for the deflagration process, which is characterized by a low generation of a pressure wave. As noted in the work of S.I. Taubkin, at a flame propagation velocity of less than 45 m/s, a shock wave does not arise at all.

In order to identify the fire danger of the methane-air cloud burning, it is necessary to compare such parameters as the amount of released energy, cloud extent radius and fireball radius with the fire hazard indices of substances and materials that make up the fire load of vehicles and surrounding building structures.

To calculate these combustion parameters of a methane-air cloud, the methods used in previously published papers¹ were generalized.

First, we determine the amount m_g of methane, which went out when the cylinder was destroyed, by formula

$$m_g = V_g \cdot \rho_g, \quad (1)$$

where V_g and ρ_g – are the volume and density respectively of methane gas entered the environment after the cylinder destruction at a known ambient temperature. Now we can calculate the mass low concentration limit of methane flame propagation (ϕ_{lm}), kg/m³:

$$\phi_{lm} = \phi_{lv} \frac{M}{100 \cdot V_t}, \quad (2)$$

where ϕ_{lv} – the volume low concentration limit of flame propagation along the methane-air mixture, $\phi_{lv} = 5,28 \%$; M – molar mass of methane $M = 16,04$ kg/kmol; V_t – volume that takes a mole of methane gas at temperature t , °C.

The total amount of energy released during methane combustion due to cylinder destruction (Q_{sum} , MJ) is equal to:

¹ See: *Тaubкин С. И.* Указ. работа; *Тарахно О. В.* Теоретичні основи пожежовибухонебезпеки : підручник / О. В. Тарахно. — Х. : АЦЗУ, 2006. — 395 с.; *Тарахно О. В.* Проблемні питання дослідження вибухів газоповітряних сумішей при проведенні пожежно-технічних експертиз / О. В. Тарахно, В. М. Сирих, Р. В. Тарахно // Проблеми пожежної безпеки. — Х. : УГЗУ, 2009. — Вып. 25. — С. 175–180.

$$Q_{sum} = m_g \cdot Q_{lm}, \quad (3)$$

where Q_{lm} – mass lower heat value of methane, MJ/kg.

Radius of the zone formed at leakage of methane from the destroyed cylinder (R_{gz} , m) is equal to:

$$R_{gz} = 14,56 \left(\frac{m_g}{\rho_g \cdot \phi_{lv}} \right)^{0,33}, \quad (4)$$

where ρ_g – density of methane gas at temperature t °C, kg/m³.

Fireball radius (R_{fs}), m:

$$R_{fs} = 2,66 \cdot m_g^{0,327}. \quad (5)$$

Fireball lifetime (τ_{fs}):

$$\tau_{fs} = 0,92 \cdot m_g^{0,303}. \quad (6)$$

Table 1 gives the results of calculating the deflagration explosion parameters upon destruction of 50 and 80-liter cylinders with compressed methane at different temperatures. The working pressure of methane in the vessel is 200 kgf/cm².

According to the reference data¹, methane gas has the following characteristics: maximum flame temperature at combustion of methane – 1957 °C; normal velocity of flame propagation along the methane-air mixture – 0.34 m/s; self-ignition temperature – 537 °C; maximum explosion pressure – 706 kPa; maximum rate of pressure rise – 18 MPa/s; combustion heat – 49.8 MJ/kg, minimum ignition energy – 0.28 mJ.

Table 1

**Parameters of deflagration explosion
upon destruction of 50 and 80-liter cylinders
with compressed methane at different operating temperatures**

Designation	50-liter cylinder			80-liter cylinder		
	20 °C	0 °C	–20 °C	20 °C	0 °C	–20 °C
Amount of energy (Q_{sum}), released during methane combustion, MJ	415	463	543	664	741	879
Radius of zone (R_{gz}), formed at methane leakage, m	19,35	19,59	20,22	22,60	22,89	23,62

¹ See: Пожаровзрывоопасность веществ и материалов и средств их тушения : справочное изд. : в 2-х кн. / [А. Н. Баратов, А. Я. Корольченко, Г. Н. Кравчук и др.]. — М. : Химия, 1990. — Кн. 1. — 496 с. — Кн. 2. — 384 с.

End of table 1

Designation	50-liter cylinder			80-liter cylinder		
	20 °C	0 °C	−20 °C	20 °C	0 °C	−20 °C
Fireball radius (R_{β}), m	5,32	5,515	5,81	6,21	6,43	6,80
Fireball lifetime (τ_{β}), s	1,75	1,81	1,9	2,02	2,09	2,20

The results of calculating the parameters of the fireball impact, which originates during the combustion of the methane-air mixture, show the following. A fireball with a radius of 5.32–6.80 m at temperature of up to 1957 °C (maximum combustion temperature of methane) originates and comes in direct contact with building structures and equipment (propagation velocity is up to 3 m/s) during 1.75–2.20 s.

Table 2 gives fire hazard indices of some substances and materials, which make up the fire load of vehicles and building structures.

Table 2

**Fire hazard indices of substances and materials,
which make up the fire load of vehicles and building structures**

Material	Ignition temperature, °C	Self-ignition temperature, °C	Minimum ignition energy, $E_{\min}$, mJ
Paint-and-lacquer coating	250	400	—
Glass fiber plastic	250	480	—
Synthetic rubber (tires)	220	400	50
Polyurethane foam	440	480	20
Polyurethane in articles	310	420	630
Oils	150	350	—

When comparing the fire hazard indices of methane gas and the components of the fire load of vehicles and building structures, it can be noted that the heat energy released during the combustion of the methane-air mixture is sufficient to ignite the substances and building materials available on the vehicle at the time of the explosion.

A dangerous increase in temperature in regard to fire hazard is observed at impacts of solid bodies during their mutual displacement. At explosive destruction of a steel cylinder, there is a possibility of strong impacts of solid bodies on it. It can cause the formation of sparks in the form of glowing pieces of metal or stone. The temperature of metal sparks is within the limits of their melting points, about

1500 °C. As already noted, the methane self-ignition temperature is equal to $T_{\text{св}} = 537$ °C. Thus, in case of steel cylinder destruction, the originated sparks can become a source of methane-air cloud ignition.

Based on the above, the following conclusion can be drawn: when a steel cylinder with compressed methane is destroyed, both a methane-air cloud with a radius of up to 23.6 m and sparks are formed. It can cause a deflagration explosion with occurrence of a fireball of up to 6.8 m in radius. Due to the relatively low velocity of a fireball (up to 3 m/s), a shock wave does not occur, but the amount of heat energy released during the combustion of methane-air mixture is sufficient to ignite substances and building materials available in the zone of its impact at the time of explosion.

The revealed specifics of the explosion dynamics of compressed methane cylinders should be taken into account in the system for ensuring fire and technogenic safety of the facilities on which they are used.

АНАЛІЗ НЕБЕЗПЕКИ ПРИ ВИБУХУ МЕТАНОВОГО БАЛОНА

Сирих В. М., Васильченко О. В.

Розглянуто особливості вибуху 50-ти і 80-літрових метанових балонів при різних експлуатаційних температурах. Розраховано параметри вибухів метаноповітряної суміші: радіус вогненої кулі, швидкість її поширення, кількість теплової енергії, що виділилася. Проаналізовано пожежну небезпеку при пошкодженні метанових балонів автотранспортних засобів.

Ключові слова: метан, балон, метаноповітряна суміш, вибух.

АНАЛИЗ ОПАСНОСТИ ПРИ ВЗРЫВЕ МЕТАНОВОГО БАЛЛОНА

Сырых В. Н., Васильченко А. В.

Рассмотрены особенности взрыва 50-ти и 80-литровых метановых баллонов при различных эксплуатационных температурах. Рассчитаны параметры взрывов метановоздушной смеси: радиус огненного шара, скорость его распространения, количество выделившейся тепловой энергии. Проанализирована пожарная опасность при повреждении метановых баллонов автотранспортных средств.

Ключевые слова: метан, баллон, метановоздушная смесь, взрыв.

UDC 343.98

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FEATURES OF FORENSIC EXPERT RESEARCH OF STANDARDS EXCEEDINGS FOR MAXIMUM PERMISSIBLE EMISSIONS OF POLLUTANTS

The paper considers methodological approaches to the execution of the forensic engineering and environmental examination in the research of the excess of standards

for maximum permissible emissions of pollutants from stationary sources at the enterprise to confirm the correctness of characteristics and output data used for calculating the size (value) of compensation for losses caused to the state.

Keywords: forensic engineering and environmental examination, environmental legislation, maximum permissible emissions, pollutants, compensation of damage.

Pollution of atmospheric air, especially in large cities, is one of the most serious environmental problems in modern Ukraine, and one of the reasons for this pollution is the failure to comply with environmental standards in the field of atmospheric air protection. Against the backdrop of insufficient environmental and legal literacy of not only enterprise employees, but sometimes even of inspectors of the State Ecological Inspectorate of Ukraine (hereinafter referred to as SEI), the issues of ecological balance support and environmental safety of sustainable society development are relevant, since this is an important task of the state. The forensic engineering and environmental examination (FEEE) is one of the tools to accomplish this task.

Laws of Ukraine “On Environmental Protection” and “On the Protection of Atmospheric Air” are the main legal documents in the field of atmospheric air protection.

The subject of FEEE are the actual data and circumstances about exceeding the maximum permissible emission (MPE) standards for pollutants from stationary sources in the enterprise.

The tasks of FEEE are aimed at establishing the actual data and the circumstances of exceeding the MPE standards of pollutants from stationary sources in the enterprise by examining the objects with the aid of appropriate methods.

FEEE objects are material and materialized carriers of information that are examined by experts with the purpose of establishing factual data and circumstances of the case, which relate to the subject matter of the examination.

The object of the research, when MPE standards are exceeded, are documented materials that contain actual data on the functioning of emission sources, the presence of pollutants and the violation of MPE standards of pollutants from stationary sources.

The objects of research are the following:

- SEI inspection act (with annexes) for compliance with the requirements of environmental legislation in the field of protection of atmospheric air, water and land resources upon management of waste and hazardous chemicals;
- order to eliminate the identified violations;
- petition for issuing, suspending or canceling a permit for emissions of pollutants;
- claim (with annexes) for payment of damage caused;
- protocol on administrative violation;
- calculation (with annexes) of damage caused to the state as a result of excessive pollutant emissions into the air;
- statement of claim to the court for the enforcement of damages (in accordance with procedural requirements);

- acts of sampling the pollutants from the organized stationary sources of atmospheric air pollution;
- protocols for measuring the content of pollutants in the organized emissions of stationary sources of atmospheric air pollution;
- permit for emissions;
- documents, which justify the amount of emissions into the atmosphere by stationary sources;
- report on the inventory of pollutant emissions into the atmosphere from stationary sources;
- reports on the control of MPE standards;
- certificates of dust and gas catchers;
- performance charts of fuel-using equipment;
- the order of the company to appoint a person in charge in the field of atmospheric air protection at the enterprise;
- project documentation with section “EIA” and a positive conclusion of the state ecological examination on it;
- agreements on the transfer of buildings and facilities to other enterprises, organizations, institutions;
- acts of commissioning of facilities (subdivisions);
- state statistical reporting under form No. 2-TP (air);
- primary accounting documentation in the field of atmospheric air protection in the form of POD-1, POD-2, POD-3;
- attestation documentation of the measuring laboratory for the right to carry out chemical-analytical measurements (according to the requirements of the State Standard of Ukraine).

It should be noted that in Ukraine there is a control system in the field of atmospheric air protection, in which the control function is performed by the SEI, which exercises control, counts damages for violations in the field of atmospheric air protection, makes claims, transmits materials relating to violations of environmental legislation to law enforcement agencies and acts as a plaintiff in courts.

The main objective of FEEE is to confirm the fact that the state has suffered losses due to excessive pollutant emissions into the air, as determined by the SEI bodies and recorded in the documentation of checks for the correctness of the excessive emissions amount determined by these bodies and calculated by the Methodology for calculating the amount of compensation for damage caused to the state as a result of excessive emissions of pollutants into the atmospheric air¹ (hereinafter – Methodology No. 639).

The forensic engineering and environmental examination is appointed when the law enforcement bodies investigate violations of the atmospheric air protection rules; in lawsuits on financial claims of SEI bodies on compensation of losses caused by excessive pollutant emissions into the air by stationary sour-

¹ See: Про затвердження Методики розрахунку розмірів відшкодування збитків, які заподіяні державі в результаті наднормативних викидів забруднюючих речовин в атмосферне повітря : наказ М-ва охорони навколишнього природного середовища України 10.12.2008 № 639 [Електронний ресурс]. — Режим доступу : <http://zakon5.rada.gov.ua/laws/show/z0048-09>.

sources; in court cases on the contents and conclusions of the documents compiled by the SEI bodies on the results of their state inspections (control).

Ideally, SEI's findings should completely coincide with the results of FEEE, but practice shows that the conclusions and calculations of SEI by no means always be found to conform to the current legislation.

The conclusion of FEEE is based on objective data obtained with the help of scientific methods using the capabilities of the technical and natural sciences; makes it possible to establish factual data of evidentiary value, which were unknown to the investigator and the court prior to the examination, that is, it establishes new facts, restores events related to the past; can be used to verify and evaluate the majority of evidence, factual data established from the testimony of witnesses, victims, suspects, accused, material evidence and documents; allows to establish factual data relating to all parties of the legally defined crime. During execution of the FEEE, the expert research should be conducted in a certain sequence according to the expert methodology and by the following algorithm:

- research for the conformity of the pollutants nomenclature in the damage calculations to the emission inventory materials and to permits (if any) for emissions or to actual emissions in accordance with the methodologies (in the absence of inventory materials);

- determination of the causes, conditions and circumstances of excessive pollutant emissions into the air by stationary sources;

- determination, whether the entity's documentation (primarily, the materials of emission inventory) and the documentation of the SEI body (which exercises its control), conforms to the established requirements;

- determination, whether the mass of excessive pollutant emissions into the air by stationary sources, conforms to the established requirements;

- confirmation of the correctness of the number of emission sources and hours of their operation in the calculation of losses actual data;

- determination of the time interval of excessive pollutant emissions into the air by stationary sources.

Let us consider in more detail the essence of these components of the research algorithm.

A pollutant is a substance of chemical or biological origin that is present or enters the atmosphere and can directly or indirectly affect human health and the environment. A set of scientific names of such substances, which are present or enter the atmosphere as a result of the enterprise activities, forms a nomenclature of pollutants that must be taken into consideration as discarded by this enterprise.

The nomenclature of polluting substances according to which a damage is computed should coincide with the nomenclature of pollutants that were excessively discarded by the enterprise in the air.

Excessive pollutant emissions into the air are the following:

- pollutant emissions exceeding the approved MPE established by a permit for the emission of pollutants into the air by stationary sources;

- pollutant emissions for which there is no permit for the release of pollutants into the air by stationary sources, including individual pollutants, which emissions are subject to regulation in accordance with the law;

- emissions carried out with exceeding the technological standards approved in accordance with legislation for permissible emissions of pollutants from equipment;

- volley emissions of pollutants into the air, which are quantitatively and qualitatively provided by technological regulations of production and exceed three times the MPE standard in accordance with the legislation;

- volley emissions of pollutants not provided by technological regulations of productions;

- emergency emissions.

The fact of excessive pollutant emissions into the ambient air should be established by SEI inspectors when checking the business entities by instrumental laboratory methods of verification and calculation methods.

Usually, when conducting the FEEE in cases related to exceeding the MPE standards, it is necessary to determine the circumstances of the event, its separate fragment, what its mechanism is.

The methodological basis of this research is a situational analysis of the mechanism of the event, the essence of which is to consider it as a set of trace situations that come successively. The mediated objects of situational research are people's actions connected with the use of mechanisms, instruments and tools that are directly involved in the formation of the trace, and therefore, together with the reflections that they form, are the direct objects of expert research¹. During the research, the forensic expert examines the functioning process of the production system where the event occurred, including the occurrence of the excess of the MPE standard, determines the interrelationship of various circumstances, investigates the factors causing this state and identifies the unsuitable actions of the employees of the enterprise, as a result of which these circumstances arose. Therefore, the FEEE methodology should be based on an integrated approach based on system-structural and engineering analyses.

The main causes of excessive pollutant emissions into the air by stationary sources at the enterprise may be the following:

- absence or expiry of the permit for emissions;

- technical malfunction of equipment, which resulted in excess of actual emissions over emissions established by MPE standards;

- errors in the inventory of emissions, resulting in underestimated levels of the emission;

- failure to meet the planned measures to reduce emissions of pollutants in the time limits set in the permit for emissions;

- neglect of volley emissions in the production process regulations, or their incorrect accounting, and accordingly, errors in the emission permit;

- a technogenic accident.

The conditions and circumstances of excessive pollutant emissions in each case can vary significantly, so the paper pays attention to other factors.

¹ See: *Майорова Е. И.* Некоторые теоретические вопросы судебно-экологической экспертизы / *Е. И. Майорова* // *Теория и практика судебной экспертизы*. — 2007. — Вып. 2(6). — С. 15–22.

When checking the documentation of the company, special attention should be paid to the correctness of determining the compliance of the emission inventory report with the established requirements – sometimes there is a situation, when an enterprise receives a permit, but later on, it is credited with losses for emissions, which are generally absent in its production activities.

When verifying the SEI documentation, attention should be paid to the compliance of the inspection certificate and other documents (the direction for verification, order, claim) drawn up by the SEI to the requirements of the order of the Ministry of Natural Resources of Ukraine of 10.09.2008 No. 464¹.

Further, it is necessary to determine the conformity of the SEI determination of the mass and quantity of pollutants to the requirements of Methodology No. 639. Calculation of the mass of excessive pollutant emissions is carried out according to sub-items 3.1–3.8 of this Methodology.

The calculations are carried out separately for the following:

- pollutant emission sources assigned to major emission sources (requiring the introduction of the best available technologies);
- pollutant emission sources assigned to other sources as well as to such sources for which MPE standards are not established in accordance with the legislation;
- sources of pollutant emissions from fuel-using equipment (in combustion products);
- emission sources in case of exceeding the technological standards for permissible pollutant emissions from equipment;
- in the absence of information about parameters of emission sources and/or sources of pollutant origin in the relevant documentation of the economic entity;
- in case of failure to implement planned measures to reduce pollutant emissions within the time limits set in the pollutant release permit;
- emergency emissions;
- unauthorized burning of wastes of various origin, stubble residues and other vegetation, and so on.

It should be noted that when the SEI determines the excessive emissions of pollutants into the air by instrumental laboratory control methods, it uses the results of measurements of such laboratories that certified for the right to conduct appropriate measurements.

The data of such measurements should be recorded in the journals of the primary accounting records, in the labor logs of laboratories or in reports on instrumental-laboratory measurements. The results of measurements of the mass concentration of pollutants in emissions of stationary sources are reduced to normal conditions (273 K, 101.3 kPa) and to the standard oxygen content.

When checking the calculation of the mass of excess emissions, attention should be paid to the determination of the time interval for excessive pollutant emissions into the atmospheric air.

¹ See: Про затвердження Порядку організації та проведення перевірок суб'єктів господарювання щодо дотримання вимог природоохоронного законодавства : наказ Мінприроди України від 10.09.2008 № 464 [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/z0018-09>.

The number of emission sources and their operating hours shall be checked for compliance with the actual data provided by the enterprise. The operating time should be determined by taking into account the interval of excessive pollutant emissions into the air by stationary sources. If the enterprise data and SEI data are different, the inspection must give a well-grounded documentary proof of the data used in the calculations of losses. In all cases of calculating the mass of the emission, the latter depends on the time of source operation in the excessive emission mode. According to item 3.11 of Methodology No. 639, the time of source operation in the excessive emission mode is determined from the moment of the violation detection to the moment of its elimination, taking into account the actually operated time.

When determining the time interval for excessive pollutant emissions into the atmosphere, it should be noted that in accordance with Part 4 of Art. 68 of the Law of Ukraine “On Environmental Protection”, the enterprises, institutions, organizations and citizens are obliged to reimburse the harm caused by them as a result of violation of the legislation on environmental protection in the manner and in the amounts established by the legislation of Ukraine, while according to Art. 69 of this Law, the harm caused as a result of violation of environmental legislation is compensable in full.

Also Art. 34 of the Law of Ukraine “On the Protection of Atmospheric Air” provides that the damage caused by violation of the legislation on the protection of atmospheric air is subject to reimbursement in the manner and in the amounts established by law. It follows from the content of the norms of Methodology No. 639 and the given norms of Environmental Legislation that item 3.11 of Methodology No. 639 defines the time of offense commencement revealed by the audit but not the moment from which the losses are charged.

So, the damage caused to the state as a result of the violation of the law on the protection of atmospheric air is subject to reimbursement for the entire time of operation of stationary sources of pollutant emissions into the atmospheric air in the absence of an appropriate permit, i. e. from the moment of the termination of the emission permit until the issuance of a new emission permit, and the reference to item 3.11 of Methodology No. 639 as a basis for determining the time of operation of the source of emissions from the moment of violation detection by the SEI check is false¹.

Thus, during FEEE implementation, the research of exceeding the MPE standards for pollutants from stationary sources require consideration of these recommendations and further refinement of Methodology No. 639.

¹ See: Про деякі питання практики застосування господарськими судами законодавства у справах, в яких заявлено вимоги про відшкодування збитків (за матеріалами справ, розглянутих у касаційному порядку Вищим господарським судом України) : оглядовий лист ВГСУ від 14.01.2014 № 01-06/20/2014 [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws/show/v0020600-14>.

**ОСОБЛИВОСТІ СУДОВО-ЕКСПЕРТНОГО ДОСЛІДЖЕННЯ
ПЕРЕВИЩЕНЬ НОРМАТИВІВ ГРАНИЧНОДОПУСТИМИХ
ВИКИДІВ ЗАБРУДНЮЮЧИХ РЕЧОВИН**

Сабадаш В. В.

Розглянуто методичні підходи до проведення судової інженерно-екологічної експертизи при дослідженні перевищень нормативів граничнодопустимих викидів забруднюючих речовин зі стаціонарних джерел на підприємстві для підтвердження факту правильності їх характеристик і вихідних даних, прийнятих для розрахунку розмірів (величини) відшкодування збитків, заподіяних державі.

Ключові слова: судова інженерно-екологічна експертиза, природоохоронне законодавство, граничнодопустимі викиди, забруднюючі речовини, відшкодування збитків.

**ОСОБЕННОСТИ СУДЕБНО-ЭКСПЕРТНОГО ИССЛЕДОВАНИЯ
ПРЕВЫШЕНИЙ НОРМАТИВОВ ПРЕДЕЛЬНО ДОПУСТИМЫХ
ВЫБРОСОВ ЗАГРЯЗНЯЮЩИХ ВЕЩЕСТВ**

Сабадаш В. В.

Рассмотрены методические подходы к проведению судебной инженерно-экологической экспертизы при исследовании превышений нормативов предельно допустимых выбросов загрязняющих веществ из стационарных источников на предприятии для подтверждения факта правильности их характеристик и исходных данных, принятых для расчета размеров (величины) возмещения убытков, причиненных государству.

Ключевые слова: судебная инженерно-экологическая экспертиза, природоохранное законодательство, предельно допустимые выбросы, загрязняющие вещества, возмещение ущерба.

FORENSIC ECONOMIC AND MERCHANDISE EXPERTISE

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PROBLEMATIC ISSUES ON FORENSIC ECONOMIC EXAMINATION QUALITY

The author applies an informational approach to the definition of forensic economic examination quality. He offers a number of quality criteria for the examination, reveals their content and highlights the quality assurance mechanism for the examination.

Keywords: informational approach, examination quality, quality criteria for the examination, quality assurance mechanism.

During the execution of forensic economic examination, the expert-economist collects additional information about the object of examination by drawing up an application, processing and synthesizing (transforming) it into information of interest to the body that ordered the examination, and which has the force of the source of evidence.

So, during the execution of forensic economic examination, the expert deals with information in the following operations: collection of additional materials; processing; synthesis; creation of new information (expert economic information)¹.

In the opinion of R. S. Belkin, "the general definition of information can have only epistemological or science-research nature. Any other definition must reflect the functional purpose of the information"². R. S. Belkin and A. I. Vinberg affirm that "information always exists not at all, but for someone, and per se, it arises only with the appearance of its consumer"³.

So, based on this, we believe that the expert economic information can be understood as the result of knowing the content of the documents under study

¹ See: *Хомутенко О. В.* Застосування інформаційного підходу до вивчення судової економічної експертизи як процесу взаємопов'язаних операцій з інформацією // *Теорія та практика судової експертизи і криміналістики* : зб. наук. пр. — Х. : Право, 2009. — Вип. 9. — С. 469–470.

² See: *Белкин Р. С.* Курс криминалистики : в 3 т. Т. 1. Общая теория криминалистики / Р. С. Белкин. — М. : Юрист, 1997. — С. 270.

³ See: *Белкин Р. С.* Криминалистика и доказывание / Р. С. Белкин, А. И. Винберг. — М. : Юрид. лит., 1969. — С. 240.

within the scope of the expert examination with a view to justify the conclusions of the forensic economic examination¹.

Expert economic information has a certain structure, which is conditioned by the form of output document and the procedure of examination.

We can distinguish the following types of information:

— “constituent block” – information on the subject of examination supplemented with data on sources of information that must be taken into account by the forensic expert-economist in the process of solving the issue posed to him;

— “normative and documentary blocks” – information of legislative acts and data obtained during the study of primary accounting documents concerning certain economic transactions;

— “composite block” – information that includes new knowledge obtained during the examination and results from processing the normative and documentary information blocks conditioned by the constituent information block and by the last element of expert economic information, which for a total gives it the status of an evidence source².

So, proceeding from the fact that forensic economic examination is information with a certain structure and peculiarities, it is quite logical when investigating the issue of its quality to turn to the work of scientists on issues of examining the information quality in general.

Considering the qualitative aspect of information, we can not fail to mention the statements of V. L. Broydo³ that the quality of information can be determined by a combination of properties that make it possible to use it for meeting certain (in accordance with its purpose) needs. A large economic dictionary provides such a definition of the quality of information. The quality of information is the degree of practical usefulness of information used in the management process, which is determined by a set of such properties as completeness, density, utility, reliability, value of information⁴.

Some authors give quantitative criteria for qualitative characteristics. So, in their opinion, the value of information is characterized by a decrease in the level of expended resources (materials, time, money) to make the right decision.

For decision-making, it is important to have not only the quality of information, but also its saturation. Saturation of information, in their opinion, is the ratio of useful and background information. Background information serves for better understanding useful (professional) information.

¹ See: Хомутенко О. В. До питання про формування поняття «Експертна економічна інформація» / О. В. Хомутенко // Судова експертиза. Сучасний стан та перспективи розвитку : тези доп. міжнар. наук.-практ. конф. — К. : МЮУ, 2010. — С. 338–341.

² See: Хомутенко О. В. Про поняття та структуру експертної економічної інформації / О. В. Хомутенко, С. В. Кудряшова // Сучасні проблеми розвитку судової експертизи : зб. матеріалів засід. «круглого столу», присвяч. 10-річчю створення Севастоп. від-ня Харків. наук.-досл. ін-ту суд. експертиз ім. Засл. проф. М. С. Бокаріуса, Севастополь, 10–11 черв. 2010 р. — Х. : ХНДІСЕ, 2010. — С. 161–163.

³ See: Бройдо В. Л. Достоверность экономической информации в АСУ / В. Л. Бройдо. — Л. : Изд-во Ленингр. ун-та, 1984. — 200 с.

⁴ See: Большой экономический словарь / под ред. А. Н. Азриэляна. — 4-е изд. доп. и перераб. — М. : Институт новой экономики, 1999. — С. 344.

Such information may include: warning about upcoming information, supporting and introductory information. If there is no background information, then the useful information is acquired inadequately. On the contrary, despite the large amount of background information, some information may be skipped or the entire amount of useful information may not be acquired.

Information that is formed for use in the decision-making process, according to A. A. Modin and his co-authors, should be significant, i. e. it should have a very significant impact on the assessment or decisions. The importance of one or another element of information is determined not only by its magnitude in quantitative terms, but also by the role that these elements can play¹. An item of information is significant if its exception affects the decision made by the user. Reliability is another important criterion of the information quality that guarantees not only an objective description and an acceptable reflection of those events that it should reflect, but also the absence of significant errors and irregularities.

In international financial reporting standards, the main qualitative characteristics of information are the following: comprehensibility, efficiency (materiality), reliability (truthful representation, predominance of essence over form, neutrality, circumspection and completeness), comparability.

Qualitative forensic economic examination is a comprehensive characteristic of the examination, which combines the most important features of information and is amenable to description with the help of qualitative and quantitative indices (Fig. 1), which determine the possibility of using the examination to make appropriate procedural decisions as a source of evidence.

Forensic economic examination should be understandable to the competent consumer. The mentioned is achieved by the logicity and consistency of submitting the examination process, as well as by specified ratio of useful and background information, which helps to understand the meaning of the foregoing. The conclusions of the forensic examination must have a corresponding influence on the procedural decision for which it is intended. In case there is no such influence, there is no need to appoint a forensic economic examination. The research process should be based on the norms of law and on the certified expert methods. When the research is conducted on the basis of unreliable data (objects of examination), the obtained results can hardly pretend to authenticity. So, the appropriate evaluation of the documents provided to the expert and the definition of certain conditions regarding the initial data for the expert may have a significant influence on the quality of forensic economic examination. In the event that the examination is carried out with a significant excess of the statutory deadlines, the use of its results in the process of adoption of the relevant procedural decision is difficult, and sometimes impossible. Thus, observance of terms for executing the examinations is a weighty criterion of their quality. Incompleteness of the examination execution may be the reason for the appointment of a second or additional examination, which can significantly affect the time limit to reach the ulti-

¹ See: *Модин А. А. Исследование и анализ потоков информации на промышленном предприятии* / А. А. Модин, И. С. Зингер, М. Ф. Коротяев. — М. : Наука, 1970. — 152 с.

mate goal of the customer's examination. The forensic economic examination is a procedural document that must be drawn up according to a certain structure and have clearly defined conclusions comparable to the generally accepted forms of forensic examination conclusions.

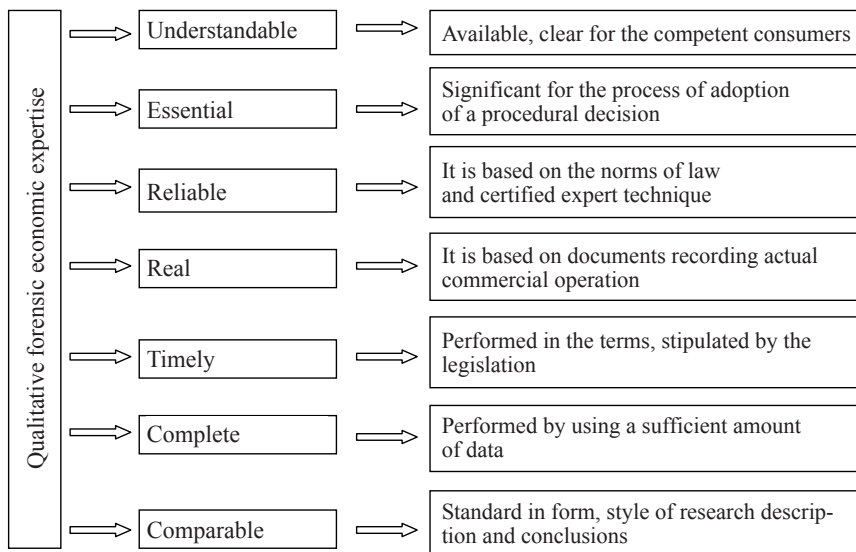


Fig. 1. Structural content of examination quality

At the same time, the achievement of such quality criteria as: understandability, reliability, timeliness, completeness and comparability of forensic examination depends entirely on the person of expert support of justice who performs it.

The achievement of such quality criteria as materiality and reality of examination depends on how significant for appropriate procedural decision is to solve the problem in carrying out expert examinations and whether the examination objects describe the economic transactions that really happened.

The definition of the expert task is determined by the questions that are put for the examination, and are formed by the customer of the examination.

The forensic expert can influence the materiality of the expertise within the expert initiative by solving issues that are not put before him. However, the forensic expert cannot always fully understand the purpose that the customer of the examination sets for the examination in its appointment, just as the customer of examination cannot always perfectly orient in the subtleties of the economic subsystem of the problem that is being solved by him.

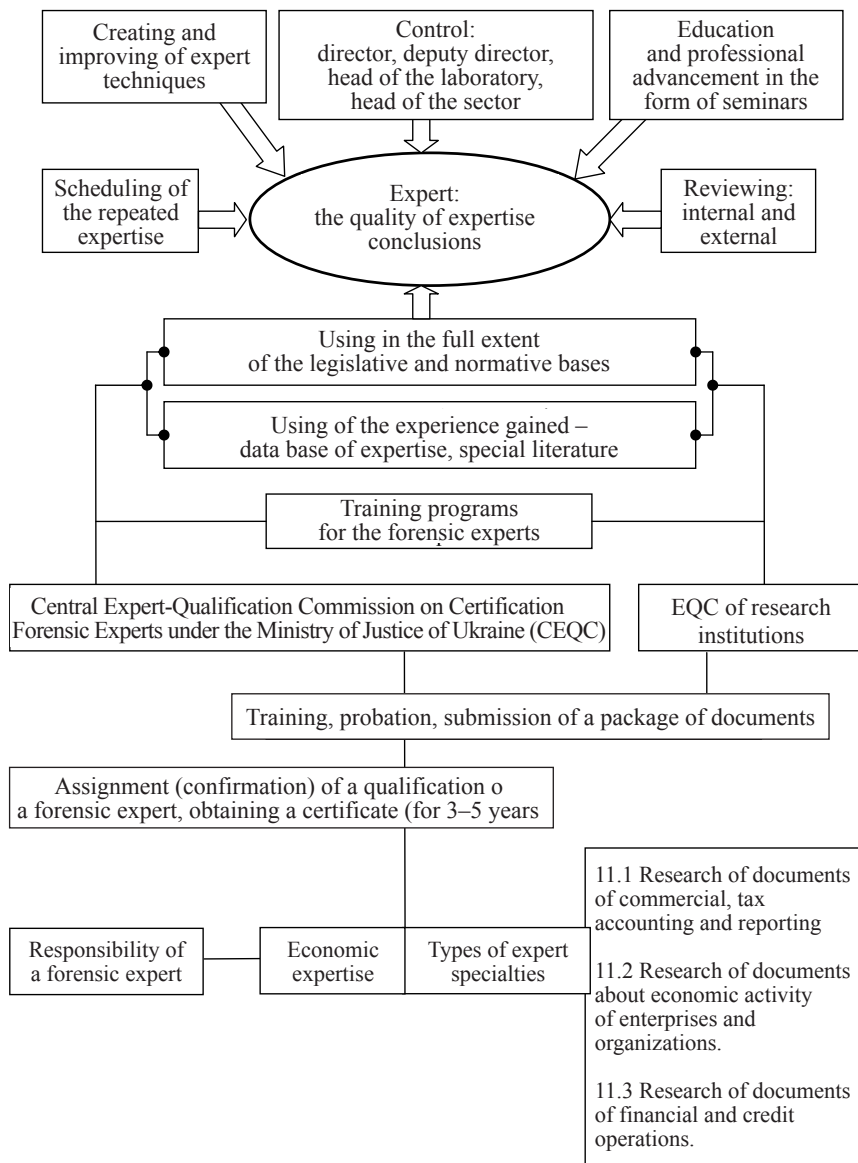


Fig. 2. Block diagram of expertise quality provision

Consequently, the achievement of such quality criterion of forensic economic examination, as materiality, depends mainly on the qualification of the person who appoints the examination and the consistency of the expert's work with the body (entity), which appoints the examination, in the course of forming the expert task.

Evaluation of business accounting and tax accounting documents as to whether they describe real business transactions, whether the signature was signed by the relevant official of the enterprise, does not fall within the competence of an expert economist. Thus, these characteristics of forensic economic examination quality can be conditionally divided into the following:

- internal characteristics that depend mainly on the expert himself (understandability, reliability, timeliness, completeness, comparability);
- external characteristics that depending on the thoroughness of the examination customer's work (reality, materiality).

The absence of any of the described quality criteria leads to the fact that the examination cannot be considered qualitative, and therefore purposefully used in making the appropriate procedural decision as a source of evidence.

The examination quality is the main characteristic that is under control. It is achieved due to the operation of a constantly acting multi-profile mechanism (Fig. 2). As any other work that is included in the general technology of production or service delivery, the expert activity requires standardization and planning. The most important indicators of this activity are the time outlays, labor intensity and calendar time required for carrying out the examination.

These indicators are the basis for norms and rules of internal evaluation of experts' work effectiveness. It is quite difficult to derive the normative, evaluative criteria and scales of definitions from theoretical considerations. Real quality standards can be obtained from the practical experience of works as well as from the calculations that are based on this experience. In such cases, we have the question concerning the systematization of the types of work (examinations) and the criteria for their complexity.

To improve the quality assurance mechanism of examinations is one of the most important tasks, to which attention should be paid by experts in the field of forensic examination.

ПРОБЛЕМНІ ПИТАННЯ ЩОДО ЯКОСТІ СУДОВОЇ ЕКОНОМІЧНОЇ ЕКСПЕРТИЗИ

Хомутенко О. В.

Застосовано інформаційний підхід щодо визначення якості судової економічної експертизи. Запропоновано низку ознак якості експертизи, розкрито їх зміст, висвітлено механізм її забезпечення.

Ключові слова: інформаційний підхід, якість експертизи, ознаки якості експертизи, механізм забезпечення якості експертизи.

**ПРОБЛЕМНЫЕ ВОПРОСЫ КАЧЕСТВА
СУДЕБНОЙ ЭКОНОМИЧЕСКОЙ ЭКСПЕРТИЗЫ**

Хомутенко А. В.

Применен информационный подход к определению качества судебной экономической экспертизы. Предложен ряд признаков качества экспертизы, раскрыто их содержание, освещен механизм его обеспечения.

Ключевые слова: информационный подход, качество экспертизы, признаки качества экспертизы, механизм обеспечения качества экспертизы.

**EXPERT PRACTICE: METHODOICAL APPROACHES
FOR SOLVING TASKS OF ECONOMIC AND
MERCHANDISING RESEARCHES**

UDC 343.98:347.73

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**FEATURES OF RESEARCH OF TARIFF CALCULATION
FOR SERVICES ON MAINTENANCE OF HOUSES
AND ADJACENT TERRITORIES**

Consideration is given to features of conducting the economic researches on issues of justifying the tariff calculation for the maintenance of houses and adjacent territories with taking into account the findings of construction and technical research. The paper gives the normative and legislative acts, which regulate the tariff formation procedure for house maintenance services. The authors define the list of documents to be examined for a documentary and regulatory justification of the tariff calculation for the maintenance of house and adjacent territories.

Keywords: tariffs, services for the maintenance of houses and adjacent territories, housing and municipal services; residential, non-residential and total area of the building; adjacent territory area.

The rapid growth of tariffs for housing and municipal services has led to an increase in the number of claims regarding their groundlessness. Accordingly, the number of appointed forensic examinations related to the research of the documentary justification of tariffs for maintenance of houses and adjacent territories has increased, which explains the relevance of this topic. Since the right of consumers living in houses to receive benefits and subsidies depends on solving the issue of economic normative justification of tariffs for maintenance of their houses and adjacent territories.

Due to the fact that residential, non-residential and total area of the house, as well as the area of its adjacent territory and other technical indicators are the initial data for calculating the tariff for the maintenance of houses and adjacent areas, their documentary justification based on the data of technical documentation of the house and on the corresponding technical inventories according to results of the construction and technical research is of key importance in carrying out such examinations to provide an objective conclusion on the documentary justification of tariff calculation.

The argumentativeness of this issue is confirmed by the growing number of court cases regarding the recognition of established tariffs for the maintenance of houses and adjacent territories as unjustified due to application of incorrect values of the residential, non-residential, total area of the house and the area of adjacent territories in the calculation of tariffs.

The examination shall decide an issue on the economic justification of the tariff calculation for the maintenance of houses and adjacent territories and for the particular house at a particular address. In this case, according to the established competence, the expert examines the calculation of the tariff, and does not calculate it himself. In research, it is necessary to apply the Methodology of examination of documentary justification of tariffs for housing and municipal services. It is registered in the register of techniques of the Ministry of Justice of Ukraine, registration code 11.1.12¹.

The construction, technical and economic comprehensive research is conducted in accordance with the General Methodology for appointing and conducting the comprehensive forensic examinations carried out by the committee of experts (as amended by the decision of the Coordination Council dated 12.09.2014), registration code 0.1.16².

The basic principles of organizational, economic relations arising between the producers, executors and consumers in the sphere of provision and consumption of housing and municipal services as well as their rights and obligations are specified by the Law of Ukraine "On Housing and Municipal Services" (hereinafter – the Law No. 1875)³.

¹ See: Реєстр методик проведення судових експертиз [Електронний ресурс]. — Режим доступу : <http://rmpse.minjust.gov.ua>.

² See: Ibid.

³ See: Про житлово-комунальні послуги : Закон України від 24.06.2004 № 1875-IV(зі змінами та допов.) [Електронний ресурс]. — Режим доступу : <http://www.zakon.rada.gov.ua>.

The basic principles of tariff formation and payment for housing and municipal services are defined in Sec. VII of the present Law, which includes both the principle of the conformity of the level of prices/tariffs to the amount of the economically justified costs for their production and the principle of conformity of payment for housing and municipal services to their availability, quantity and quality. In accordance with items 2, 3 Art. 31 of Law No. 1875, provision is made for the procedure of price/tariff formation for each type of housing and municipal services.

Executors/manufacturers perform calculations of economically justified expenditures for the production of housing and municipal services and submit them for approval to local government bodies in accordance with the procedure established by law. Local government bodies approve prices/tariffs for housing and municipal services in the amount of economically justified expenditures for their production. In the event that the maintenance of the house and its adjacent territory is carried out by the corresponding enterprise – the executor of the services for their maintenance on the basis of the concluded contracts, then such an enterprise should provide its services as per tariffs approved by local government bodies. This tariff should be calculated and provided for approval to the local government body by the relevant enterprise, which is the executor of services for the maintenance of houses and adjacent territories.

On the basis of Resolution of the Cabinet of Ministers of Ukraine “On the provision of a unified approach to the formation of tariffs for housing and municipal services” dated 01.06.2011 No. 869, in order to ensure a unified approach for all regions to the formation of tariffs in housing and municipal services, the Cabinet of Ministers of Ukraine approved the tariff formation procedure for services on the maintenance of houses, structures and adjacent territories (hereinafter – Order No. 869)¹.

Item 32 of this Order stipulates that the conclusion on the calculation of economically justified planned expenditures related to the provision of services for the maintenance of houses, structures and adjacent territories shall be provided by the State Financial Inspection in accordance with the procedure approved by the Ministry of Economic Development.

Consequently, the documentary and normative justification of the findings of the State Financial Inspection about violations in calculating the economically justified planned expenditures related to the provision of services for the maintenance of houses, structures and adjacent territories, will be the subject of forensic economic research.

Order No. 869 provides that tariffs (standard costs related to the maintenance of houses and adjacent territories) are calculated separately for each house, depending on the planned quantitative indicators of the actual provision of services, taking into account the provision of proper sanitary and hygienic, fire fighting and technical condition of houses and structures and adjacent territories, as well as

¹ See: Про забезпечення єдиного підходу до формування тарифів на житлово-комунальні послуги : постанова Каб. Міністрів України від 01.06.2011 № 869 [Електронний ресурс]. — Режим доступу : <http://www.zakon.rada.gov.ua>.

taking into account the list of services for their maintenance in accordance with the annex to this Order. In the event that the list of services is reduced, the contractor recalculates tariffs and submits a new tariff calculation to the appropriate local government body that takes decisions on its approval.

The owners (tenants) of the apartments (residential premises in the hostel) and the owners of non-residential premises in the dwelling house (hostel) conclude an agreement on the provision of services for the maintenance of houses and adjacent territories. The agreement stipulates the provision of services, the list of which is determined by the results of public hearings according to the standard list. In determining the components of expenditures for the maintenance of the house and adjacent territories, which are included in the tariff, it is necessary to be guided by the Rules for the maintenance of dwelling houses and adjacent territories¹. If the requirements of these Rules are observed, an objective approach to determining the list of expenditures for the maintenance of houses and adjacent territories for each particular house is provided.

Thus, when examining the tariff calculation for the maintenance of the house and the adjacent territory, it should be noted that on the basis of regulatory legislation requirements, tariffs must meet the following requirements:

1) tariffs are standard costs related to the maintenance of houses and adjacent territories, which are calculated separately for each house, depending on the planned quantitative indicators of the actual provision of services, taking into account the provision of proper sanitary and hygienic, fire-fighting and technical condition;

2) tariffs should be formed with taking into account the List of services for the maintenance of houses, structures and adjacent territories in accordance with the Order for the formation of tariffs for the maintenance of houses, structures and adjacent territories;

3) size of the tariff should correspond to the amount of economically justified expenditures for the production of services for the maintenance of houses and adjacent territories, which confirmed by primary accounting documents;

4) composition of expenditures for the maintenance of the house and adjacent territory, which are included in the tariff, should be determined in accordance with the Rules for the maintenance of residential houses and adjacent territories;

5) the conclusion on the calculation of economically justified planned expenditures associated with the provision of services for the maintenance of houses and adjacent territories is provided by the State Financial Inspection in the manner approved by the Ministry of Economic Development;

6) the approval of tariffs for the maintenance of houses and adjacent territories is within the competence of local government bodies.

When studying the expenditures for the maintenance of houses and adjacent territories, which are included in the calculation of tariffs, account should be

¹ See: Правила утримання жилих будинків та прибудинкових територій : наказ Держжитлокомунгоспу України від 17.05.2005 № 76 [Електронний ресурс]. — Режим доступу : <http://www.zakon.rada.gov.ua>.

taken of Regulation (Standard) 16 “Expenditures”¹ of the accounting records. It determines the methodological basis of accounting records for the formation of enterprise expenditures information and its disclosure in the financial statements.

In accordance with Art. 9 of the Law of Ukraine “On Accounting and Financial Reporting in Ukraine”², the primary documents which state the facts of economic transactions are subject to research.

Therefore, when examining the documentary and normative justification of the tariff calculation for the maintenance of the house and adjacent territories, it is necessary to examine the following documents:

- tariff calculation for the maintenance of the house and adjacent territories of a particular house with the decoding of all components of the tariff;
- primary accounting documents and calculations on the economic justification of each component of the tariff calculation for the maintenance of the house and adjacent territories;
- documents of the synthetic and analytical accounting records of the enterprise – the service provider for the actual performance of the maintenance of the house and adjacent territories for residents of the residential building;
- technical documentation of the house and technical inventory data.

In accordance with the requirements of Order No. 869, the initial data for calculating the tariff for the maintenance of houses and adjacent territories are the following:

- area that is owned or hired by an individual or legal entity;
- total useful floor area (indicated in the technical certificate for a dwelling house (hostel) of apartments (dwellings in a hostel) and non-residential premises in a dwelling house (hostel);
- total useful floor area of apartments (dwellings in the hostel);
- total area of non-residential premises in a dwelling house (hostel);
- basement area (ground floor) of a dwelling house (hostel);
- area of courtyards, lawns and (or) flower beds;
- area of the territory from which snow is taken;
- distances to landfill sites;
- actual areas of sprinkling the adjacent territory part;
- other technical data of the house and adjacent territory, the documented justification of which on the base of technical documentation of the house and the relevant data of technical inventory, requires the construction and technical research.

In the research, the terms and definitions are used in accordance with the requirements of the State construction standards DBN B.2.2-15-2005 “Residential buildings. Basic provisions”³.

¹ See: Положення (стандарт) бухгалтерського обліку 16 «Витрати»: наказ М-ва фінансів України від 31.12.1999 № 318 (із змінами та допов.) [Електронний ресурс]. — Режим доступу : <http://www.zakon.rada.gov.ua>.

² See: Про бухгалтерський облік та фінансову звітність в Україні: Закон України від 16.07.1999 № 996-XIV (із змінами та допов.) [Електронний ресурс]. — Режим доступу : <http://www.zakon.rada.gov.ua>.

³ See: Житлові будинки. Основні положення: ДБН В.2.2-15-2005 [Електронний ресурс]. — Режим доступу : <http://www.zakon.rada.gov.ua>.

In accordance with the requirements of item 1.3 of the Rules for the maintenance of residential buildings and adjacent territories, it is determined that the contractors of maintenance services for houses and adjacent territories must have technical certificates for apartment (multi-storey) residential houses to ensure timely changes in them.

According to the requirements of item 3.1 of the Instruction on the procedure for carrying out the technical inventory of immovable property¹, it is stipulated that objects of all forms of ownership located on land plots (at individual postal addresses) are subject to technical inventory, regardless of whether they are built according to appropriately issued documents or arbitrarily. This includes: houses, additional and top-out buildings, public and industrial buildings, outhouses, as well as built-in and stand-alone protective structures.

During the inventory, the main structural elements of the buildings should be inspected including: foundations, walls, partitions, sub-basement, inter-floor and attic floors, floors, windows, doors; internal and external finishes; heating and ventilation systems, water and sewerage equipment, gas and electric equipment, elevators, garbage chutes, etc.

Work on the inventory of all objects should be carried out under order and with the obligatory participation of the customer (customers), in the presence of which the survey is conducted and fixed in the outline or sketch with the obligatory signing of these documents by the customer (customers). When carrying out a technical inventory, the cost of objects is determined at will of the customer.

In case of inconsistency of the areas used in the tariff calculation for the maintenance of houses and adjacent territories with the data of the areas of the relevant inventory case, the expert report may include methodological recommendations on the need for the ongoing technical inventory of residential buildings, with taking into account the requirements of the Instruction on the procedure for technical inventory of immovable property items and other regulatory legal acts, as well as with the introduction of the obtained data into technical certificates and materials of inventory cases.

According to the results of the research, upon availability of normatively justified calculations and all primary documents, which confirm the calculation documentarily, experts conclude that the tariff calculation for the maintenance of the house and adjacent territories is the calculation of economically justified expenditures for the production of housing and municipal services and it is normatively and documentarily justified.

In the absence of normatively justified calculations and all primary documents confirming the calculation documentarily, experts conclude that the tariff calculation under examination for the maintenance of the house and adjacent territories is not a calculation of economically justified expenditures for the

¹ See: Інструкція про порядок проведення технічної інвентаризації об'єктів нерухомого майна : наказ Держ. к-ту будівництва, архітектури та житлової політики України від 24.05.2001 № 127 [Електронний ресурс]. — Режим доступу : <http://www.zakon.rada.gov.ua>.

production of housing and municipal services; the calculation is not normatively and documentarily justified; thereunder, they indicate the particular components of the calculation, which are not normatively and documentarily justified.

Consequently, the economic research on the justification of the tariff calculation for the maintenance of houses and adjacent territories in a comprehensive way, with the use of both economic and technical special knowledge, is methodologically reasonable and the most effective method of conducting this type of examination, which gives the highest quality result.

ОСОБЛИВОСТІ ДОСЛІДЖЕННЯ РОЗРАХУНКУ ТАРИФУ НА ПОСЛУГИ З УТРИМАННЯ БУДИНКІВ І ПРИБУДИНКОВИХ ТЕРИТОРІЙ

Панченко Н. І., Гордієнко І. М.

Розглянуто особливості проведення економічних досліджень із питань обґрунтування розрахунку тарифу на послуги з утримання будинків і прибудинкових територій з урахуванням висновків будівельно-технічного дослідження. Наведено нормативні та законодавчі акти, якими регламентовано порядок формування тарифів на послуги з утримання будинків. Визначено перелік документів, які підлягають дослідженню для документального й нормативного обґрунтування розрахунку тарифу на послуги з утримання будинку та прибудинкової території.

Ключові слова: тарифи, послуги з утримання будинків і прибудинкових територій, житлово-комунальні послуги; житлова, нежитлова та загальна площа будинку; площа прибудинкової території.

ОСОБЕННОСТИ ИССЛЕДОВАНИЯ РАСЧЕТА ТАРИФА НА УСЛУГИ ПО СОДЕРЖАНИЮ ДОМОВ И ПРИДОМОВЫХ ТЕРРИТОРИЙ

Панченко Н. И., Гордиенко И. Н.

Рассмотрены особенности проведения экономических исследований по вопросам обоснования расчета тарифа на услуги по содержанию домов и придомовой территории с учетом выводов строительно-технического исследования. Приведены нормативные и законодательные акты, которыми регламентирован порядок формирования тарифов на услуги по содержанию домов. Определен перечень документов, который подлежит исследованию для документального и нормативного обоснования расчета тарифа на услуги по содержанию дома и придомовой территории.

Ключевые слова: тарифы, услуги по содержанию домов и придомовой территории, жилищно-коммунальные услуги; жилая, нежилая и общая площадь дома; площадь придомовой территории.

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IMPOSITION OF VALUE ADDED TAX UPON FREIGHT FORWARDING ACTIVITIES FOR INTERNATIONAL CARRIAGE OF GOODS

Consideration is given to the procedure of imposing the value added tax upon freight forwarding activities for the international carriage of goods in the event of the involvement of other participants of freight forwarding activities in transportation, when conducting forensic economic examinations.

Keywords: forwarder (freight forwarder), carrier, place of rendering the services, freight forwarding service, single transport document.

The provisions of Part 1, Art. 929 of the Civil Code of Ukraine (CC of Ukraine) determine that under a freight forwarding agreement, one party (the freight forwarder) undertakes, for a fee and at the expense of other party (client), to execute or organize the implementation of certain contractual forwarding services related to the carriage of goods.

The freight forwarding agreement may establish the following duties of the freight forwarder:

- to organize cargo transportation by transport and along the route chosen by the freight forwarder or the client;
- to conclude a cargo carriage agreement on its behalf or on behalf of the client;
- to ensure the shipment and receipt of cargo;
- other obligations related to carriage.

The freight forwarding agreement may provide for the provision of additional services necessary for the cargo carriage:

- to check the quantity and condition of the cargo, its loading and unloading;
- to pay customs duties, fees and expenses charged to the client;
- to store cargo until it is received at the destination point;
- to obtain the documents necessary for export and import, to execute customs formalities and so on.

Other types of freight forwarding services that can be provided by freight forwarders on behalf of customers are given in Art. 8 of the Law of Ukraine “On transport and forwarding activities” (hereinafter – Law No. 1955)¹.

That is, the variety of types of freight forwarding services predetermines the possibility of providing them both in the customs territory of Ukraine and outside it with the involvement of non-residents.

In accordance with Art. 1 of Law No. 1955:

- the forwarder (freight forwarder) is a business entity, who on behalf of the client and at his expense, executes or organizes the performance of freight forwarding services specified in the freight forwarding agreement;

¹ See: Про транспортно-експедиторську діяльність : Закон України від 01.07.2004 № 1955-IV [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws>.

— the carrier is a legal entity or an individual person, who has assumed the obligations and liability under the freight forwarding agreement for the delivery of the cargo entrusted to him to the place of destination, the carriage of goods and their delivery (transfer) to the consignee or other person specified in the document regulating the relationship between the freight forwarder and the carrier.

According to Part 2 of Art. 4 of this law, for the execution of customer orders, the freight forwarders may enter into agreements with carriers, ports, airlines, shipping companies, etc., which are residents or non-residents of Ukraine.

The operations of payers, who are subject to VAT taxation, are defined in item 185.1 of the Tax Code of Ukraine (TC of Ukraine), among which for this situation we will name the following:

— the provision of services, the place of which rendering is located in the customs territory of Ukraine, according to Art. 186 of this Code (par “b”);

— provision of services for the international transport of passengers and luggage, as well as cargo by rail, road, sea, river and air transport (par “e”).

According to par “a” of sub-item 186.2.1 of the Tax Code of Ukraine, the place of rendering the services, which are auxiliary in transport activities such as loading, unloading, reloading, warehousing of goods and other similar services, is the place of actual provision of services related to movable property; and in accordance with par “b” of sub-item 186.2.1 of the Tax Code of Ukraine, the place of rendering the services related to movable property is the place of actual provision of services related to movable property, i. e. services related to the transportation of passengers and cargoes, including the supply of food products and beverages intended for consumption (Table 1).

Table 1

Place of rendering the services

Provider of services	Territory	VAT rate	Note
VAT payer	Ukraine	20 %	“Export” of services
VAT payer	Outside the customs territory of Ukraine	Not subject to VAT	—
Non-resident	Ukraine	20 %	“Import” of services
Non-resident	Outside the customs territory of Ukraine	Not subject to VAT	—

According to par “zh” of item 186.3 of the Tax Code of Ukraine, the place of rendering the transport-forwarding services is the place where the recipient is registered as a business entity, and in the absence of such a place, its permanent or dominant place of residence (Table 2).

Table 2

Place of rendering freight forwarding services

Provider of services	Receiver of services	Place of receiver's registration	VAT rate	Note
VAT payer	Non-resident	Outside the customs territory of Ukraine	Not subject to VAT	"Export" of services
Non-resident	VAT payer	Ukraine	20 %	"Import" of services

That is, the requirements of the sub-item 186.2.1 of the Tax Code determine the place of rendering the services related to the carriage of goods, as the place of actual provision of services, at the same time, according to item 186.3 of the Tax Code of Ukraine, the place of rendering the services specified in this item is considered to be the place where the service receiver is registered as a business entity or, in the absence of such a place, the place of permanent or primary residence. Such services include the provision of freight forwarding services. The definition that freight forwarding is a service associated with the cargo carriage, respectively indicates an ambiguous (multiple) interpretation between two norms of the Tax Code of Ukraine, namely of sub-item 186.2.1 and par "zh" of item 186.3 concerning the definition of a place of services provision if the services are rendered outside the customs territory of Ukraine.

According to item 56.21 of the Tax Code of Ukraine, when the norm of this Code or other normative legal act (issued on the basis of this Code), or the norms of different laws or different legal acts, or the norms of the same legal act contradict among themselves and allow an ambiguous (multiple) interpretation of the rights and obligations of taxpayers or controlling bodies, as a result of which it is possible to take a decision in favor of both the taxpayer and the supervisory authority, the decision shall be made in favor of the taxpayer.

For example, let's consider the circumstances of rendering the freight forwarding services to the resident customer, who acts on behalf of his clients as a non-resident carrier outside the customs territory of Ukraine.

On the basis of par "a" of sub-item 195.1.3 of the Tax Code of Ukraine, zero VAT rate is imposed upon international transportation of passengers and baggage, as well as of freight by rail, road, sea, river and air transport. For the purposes of this sub-item the carriage is considered to be international if it is carried out under a single international transport document.

However, it should be noted that during the examination it is important to establish the documentation of certain business transactions as well as to find out how the customer organized the performance of freight forwarding services on behalf of his clients by concluding contracts with non-residents, that accordingly does not contradict the provisions of Law No. 1955.

On the basis of available documents it was established that, in accordance with the concluded agreements and in accordance with the orders (requests) of

customers (clients of LLC “N”), the company (for example, LLC “T”) organized the transportation of goods and material valuables (GMV), i. e. the company carried out operations to acquire services for organizing the transportation of goods and provision of freight forwarding services outside the customs territory of Ukraine. This activity was carried out under agreements for the carriage of goods with the attraction to transportation of other participants of transport-forwarding activity, non-resident carriers (for example, W LLP), which do not have permanent representative offices in the customs territory of Ukraine.

Documentary evidence that the transportation was carried out under a single transport document is of key importance for the determination of the said agreements as agreements for the international carriage of goods.

In particular, the subject of the economic examination in this case is the acts signed between LLC “T” (freight forwarder) and LLC “H” (customer) for performance of works on the provision of freight forwarding services for freight transport with the relevant appendices, which details which services are provided with the indication of the forwarding areas, numbers of railway cars, dates, numbers of waybills for which the work was performed in regard to coincidence with the corresponding forwarding sections, railway numbers, freight cars, dates, numbers of waybills for which forwarding services were provided in the framework of relations with the carrier W LLP outside the customs territory of Ukraine.

The above coincidence will accordingly indicate that the transportations on the basis of concluded agreements were organized by LLC “T” through W LLP and were carried out on the basis of international transport documents (SMGS, CIM consignment notes, etc.).

In accordance with Art. 9 of Law No. 1955, the fact of providing the forwarder's services during transportation is confirmed by a single transport document or set of documents (rail, road, air waybills, bills of lading, etc.) that reflect the route of the goods from the point of departure to the point of destination.

The above mentioned documents can be the following:

- air waybill;
- international automobile waybill (CMR);
- consignment note (SMGS);
- bill of lading;
- consignment note (CIM);
- cargo manifest;
- other documents specified by the laws of Ukraine.

Under a single international transport document, we mean the documents depending on the mode of chosen transport, which are written in the language of international communication.

Consequently, in case of the appropriate documentary justification of the fact that the freight forwarder (resident) has attracted carriers or other participants of freight forwarding activities to the international carriage of goods, the zero rate specified in par “a” of sub-item 195.1.3, item 195.1 of Art. 195 of the Tax Code of Ukraine shall be applied by such carriers or other participants of transport-forwarding activity.

In this case, it is necessary to take into account the requirements of item 189.4, Art. 189 of the Tax Code of Ukraine: when receiving funds from the customer or by the date of registering the documents confirming the fact of the international transportation for the customer, depending on which of these events occurred earlier, the freight forwarder has a VAT obligation for the transportation amount at the rate 0% if the carrier is a resident (VAT payer) and for the amount of freight forwarding services provided to such customer at the rate of 20% (if the customer of services is registered in the territory of Ukraine as a business entity).

In the case when the carrier is not a resident (VAT payer), no tax liability of the freight forwarder for the cost of transportation services arise. As of the date of occurrence of tax liabilities for international transportation, the resident carrier (VAT payer) shall issue a tax invoice with a zero value added tax charge and provide it to the freight forwarder.

The forwarder received the tax invoice from such carrier has the right to include it in the register of received tax invoices. When the carrier is not a resident (VAT payer), no tax liability of the freight forwarder for the cost of transportation services arise. The above mentioned position is set out in the generalized tax advice pertaining to the procedure for imposing the value-added tax upon freight forwarding activities¹.

According to item 53.1 of Art. 53 of the Tax Code of Ukraine, a taxpayer who acted in accordance with the general tax advice cannot be made liable.

Thus, the services provided under the transport forwarding agreement may be:

- subject to VAT at a rate of 20% when they are provided both by a VAT payer resident and by non-resident in the territory of Ukraine;
- not subject to VAT when they are provided both by a VAT payer – resident and by non-resident outside Ukraine;
- subject to VAT at a zero rate if the international carriage of goods is carried out under a single international transport document.

That is, the transit services received from the resident freight forwarder for the resident freight forwarder, which are subsequently sold to the resident customer, is subject to VAT if all parties of the freight forwarding agreement, including those involved, are residents of Ukraine and provide services only in the customs territory of Ukraine, and in the event that the international carriage of goods is carried out under a single international transport document by the non-resident carrier involved outside the customs territory of Ukraine, the transit services are subject to VAT at a zero rate.

ОПОДАТКУВАННЯ ПОДАТКОМ НА ДОДАНУ ВАРТІСТЬ ТРАНСПОРТНО-ЕКСПЕДИТОРСЬКОЇ ДІЯЛЬНОСТІ З МІЖНАРОДНОГО ПЕРЕВЕЗЕННЯ ВАНТАЖІВ

С. О. Козуб

Розглянуто порядок оподаткування податком на додану вартість транспортно-експедиторської діяльності з міжнародного перевезення вантажів у разі залу-

¹ Сее: Узагальнювальна податкова консультація щодо порядку обкладення ПДВ транспортно-експедиторської діяльності : наказ ДПАУ від 06.07.2012 № 610 // Уряд. кур'єр. — 2012. — № 140.

чення до перевезення інших учасників транспортно-експедиторської діяльності при проведенні судово-економічних експертиз.

Ключові слова : експедитор (транспортний експедитор), перевізник, місце постачання послуг, транспортно-експедиторська послуга, єдиний транспортний документ.

НАЛОГООБЛОЖЕНИЕ НАЛОГОМ НА ДОБАВЛЕННУЮ СТОИМОСТЬ ТРАНСПОРТНО-ЭКСПЕДИТОРСКОЙ ДЕЯТЕЛЬНОСТИ ПО МЕЖДУНАРОДНОЙ ПЕРЕВОЗКЕ ГРУЗОВ

Козуб С. А.

Рассмотрен порядок налогообложения налогом на добавленную стоимость транспортно-экспедиторской деятельности по международной перевозке грузов в случае привлечения к перевозке других участников транспортно-экспедиторской деятельности при проведении судебно-экономических экспертиз.

Ключевые слова: экспедитор (транспортный экспедитор), перевозчик, место оказания услуг, транспортно-экспедиторская услуга, единый транспортный документ.

UDC 343.98

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FEATURES OF GRANTING AND CALCULATION DISABILITY PENSIONS

Consideration is given to the conditions for granting the disability pensions and to the definition of the procedure for calculating the length of pensionable service and the time of acquisition of the right to a disability pension in the amount of the retirement pension. Examples are given of calculating the amount of disability pension as well as of disability pension in the amount of the retirement pension for forensic examinations.

Keywords: disability pension, insurance period, overtime experience, surcharge for the overtime experience, living wage, disability pension in the amount of old-age pension.

Pension provision of Ukrainian citizens shall be carried out in accordance with the Law of Ukraine "On Compulsory State Pension Insurance"¹ (hereinafter – Law No. 1058-IV). The norms of this law provide for granting the retirement pensions, disability pensions, survivors' pensions.

¹ See: Про загальнообов'язкове державне пенсійне страхування : Закон України від 09.07.2003 № 1058-IV // Відом. Верхов. Ради України. — 2003. — № 49–51. — Ст. 376.

The disability pension award conditions are defined in Art. 30 of Law No. 1058-IV. A disability pension is granted in the event of a disability resulting in a total or partial loss of ability to work due to a general illness (including personal injury unrelated to work, disability from childhood), provided that there is a pensionable service specified in Art. 32 of this Law.

The disability pension due to an accident at work and due to occupational disease shall be granted in accordance with the Law of Ukraine “On compulsory state social insurance against accidents at work and against occupational diseases, which caused disability”¹.

A disability pension is granted regardless of the period of time in which the disability occurred: during the period of work, before entering the workplace or after the termination of work. Three groups of disability: I, II, III were identified depending on the degree of disability. The cause, group, time of the onset of disability, the period for which disability is designated, shall be determined by the body of medical and social assessment in accordance with the law.

An obligatory condition for the award of a disability pension under the provisions of Law No. 1058-IV is the existence of pensionable service from 1 to 15 years, depending on the age of the disabled person and the disability group. In accordance with Art. 32 of this Law, the persons recognized as disabled persons have the right to a disability pension depending on the disability group, if the length of their pensionable service at the onset of disability or on the day of applying for a pension is the following:

For invalids of group I:

1 year – until the person reaches the age of 25 years included;

2 years – from 26 years old until the person reaches the age of 28 years included;

3 years – from 29 years old until the person reaches the age of 31 year included;

4 years – from 32 years old until the person reaches the age of 34 years included;

5 years – from 35 years old until the person reaches the age of 37 years included;

6 years – from 38 years old until the person reaches the age of 40 years included;

7 years – from 41 year old until the person reaches the age of 43 years included;

8 years – from 44 years old until the person reaches the age of 48 years included;

9 years – from 49 years old until the person reaches the age of 53 years included;

10 years – from 54 years old until the person reaches the age of 59 years included;

¹ See: Про загальнообов’язкове державне соціальне страхування від нещасного випадку на виробництві та професійного захворювання, які спричинили втрату працездатності : Закон України від 09.09.1999 № 1105-XIV // Відом. Верхов. Ради України. — 1999. — № 46–47. — Ст. 403.

For invalids of groups II and III:

- 1 year – until the person reaches the age of 23 years included;
- 2 years – from 24 years old until the person reaches the age of 26 years included;
- 3 years – from 27 years old until the person reaches the age of 28 years included;
- 4 years – from 29 years old until the person reaches the age of 31 year included;
- 5 years – from 32 years old until the person reaches the age of 33 years included;
- 6 years – from 34 years old until the person reaches the age of 35 years included;
- 7 years – from 36 years old until the person reaches the age of 37 years included;
- 8 years – from 38 years old until the person reaches the age of 39 years included;
- 9 years – from 40 years old until the person reaches the age of 42 years included;
- 10 years – from 43 years old until the person reaches the age of 45 years included;
- 11 years – from 46 years old until the person reaches the age of 48 years included;
- 12 years – from 49 years old until the person reaches the age of 51 years included;
- 13 years – from 52 years old until the person reaches the age of 55 years included;
- 14 years – from 56 years old until the person reaches the age of 59 years included.

Persons recognized as disabled after reaching the retirement age under Art. 26 of Law No. 1058-IV (60 years), have right to a disability pension if the length of their pensionable service is at least 15 years.

Disabled persons who do not have sufficient length of pensionable service have the right to apply to the Labor and Social Protection Administration at the place of their residence with the application for granting a pension under the provisions of the Law of Ukraine “On state social assistance to persons who do not have the right to pension and assistance to disabled persons”¹.

If the disability of a person, who applied for medical assistance during the period from November 21, 2013 to April 30, 2014, occurred during the period of military service, or as a result of wound, injury, concussion or other injury to health received during participation in mass protest actions in Ukraine from November 21, 2013 to February 21, 2014, the disability pension is granted to the person regardless of the existence of the pensionable service period.

¹ See: Про державну соціальну допомогу особам, які не мають права на пенсію, та інвалідам : Закон України від 18.05.2004 № 1727-IV // Відом. Верхов. Ради України. — 2004. — № 33–34. — Ст. 404.

When determining the length of pensionable service, special attention should be paid to the periods, which make up the pensionable service. By definition of Art. 24 of Law No. 1058-IV, the pensionable service is the period (term) during which a person is subject to compulsory state pension insurance and for which the insurance premiums are paid monthly in the amount not less than the minimum insurance premium. The pensionable service also includes the period during which a person who was subject to compulsory state social insurance in case of unemployment received an unemployment benefit (other than a one-off payment for organizing entrepreneurial activity by the unemployed person) and material assistance during the period of vocational training, retraining or raising of qualification. For calculating the amount of the retirement pension from which the amount of the disability pension is calculated, in addition to the existing pensionable service, it also includes the period calculated on the general grounds from the date of disability establishment until the insured person reaches the age (60 years) specified in Art. 26 of Law No. 1058-IV.

The length of pensionable service shall be calculated by the territorial bodies of the Pension Fund in compliance with the requirements of Law No. 1058-IV according to the data contained in the personalized accounting system, while for the periods before introducing the personalized accounting system, it shall be calculated on the basis of documents and in the manner prescribed by the legislation applicable before the entry into force of this Law. The pensionable service is calculated in months. Periods of labor activity and other periods, which are taken into account in the length of service for granting a pension before the entry into force of this Law shall be included in the length of service in the manner and under the conditions specified by the previous legislation, except for cases stipulated by this Law.

According to the first part of Art. 33 of Law No. 1058-IV, depending on the disability group, the disability pension is granted in the following amounts: 100% of the retirement pension to disabled persons of group I; 90% of the retirement pension to disabled persons of group II; 50% of the retirement pension to disabled persons of group III in accordance with Articles 27 and 28 of this Law. Non-working disabled persons of group II, which were recognized as disabled after reaching the retirement age (60 years) under Art. 26 of Law No. 1058-IV and disabled persons of group III at their choice have the right to a disability pension in the amount of retirement pension calculated in accordance with Articles 27 and 28 of this Law upon availability of 35 years of a pensionable service for men, and 30 years – for women. Non-working disabled persons of group II after reaching the retirement age (60 years) at their choice have the right to a disability pension in the amount of the retirement pension calculated in accordance with Articles 27 and 28 of Law No. 1058-IV, upon availability of the following length of pensionable service:

20 years for women, and 25 years for men, if disability is designated for them for the first time at the age of up to 46 years included;

21 year for women, and 26 years for men, if disability is designated for them for the first time at the age of up to 48 years included;

22 years for women, and 27 years for men, if disability is designated for them for the first time at the age of up to 50 years included;

23 years for women, and 28 years for men, if disability is designated for them for the first time at the age of up to 53 years included;

24 years for women, and 29 years for men, if disability is designated for them for the first time at the age of up to 56 years included;

25 years for women, and 30 years for men, if disability is designated for them for the first time at the age of up to 59 years included.

In accordance with Art. 45 of Law No. 1058-IV, the disability pension is granted from the day of application. However, if the application for a pension has taken place no later than three months after the date of disability designation, a disability pension is granted from the date of disability designation.

The disability pension is granted in the amount of the retirement pension according to the same procedure, if the requirements of Part 2 of Art. 33 of Law No. 1058-IV (dismissal from work and availability of necessary length of pensionable service) are performed on the day of disability designation, and the pension is granted from the day of occurrence of such right, if the requirements of Part 2 of Art. 33 of this Law are fulfilled in the period after the designation of disability before the day of application for a disability pension.

The disability pension provides for allowances (for care, dependents), additional pensions, pensions for special services to Ukraine (if the disabled person has a right to them in accordance with the current legislation of Ukraine).

In the event that the amount of disability pension payment including allowances, benefits and other additional payments to a pension (with the exception of a pension for special services to Ukraine) does not reach the subsistence level established for persons who have lost their ability to work, such persons are provided with monthly state targeted aid in the amount required to reach the specified subsistence level.

After reaching the retirement age, a person who receives a disability pension acquires the right to a retirement pension. According to Art. 10 of Law 1058-IV, a person who has right simultaneously to various types of pensions (retirement pension, disability pension, survivors' pension) shall be granted one of these types of pension at his choice.

Part 3 of Art. 45 of Law No. 1058-IV specifies that the transfer from one type of pension to another is made from the day of submitting an application on the basis of documents on pensionable service, wages (income) and other documents that are at the time of transfer from one type of pension to another shall be in the pension file, as well as on the basis of additional documents received by the Pension Fund bodies.

Transfer to another type of pension is made by applying the rule of Art. 28 of Law No. 1058-IV (amended from 01.10.2011) according to which, the minimum amount of retirement pension is established in the amount of the subsistence minimum for persons who have lost their ability to work, if there are 35 years of pensionable service for men and 30 years for women.

It should be noted that when calculating the disability pension, the period until the person reaches 60 years of age is included in the length of available

pensionable service. When assigning the retirement pension, this additional period is not taken into account. The retirement pension will be determined depending on the length of pensionable service and earnings from which contributions to the Pension Fund have been paid.

When transferring from one type of pension to another, at the request of a person, account may be taken of wages (income) for periods of the length of service specified in Part 1 of Art. 40 of Law No. 1058-IV with using the average wage (income) coefficient, which was taken into account during the award (previous recalculation) of the previous type of pension.

If after admission to disability pension a person continues to work and has acquired at least 24 months of pensionable service after the award (previous recalculation) of the pension, irrespective of breaks in work, then in the event of transferring for the first time from a disability pension to a retirement pension, the average wage (income) is applied for granting a pension according to Part 2 of Art. 40 of Law No. 1058-IV.

According to the provisions of Part 2 of Art. 40 of this Law, the wage (income) for calculating the retirement pension is determined with taking into account the average wage coefficient (income) on average per insured person as a whole in Ukraine, with which insurance contributions were paid for three calendar years preceding the year for applying for a pension.

Consequently, in the event of transferring for the first time from a disability pension to a retirement pension, the average wage coefficient (income) for three previous years is applied only if there are 24 months of pensionable service acquired after the award (previous recalculation) of a disability pension, irrespective of breaks in work.

Thus, the receipt of a retirement pension will in fact be a transfer from one type of pension to another, and legally must be formalized as the first award of a pension. For this purpose, from the moment of acquiring the right to a retirement pension, it is necessary to apply to the bodies of the Pension Fund with an application for the award of a retirement pension with simultaneous submission of the documents stipulated in Art. 45 of Law No. 1058-IV.

Example 1. A man is recognized as a disabled person (for life) of group II due to general disease at the age of 39 years on 26.01.2016. The actual length of pensionable service is 21 years 7 months, the period from the date of designating the disability to reaching the retirement age (60 years) in accordance with Art. 24 of Law No. 1058-IV is 20 years 9 months.

The man is working. Total pensionable service is 42 years 4 months; the pensionable service coefficient is 0.5715. The coefficient of earnings is 1.12345. He applied for the award of a pension on 01.02.2016. Since the application and all necessary documents have been provided within three months from the date of disability determination, the pension shall be granted from 26.01.2016 (from the day of disability establishment).

According to Part 2 of Art. 33 of Law No. 1058-IV, non-working disabled persons of group II at their choice have the right to receive a disability pension in the amount of the retirement pension calculated in accordance with Articles 27 and 28 of this Law, in particular, this applies to men for whom the disability was

first established at the age of up to 46 included, upon availability of pensionable service of 25 years. Since the pensioner is working and his actual length of service (not counting the period from the date of designating the disability to reaching the retirement age) is less than 25 years, the amount of disability pension can be determined only under Part 1 of Art. 33 of Law No. 1058-IV (90% of the retirement pension). There is no right to establish a disability pension in the amount of a retirement pension in this case. After acquiring the pensionable service and retiring from work, a person has the right to a disability pension in the amount of a retirement pension, if this is appropriate for him (i.e. results in an increase of pension amount).

Calculation of the retirement pension in accordance with Art. 27 of Law No. 1058-IV.

The size of the retirement pension is 2095.41 UAH ($3263.61 \times 1.12345 \times 0.5715$), where 3263.61 UAH is the average wage (income) in Ukraine, with which the insurance contributions were paid for three calendar years (2013, 2014, 2015) preceding the year of application for the award of a pension. Additional payment for the above norm length of service: $42 - 35 = 7$, and $1074 \text{ UAH} \times 7\% = 75.18 \text{ UAH}$, where 1074 UAH is the subsistence minimum for those who have lost their ability to work from 01.01.2016, 35 years is a minimum length of pensionable service according to Art. 28 of Law No. 1058-IV.

The amount of the retirement pension: 2170.59 UAH ($2095.41 + 75.18$).

The amount of disability pension: 1953.53 UAH ($2170.59 \times 90\%$).

Example 2. A man is recognized as a disabled person (for life) of group III due to general disease at the age of 55 years on 20.01.2016. Actual length of his pensionable service is 36 years 6 months, the period from the date of designating the disability to reaching the retirement age (60 years) makes up 4 years 10 months in accordance with Art. 24 of Law No. 1058-IV. The man is working. The length of his pensionable service is 40 years 10 months, the pensionable service coefficient is 0.55125. The coefficient of earnings is 1.01235. He applied for the award of a pension on 05.02.2016. Since the application and all necessary documents have been provided within three months from the date of disability designation, the pension shall be granted from January 20, 2016 (from the date of disability). According to Part 2 of Art. 33 of Law No. 1058-IV the non-working disabled persons of group III at their choice have the right to a disability pension in the amount of the retirement pension accrued in accordance with Articles 27 and 28 of this Law, upon availability of 35 years of pensionable service for men. In the given example, the actual pensionable service is 36 years 6 months, that is more than 35 years, but this person works, and therefore, the amount of disability pension can be determined only under Part 2 of Art. 33 of Law No. 1058-IV (50% of the retirement pension).

Calculation of the retirement pension in accordance with Art. 27 of this Law.

The size of the retirement pension is 1821.28 UAH ($3263.61 \times 1.01235 \times 0.55125$), where 3263.61 UAH is the average wage (income) in Ukraine, with which insurance contributions were paid for three calendar years (2013, 2014, 2015) preceding the year of applying for a pension.

Supplemental payment for above-norm length of service:

$40 - 35 = 5$, and $1074 \text{ UAH} \times 5\% = 53.70 \text{ UAH}$, where 1074 UAH is the subsistence minimum for those who lost their ability to work from 01.01.2016.

The total amount of retirement pension: 1874.98 UAH ($1821.28 + 53.70$).
The amount of the disability pension: 937.49 UAH ($1874.98 \times 50\%$).

Suppose that a person quit his job on 20.04.2016 and will not work in future. According to Art. 45 of Law No. 1058-IV in the event that the requirements of Part 2 of Art. 33 of this Law (dismissal and the availability of necessary length of pensionable service) are fulfilled after the disability pension has been granted, the disability pension in the amount of the retirement pension shall be granted from the day of the onset of this right if the application for the disability pension in the amount of the retirement pension was made not later than three months from the day of the onset of such right. So, if the dismissal occurred after the appointment of a pension, this person needs to apply to the management of the Pension Fund of Ukraine at the place of residence within three months from the date of dismissal from work, with an application for establishing a disability pension in the amount of the retirement pension. Suppose that such an application was received on 05.05.2016, so the disability pension in the amount of the retirement pension will be granted from 21.04.2016 (the day of dismissal is considered to be the last working day).

Calculation of the disability pension in the amount of the retirement pension: pensionable service – 36 years 6 months (in this case the period from the date of designating the disability to reaching the retirement age (60 years) is not included in the length of pensionable service).

Calculation of the disability pension in the amount of the retirement pension in accordance with Art. 27 of Law No. 1058-IV.

The amount of the retirement pension: 1628.00 UAH ($3263.61 \times 1.01235 \times 0.49275$).

Additional payment for the above norm length of service: $36 - 35 = 1$, and $1074 \text{ UAH} \times 1\% = 10.74 \text{ UAH}$, where 1074 UAH is the subsistence minimum for those who have lost their ability to work from 01.01.2016.

The amount of disability pension in the amount of the retirement pension: 1638.74 UAH ($1628.00 + 10.74$).

Example 3. A man is a disabled person (for life) of group II, the disability is first established at the age of 43 years, he does not work. Actual length of pensionable service is 26 years 6 months, the period from the date of designating the disability to reaching the retirement age (60 years) in accordance with Art. 24 of Law No. 1058-IV is 16 years 1 month.

The length of pensionable service is 42 years 7 months, the pensionable service coefficient is 0.57488. The coefficient of earnings is 1.13256

Calculation of the retirement pension in accordance with Art. 27 of this Law: 2124.89 UAH ($3263.61 \times 1.13256 \times 0.57488$), where 3263.61 UAH is the average wage (income) in Ukraine with which insurance contributions were paid for three calendar years (2013, 2014, 2015) preceding the year of applying for a pension.

Additional payment for the above norm length of service: $42 - 35 = 7$, and $1074 \text{ UAH} \times 7\% = 75.18 \text{ UAH}$, where 1074 UAH – is the subsistence minimum

for those who have lost their ability to work from 01.01.2016. Total amount of the retirement pension: 2200.07 UAH ($2124.89 + 75.18$).

The amount of disability pension: 1980.06 UAH ($2200.07 \times 90\%$). Calculation of the disability pension in the amount of the retirement pension: the length of pensionable service is 26 years 6 months (in this case, the period from the date of designating the disability to reaching the retirement age (60 years) is included in the length of pensionable service). The coefficient of pensionable service is 0.35775.

Calculation of the retirement pension in accordance with Art. 27 of Law No. 1058-IV: 1322.33 UAH ($3263.61 \times 1.13256 \times 0.35775$). There is no above-norm length of service. The size of the disability pension in the amount of the retirement pension is 1322.33 UAH. Therefore, due to including the period of disability in the actual length of pensionable service, it is more appropriate for this disabled person to receive a disability pension (at the rate of 90% of the retirement pension).

Example 4. A man is a disabled person of group II due to general disease. He was paid the disability pension in amount of 1950.45 UAH and continued to work until reaching the retirement age (60 years) according to Art. 26 of Law No. 1058-IV. He was 60 years old on 01.03.2016 and he acquired the right to a retirement pension. At the time of reaching retirement age, a person has the pensionable service of 41 years 5 months; the coefficient of pensionable service is 0.55912. The coefficient of earnings is 1.32568

Since a person after granting the disability pension acquired more than 24 months of pensionable service and he goes to a retirement pension for the first time, so when determining the retirement pension in accordance with Art. 27 of Law No. 1058-IV, provision shall be made for application of the average wage (income) in Ukraine from which insurance contributions were paid for three calendar years (2013, 2014, 2015) preceding the year of applying for a pension.

Calculation of the retirement pension in accordance with Art. 27 of this Law.

The retirement pension:

2419.03 UAH ($3263.61 \times 0.55912 \times 1.32568$),

where 3263.61 UAH is the average wage (income) in Ukraine, from which the insurance contributions were paid for three calendar years (2013, 2014, 2015) preceding the year of applying for a pension.

Supplemental payment for the above-norm length of service: $41 - 35 = 6$, and $1074 \text{ UAH} \times 6\% = 64.44 \text{ UAH}$, where 1074 UAH is the subsistence minimum for those who have lost their ability to work from 01.01.2016.

Total amount of the retirement pension: 2483.47 UAH ($2419.03 + 64.44$).

Consideration of specifics in application of the provisions of Law No. 1058-IV for forensic economic examinations contributes to a more thorough substantiation of expert opinions on determining the amount of disability pension as well as disability pension in the amount of the retirement pension and the expediency of choosing the type of pension.

ОСОБЛИВОСТІ ПРИЗНАЧЕННЯ ТА РОЗРАХУНКІВ ПЕНСІЙ ПО ІНВАЛІДНОСТІ

Аніщенко О. В., Мамонтова Л. В.

Розглянуто умови призначення пенсій по інвалідності та визначено порядок обчислення страхового стажу й час набуття права на пенсію по інвалідності в розмірі пенсії за віком. Наведено приклади розрахунку розміру пенсії по інвалідності та пенсії по інвалідності в розмірі пенсії за віком при проведенні судово-економічних експертиз.

Ключові слова: пенсія по інвалідності, страховий стаж, понаднормовий стаж, доплата за понаднормовий стаж, прожитковий мінімум, пенсія по інвалідності в розмірі пенсії за віком.

ОСОБЕННОСТИ НАЗНАЧЕНИЯ И РАСЧЕТОВ ПЕНСИЙ ПО ИНВАЛИДНОСТИ

Анищенко О. В., Мамонтова Л. В.

Рассмотрены условия назначения пенсии по инвалидности и определен порядок исчисления стажа и времени наступления права на переход с пенсии по инвалидности на пенсию по возрасту. Приведены примеры расчета размера пенсии по инвалидности, пенсии по инвалидности в размере пенсии по возрасту при проведении судебно-экономических экспертиз.

Ключевые слова: пенсия по инвалидности, страховой стаж, сверхурочный стаж, доплата за сверхурочный стаж, прожиточный минимум, пенсия по инвалидности в размере пенсии по возрасту.

343.98:330:001:89

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PROBLEMATIC ASPECTS OF THE ISSUES RESOLUTION ABOUT DOCUMENTARY EVIDENCE OF MATERIAL DAMAGE (LOSSES) AMOUNT

Proceeding from the expert practice, consideration is given to the main aspects of determining the objects of research during the forensic economic examinations regarding the documentary evidence of calculation of the material damage (losses) amount. Account is given of the list of controlling bodies that have the right to conduct scheduled and unscheduled site inspections of financial and economic activities of business entities. A list of research objects that confirm the display of material damage (losses) in the enterprise's accounting records is proposed.

Keywords: controlling bodies, material damage (loss), additional costs, loss of assets, income shortfalls, registers of accounting.

The relevance of the topic is due to changes introduced by the Law of Ukraine dated 13.05.2014, No. 1261-VII¹ of Art. 242 “Foundations for the Examination Conduct” of the Criminal Procedure Code of Ukraine, which provide for obligation from 04.06.2014 to conduct an examination within the frame of criminal proceedings in case of determining the amount of material damage, harm of non-property, harm to the environment caused by a criminal offense. The forensic economic examination solves the issue of documentary evidence of material damage (loss) amount.

According to item 1.1 of Sec. III “Economic Examination” of the Scientific and Methodological Recommendations on the Preparation and Designation of Forensic Examinations and Expert Studies “... the audit arrangements (determination of any economic indicators by economic experts without preliminary documentary checks of financial and economic activities by the controlling body) is not relevant to the tasks economic examination”².

Therefore, the fact of damage shall be checked by the controlling bodies, which determine the amount of material damage (losses). In Ukraine today, there are a large number of controlling bodies that have the right to check the entities of entrepreneurial activity.

Their powers are established by laws, subordinate legislation and each controlling body has different grounds for conducting inspections.

In accordance with the Decree of the President of Ukraine No. 817/98 “On some measures for deregulation of entrepreneurial activities”³ (which partially streamlined the activities of various controlling bodies), the controlling bodies that have the right to conduct scheduled and unscheduled site audits of financial and economic activities of business entities are the following:

- a) state tax service bodies have relevance to the payment of taxes and fees (mandatory payments) to budgets and state trust funds, settle of non-tax payments;
- b) customs authorities have relevance to payment of import duty, excise duty and value-added tax, which are levied upon importation (transfer) of goods to the customs territory of Ukraine at the time of crossing the customs border;
- c) bodies of state treasury, state control and audit service, bodies of state tax service within their competence have relevance to budget loans, loans and credits guaranteed by budget funds, targeted use of dotations and subsidies, other budgetary allocations, off-budget funds, as well as they have relevance to proper implementation of state contracts prepaid at the expense of budget funds. These controlling bodies have the right to conduct inspections of financial and economic

¹ See: Про внесення змін до деяких законодавчих актів України у сфері державної антикорупційної політики у зв'язку з виконанням Плану дій щодо лібералізації Європейським Союзом візового режиму для України : Закон України від 13 травня 2014 р. № 1261-VII // Відом. Верхов. Ради України. — 2014. — № 28. — Ст. 937.

² See: Про внесення змін до наказу Міністерства юстиції України від 08 жовтня 1998 р. № 53/5 : наказ М-ва юстиції України від 26 груд. 2012 р. № 1950/5 [Електронний ресурс]. — Режим доступу : <http://zakon4.rada.gov.ua/laws/show/z0001-13>.

³ See: Про деякі заходи з дерегулювання підприємницької діяльності : Указ Президента України від 23 лип. 1998 р. № 817/98 // Офіц. вісн. України. — 1998. — № 30. — Ст. 1119.

activities of business entities only within their competence. The implementation of inspections by other state bodies is prohibited.

The controlling bodies can be divided into the following main categories: fiscal authorities, which must ensure the interests of the treasury and filling the budget; controlling bodies (sanitary-epidemiological service, state fire-fighting service) that provide life safety of citizens; consumer protection authorities; bodies of environmental control and so on.

As a rule, the result of economic violations is the reduction of property or non-property benefits, which are protected by law and have a certain economic value expressed in monetary terms.

In accordance with Art. 225 of the Economic Code of Ukraine, the composition of losses subject to compensation by a person who committed an economic offense includes the following:

- value of lost, damaged or destroyed property to be determined in accordance with the requirements of legislation;

- additional costs (penalties paid to other entities, the cost of additional work, additional materials expended, etc.) incurred by a party that suffered losses because of a breach by other party;

- uncollected profit (missed or lost profit) to which the party that suffered losses had the right to expect, in the event of due fulfillment of the obligation by the second party;

- material compensation for moral damage in cases prescribed by the law.

Article 22 of the Civil Code of Ukraine defines the following losses:

- losses that the person incurred in consequence of the destruction or damage of the thing, as well as costs that the person has or will have to incur to restore his infringed right (actual damage or losses);

- income that a person could actually earn under normal circumstances, if his right was not violated (lost profit).

The order of interaction between the bodies of the state supervision-and-auditing service and prosecution authorities, internal affairs bodies and the Security Service of Ukraine defines the concept of material damage (loss) as a loss of assets or a lack of adequate income¹.

In some cases, the enterprise that incurred losses, can itself calculate the loss of assets (irrevocable loss of assets through: transfer (payment) of funds, alienation, shortage, destruction (damage) or acquisition of illiquid (damaged) property, loss of the debtor in the obligation, reduction of the share of state (municipal) property in the statutory fund of business entity or a lack of adequate income) in order to provide materials for conducting economic examinations. Summarizing the above, it should be noted that it is within the competence of the expert-economist to provide the documentary evidence of the cal-

¹ See: Про затвердження Порядку взаємодії між органами державної контрольно-ревізійної служби, органами прокуратури, внутрішніх справ, Служби безпеки України : наказ Голов. контр.-ревіз. управління України, М-ва внутр. справ України, Служби безпеки України, Генеральної прокуратури України від 19 жовт. 2006 р. № 346/1025/685/53 [Електронний ресурс]. — Режим доступу : http://search.ligazakon.ua/l_doc2.nsf/link1/RE13040.html.

culational of the caused material damage (losses) determined either by the controlling bodies within their competence or directly by the enterprise.

Consequently, upon the forensic economic examination regarding the documentary evidence of material damage (loss) amount, the main document is an inspection report, which contains the calculation of such damages.

When performing such examinations, we offer the following list of objects that must be provided for research:

- inspection certificate, which contains the calculation of material damage (losses);
- documents confirming contractual relations between business entities;
- primary documents to be drawn up in the course of financial and economic activities, the list and mandatory details of which are specified in Art. 9 of the Law of Ukraine “On Accounting and Financial Reporting of Ukraine”¹;
- registers of synthetic and analytical accounting, in which the operations of financial and economic activities between entities of business activity are systematized;
- documents that confirm the reflection of material damage (loss) in the enterprise's accounting records or confirm write-off of damage at the expense of the enterprise's funds;
- financial and tax reporting.

Taking into account the penultimate point of the list of research objects, it should be noted that in the event of non-reflection of material damage (losses) in the enterprise's accounting records, all expenses incurred by a business entity as a result of violation of its right are additional costs.

Since the purpose of accounting and preparation of financial reporting is to provide users with information about the financial condition, operating results and cash flows of an enterprise to make managerial decisions, the amount of suffered material damage (loss) must be accounted for in bookkeeping accounts in the registers of synthetic and analytical accounts by their double recording on the interconnected accounts.

To account for material damage (losses), the Instruction for using the Plan of accounts for bookkeeping of assets, capital, liabilities and business transactions of enterprises and organizations provides for the following bookkeeping accounts²:

— 375 “Settlements for compensation of caused losses” – accounting of settlements for compensation to the enterprise for caused losses resulting from short-ages and damage to valuables, shortages and theft of monetary funds, if the guilty person is not identified;

— 947 “Shortages and losses from damage to valuables” – accounting of the shortage of funds and other valuables, losses from damage to valuables revealed during the procurement, treatment, storage and sale. Simultaneously

¹ See: Про бухгалтерський облік та фінансову звітність в Україні : Закон України від 16 лип. 1999 р. №996-XIV // Відом. Верхов. Ради України. — 1999. — №40. — Ст. 365.

² See: Про затвердження Плану рахунків бухгалтерського обліку та Інструкції про його застосування : наказ М-ва фінансів України від 30 листоп. 1999 р. №291 // Офіц. вісн. України. — 1999. — №52. — С. 67.

with writing off the valuables, the guilty for a shortage of which is not identified, it is necessary to enter the book value of the written-off asset to off-balance account 07 "Write-off assets";

— 948 "Recognized fines, penalties, forfeits" – accounting of the recognized economic sanctions for enterprise failure to comply with the legislation and the terms of contracts;

— 07 "Write-off assets" is intended to summarize information about the state of accounts receivable written off from the balance due to the insolvency of debtors, as well as about amounts of uncompensated shortages and losses from damage to valuables.

The transfer of the amount to off-balance account 07 is carried out simultaneously with writing off the amount of shortages and losses from damage to valuables and receivables for the company's expenses.

Account 07 "Write-off assets" has the following sub-accounts: 071 "Write-off receivables" and 072 "Uncompensated shortages and losses from damage to valuables".

The amount of written-off receivables is recorded in accounting records on off-balance subaccount 071 "Write-off receivable" for at least three years from the date of cancellation to monitor the possibility of its collecting in cases of changes in the debtor's property position.

Accounts receivable are finally written off from sub-account 071 after receipt of the amount by way of compensation with simultaneous entries under the debit of accounts 30 "Money", 31 "Accounts with banks" or other accounts of assets and under credit of subaccount 716 "Reimbursement of assets previously written off" or because of the expiration of accounting for such debt.

Abatement of the amount of uncompensated shortfalls and losses from damage to valuables on sub-account 072 "Uncompensated shortages and losses from damage to valuables" is reflected in the amount that is subject to compensation by the perpetrators after solving the issue of them with simultaneous entries under the debit of the sub-account 375 "Settlements for compensation for losses in-curred" and under the credit of sub-account 716 "Reimbursement of previously written-off assets".

Analytical accounting by off-balance account 07 "Write-off assets" is conducted for debtors and cases of detecting the shortages and losses from damage to valuables.

Having examined the documents regarding the implementation of the business transaction and having determined the material damage (loss) as a result of its implementation, the expert-economist confirms the fact that such information is reflected in the relevant documents, including the accounting registers.

So, during the forensic economic examination in regard to documentary evidence of the amount of material damage (losses), the expert examines the data stated in the inspection act that contains the calculation of material damage (losses). The calculation is performed on the basis of the data of primary documents, contractual documentation and data of the accounting registers. In this case, the data of the accounting registers are compared with the data of financial and tax reports.

**ПРОБЛЕМНІ АСПЕКТИ ВИРІШЕННЯ ПИТАНЬ
ЩОДО ДОКУМЕНТАЛЬНОГО ПІДТВЕРДЖЕННЯ РОЗМІРУ
МАТЕРІАЛЬНОЇ ШКОДИ (ЗБИТКІВ)**

Буколова В. В.

Виходячи з експертної практики, розглянуто основні аспекти визначення об'єктів дослідження при проведенні судових економічних експертиз щодо документального підтвердження розрахунку розміру матеріальної шкоди (збитків). Наведено перелік контролюючих органів, які мають право проводити планові та позапланові виїзні перевірки фінансово-господарської діяльності суб'єктів підприємницької діяльності. Запропоновано перелік об'єктів дослідження, які підтверджують відображення матеріальної шкоди (збитків) в бухгалтерському обліку підприємства.

Ключові слова: контролюючі органи, матеріальна шкода (збиток), додаткові витрати, втрата активів, недоотримання доходів, реєстри бухгалтерського обліку.

**ПРОБЛЕМНЫЕ АСПЕКТЫ РЕШЕНИЯ ВОПРОСОВ
О ДОКУМЕНТАЛЬНОМ ПОДТВЕРЖДЕНИИ
РАЗМЕРА МАТЕРИАЛЬНОГО УЩЕРБА (УБЫТКОВ)**

Буколова В. В.

Исходя из экспертной практики, рассмотрены основные аспекты определения объектов исследования при проведении судебных экономических экспертиз относительно документального подтверждения расчета размера материального ущерба (убытков). Приведен перечень контролирующих органов, которые имеют право проводить плановые и внеплановые выездные проверки финансово-хозяйственной деятельности субъектов предпринимательской деятельности. Предложен перечень объектов исследования, подтверждающих отображение материального ущерба (убытков) в бухгалтерском учете предприятия.

Ключевые слова: контролирующие органы, материальный ущерб (убыток), дополнительные расходы, потеря активов, недополучение доходов, регистры бухгалтерского учета.

UDC 620.21

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**FEATURES OF APPOINTING AND CONDUCTING
MERCHANDISING RESEARCHES TO DETERMINE
VALUE OF GREEN PLANTATIONS**

Consideration is given to methodical approaches for solving the problems that arise in expert practice in the appointment and execution of forensic merchandising examinations on determining the value of forestry green plantations, green plantations in cities and in other settlements.

Keywords: forensic merchandising examination, determination of the value of green plantations, forest felling, limits of the expert's competence.

Proceeding from the practical experience of experts of the Kharkiv RIFE, most often the investigative bodies appoint a forensic merchandising examination on crimes and other offenses against the environment in order to determine the damage from illegal forest felling.

However, this issue in this edition goes beyond the competence of merchandising examination experts. In some cases, the forestry commodities of main industrial tree species become the objects of forensic merchandising examination in such matters.

In this aspect, in order to eliminate disagreements and contradictions for the purpose of scientific substantiation of the actuality and unambiguous interpretation of all that concerns this problem, it is necessary to consider certain regulations, terms and definitions from the current legislation of Ukraine, which fully determines the limits of forensic experts' competence in conducting the merchandising researches on assessment of forestry green plantations, green plantations in cities and other settlements.

According to the decision of the Plenum of the Supreme Court of Ukraine "On Judicial Practice in Cases of Crimes and Other Offenses Against the Environment" dated 10.12.2004 No. 17¹, crimes and other offenses against the environment encroaching on public relations in the sphere of protecting the constitutional right of citizens to a safe environment, as well as in the sphere of protection, use, storage and reproduction of natural resources, environmental safety, prevention and elimination of negative impact of economic and other human activities on the environment, conservation of the genetic fund of wildlife, landscapes and other natural complexes, unique territories, as well as natural objects associated with the historical and cultural heritage.

According to the Constitution of Ukraine, everyone has the right to a safe for life and health environment as well as to compensation for damage caused by the violation of this right (Art. 50) and is obliged not to harm nature and compensate for the damage caused (Art. 66).

One of the main signs of the objective side of illegal forest felling is the socially dangerous consequences of the committed act, which manifest themselves in causing significant harm. This sign is significant, because it determines the degree of public danger of a criminal act. The absence of harm in the presence of other signs of a crime under Art. 246 of the Criminal Code of Ukraine (except for forests that belong to the natural reserve fund), automatically transfers such acts to the category of administrative offenses specified in Articles 64, 65, 651, 67 of the Code of Administrative Offenses.

Another form of illegal forest felling, the responsibility for which is provided by the Criminal Code of Ukraine, is the cutting of trees in reserves or in the territories and objects of the nature reserve fund, as well as in other forests that are specially protected. To bring to responsibility for that, availability of a certain

¹ See: Про судову практику у справах про злочини та інші правопорушення проти довкілля: постанова Пленуму Верховного Суду України від 10.12.2004 № 17 [Електронний ресурс]. — Режим доступу : <http://zakon3.rada.gov.ua/laws/show/v0017700-04>.

harm is not necessarily. So, it does not matter how many trees were illegally felled and the amount of caused damage, since this act already has signs of a crime. Therefore, in all cases of the unauthorized cutting in the territories and objects of the nature reserve fund, the materials on such facts shall be considered by law enforcement bodies.

The scientific literature and judicial explanations emphasize that the concept of “significant harm” is evaluative. This means that the issue of the materiality of a certain harm caused by illegal forest felling is decided separately in each specific case with taking into account all the circumstances of the case. The above resolution of the Plenum of the Supreme Court of Ukraine dated 10.12.2004 No. 17 notes on this, that “the courts must take into account not only quantitative and cost criteria, but also other circumstances that are important for the solution of this issue.”

When distinguishing the illegal forest felling as an administrative offense from a criminal offense, we can identify three conventional approaches that are used to determine the significance of harm, namely

- 1) social;
- 2) ecological;
- 3) material.

The social approach is based on the fact that large illegal forest felling negatively affects the state of forests as a natural system, violating the living conditions of people, worsening the state of the environment, thus causing significant harm. This approach is rarely used in investigative and judicial practice.

The ecological approach is based on the principle of criminal law, according to which the environmental damage caused can be estimated not only in material and monetary terms, but also from the standpoint of negative impact on the environment. Such an impact cannot have an objective material assessment. It is well known that environmental harm caused by illegal forest felling is more dangerous than material damage, because the latter can always be compensated. This approach is also rarely used in investigative and judicial practice.

The material approach is based on the fact that illegal forest felling causes significant harm to the economic interests of the state and is manifested in monetary losses. The economic damage from illegal forest felling includes the following:

- removal of the cost for damaged or destroyed timber from the state;
- incomplete receipt of income, which the forest user had a real opportunity to obtain from the use of wood;
- expenses for reforestation of felled forest areas;
- expenses for removal of felling residues, etc.

The distinguishing of crimes from administrative offenses is carried out in accordance with the approved scales of payment, which are valid for the time of the violation. Item 18 of the Resolution of the Plenum of the Supreme Court of Ukraine dated 10.12.2004 No. 17 states about that.

Currently, the damage caused by illegal forest felling is determined in the following three Government resolutions:

1) Resolution of the Cabinet of Ministers of Ukraine “On the amount of compensation for the extraction (collection) and damage caused to species of animals and plants listed in the Red Book of Ukraine” dated 01.06.1993 No. 399.

This decree is applied for the event of felling the trees and bushes listed in the red book¹;

2) Resolution of the Cabinet of Ministers of Ukraine “On approval of the scales of payment for calculating the amount of compensation for damage caused by violation of environmental legislation within the territories and objects of the natural reserve fund of Ukraine” dated 21.04.1998 No. 521. This decree is applied when revealing the facts of illegal forest felling or damage to wood species of plants to the extent of growth cessation in protected areas and objects²;

3) Resolution of the Cabinet of Ministers of Ukraine “On the approval of scales of payment for calculating the amount of damage caused to the forest” dated 23.07.2008 No. 665. This normative act is the most used in the practice of forest protection and environmental inspections, as it determines the scales of payment for calculating the harm caused by illegal forest felling committed by legal entities and individuals in forests of various categories (except for the forests listed in the Red Book of Ukraine, as well as for those that grow in the territories and objects of the natural reserve fund, other specially protected forests and forest areas)³.

The commodity examination experts do not independently determine the replacement cost of green spaces, which are registered by local authorities in cities and other settlements. Such kind of researches is carried out by experts of local bodies of executive authority and local governments, departments of the accomplishment, municipal services and engineering protection of territories on the basis of the following acts:

— Law of Ukraine dated 06.09.2005 No. 2807-IV “On the accomplishment of settlements”⁴;

¹ See: Про розміри компенсації за добування (збирання) та шкоду, заподіяну видам тварин і рослин, занесеним до Червоної книги України : постанова Каб. Міністрів України від 01.06.1993 №399 [Електронний ресурс]. — Режим доступу : <http://zakon4.rada.gov.ua/laws/show/399-93-п>.

² See: Про затвердження такс для обчислення розміру відшкодування шкоди, заподіяної порушенням природоохоронного законодавства у межах територій та об’єктів природно-заповідного фонду України : постанова Каб. Міністрів України від 21.04.1998 №521 [Електронний ресурс]. — Режим доступу: <http://zakon5.rada.gov.ua/laws/show/521-98-п>.

³ See: Про затвердження такс для обчислення розміру відшкодування шкоди, заподіяної порушенням природоохоронного законодавства у межах територій та об’єктів природно-заповідного фонду України : постанова Каб. Міністрів України від 21.04.1998 №521 [Електронний ресурс]. — Режим доступу: <http://zakon5.rada.gov.ua/laws/show/521-98-п>.

⁴ See: Про благоустрій населених пунктів : Закон України від 06.09.2005 №2807-IV // Відом. Верхов. Ради України. — 2005. — №49. — Ст. 517 [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/2807-15>.

— Decisions of the Cabinet of Ministers of Ukraine dated 01.08.2006 No. 1045 “On approval of the Order of removal of trees, bushes, lawns and flower beds in populated areas”¹;

— Order of the Ministry of Housing and Communal Services of Ukraine dated 12.05.2009 No. 127 “On Approval of the Methodology for Determining the Replacement Value of Green Plantations”².

Since in accordance with the Government's decisions, the calculation of damage caused by unauthorized forest felling should be carried out only by the relevant specialists of environmental services, forestry management according to forest inventory materials, taxation allocation based on the regulated dues, the calculation of damage caused by unauthorized forest felling is not within the limits of commodity examination experts' competence.

At the same time, it is within the competence of merchandising examination experts to assess the marketable timber and to determine the damage at market prices in cases of theft (misappropriation, embezzlement, etc.) of already felled and enumerated timber (which, in accordance with the assortment of commodity tables, is in ownership of enterprises and in such state is considered to be a commodity material asset)³.

In December 2015, the staff members of the Kharkiv RIFE completed the research work on the topic “Methodological recommendations for determining the value of plants of certain species in conduct of forensic merchandising examinations”. For the first time, this work clearly states such definitions as subject, tasks, objects of research. It defines the experts' competence limits in the appointment and conduct of merchandising examinations and comprehensive forensic-biological and merchandising researches on evaluating the plants of certain species. A separate section of these methodological materials is devoted to solving the problematic issue of evaluating the forestry green plantations, green plantations in cities and other settlements⁴. It gives the description and commodity characteristics of the most widespread trees of industrial species of wood: coniferous species, such as larch, pine, spruce, fir, cedar and others; deciduous ring-porous species of wood, such as oak, ash, elm, chestnut, pistachio; deciduous diffuse-porous wood such as birch, poplar, alder, maple, pear, boxwood, mountain ash, hazel, etc.

¹ See: Про затвердження Порядку видалення дерев, кущів, газонів і квітників у населених пунктах : постанова Каб. Міністрів України від 01.08.2006 № 1045 [Електронний ресурс]. — Режим доступу : <http://zakon5.rada.gov.ua/laws/show/1045-2006-%D0%BF>.

² See: Про затвердження Методики визначення відновної вартості зелених насаджень : наказ М-ва з питань житлово-комунального господарства України від 12.05.2009 № 127 [Електронний ресурс]. — Режим доступу : <http://zakon2.rada.gov.ua/laws/show/z0549-09>.

³ See: *Сторчоус О.* Кримінальна відповідальність за самовільні порубки лісу : навч. посібник / О. Сторчоус. — К. : ВАІТЕ, 2012. — 116 с.

⁴ See: Методичні рекомендації з визначення вартості рослин певних видів при проведенні судово-товарознавчих експертиз : звіт про НДР (заключ.) / МЮУ, Харків. НДІСЕ ; кер. А. І. Лозовий ; викон. О. С. Донцова [та ін.]. — № ДР 0114U001648. — Х., 2015. — 132 с.

In the Methodological recommendations for determining the value of plants of certain species during forensic merchandising examinations in order to determine the market value and non-market types of the cost for green spaces (trees, shrubs, flowers), the algorithms for conducting the researches are considered, depending on the circumstances of the case.

Account is given of the variants for using the cost-effective, profitable and comparative methodological approaches provided for the valuation of property in accordance with the National Standard No. 1¹.

According to the results of the research work on this problem issue, it is determined that in cases of thefts of already felled and appropriated wood, damage to green plantations (saplings), the merchandising examination is conducted to determine the market value of marketable timber (saplings), the market value of works and services for its procurement or to resolve the issue of determining the amount of material damage caused to the owner of damaged green plantations at market prices that have developed for the type of product under study.

Thus, the above explanations and limitations will facilitate the unification of the process of appointing and conducting forensic merchandising examination (expert researches) to determine the value of forestry green plantations, green plantations in cities and other settlements.

ОСОБЛИВОСТІ ПРИЗНАЧЕННЯ ТА ПРОВЕДЕННЯ ТОВАРОЗНАВЧИХ ДОСЛІДЖЕНЬ ІЗ ВИЗНАЧЕННЯ ВАРТОСТІ ЗЕЛЕНИХ НАСАДЖЕНЬ

Донцова О. С.

Розглянуто методичні підходи до вирішення проблем, які виникають в експертній практиці при призначенні й проведенні судово-товарознавчих експертиз із визначення вартості зелених насаджень лісних господарств, зелених насаджень у містах та інших населених пунктах.

Ключові слова: судово-товарознавча експертиза, визначення вартості зелених насаджень, порубка лісу, межі компетенції експерта.

ОСОБЕННОСТИ НАЗНАЧЕНИЯ И ПРОВЕДЕНИЯ ТОВАРОВЕДЧЕСКИХ ИССЛЕДОВАНИЙ ПО ОПРЕДЕЛЕНИЮ СТОИМОСТИ ЗЕЛЕННЫХ НАСАЖДЕНИЙ

Донцова О. С.

Рассмотрены методические подходы к решению проблем, которые возникают в экспертной практике при назначении и проведении судебно-товароведческих экспертиз по определению стоимости зеленых насаждений лесных хозяйств, зеленых насаждений в городах и других населенных пунктах.

Ключевые слова: судебно-товароведческая экспертиза, определение стоимости зеленых насаждений, рубка леса, границы компетенции эксперта.

¹ See: Про затвердження Національного стандарту №1 “Загальні засади оцінки майна і майнових прав”: постанова Каб. Міністрів України від 10 верес. 2003 р. №1440 // Офіц. вісн. України. — 2003. — №37. — Ст. 1995.

FORENSIC EXAMINATION IN INTELLECTUAL PROPERTY SPHERE

UDC 343.148

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DOCTRINE OF “FAIR USE” OF FINE ART WORKS IN THE ANALYTICAL PRACTICE OF NORTH AMERICAN FORENSIC EXPERTS

The paper presents some of the main provisions of North American methods for examining the works of fine art as objects of intellectual property in the context of the legal doctrine of “fair use” on the basis of the resonant case “Patrick Carey versus Richard Prince”. The emphasis is placed on practical significance of the considered scientific and methodological approaches for modern Ukrainian forensic experts. The critical analysis is given for some specific features of the North American methods, which are controversial among lawyers and experts of the United States of America.

Keywords: “fair use” doctrine, study of fine art works, “reasonable spectator”, North American judicial practice.

The “fair use” doctrine of fine art works is presented under name “The Fair Use Doctrine” in North American legislation in the current law “The Copyright Act” officially approved in 1976. Its main functional purpose is the regulation of legal relations in the field of copyright object protection. “Fair use” provides for the possibility of limited use of copyrighted visual materials without obtaining (or acquiring) a relevant permit (license) from right-holders. It should be noted that, despite the significant spread of this doctrine in the legislative systems of many countries of the world (Israel, Philippines, South Korea, Sri Lanka, Liberia, etc.) oriented to the legal norms of the United States, the world-wide jurisprudence indicates an inadequate level of understanding some features of “fair use” in the process of resolving the disputes about copyright infringement on works of fine art. Moreover, even in North American territories, where, in fact, the final formulation and legislative implementation of the leading provisions of this legal doctrine took place, the regional courts of first instance and the federal appellate courts are compelled to apply to qualified experts in the field of art criticism with requests to examine the case materials and provide the judges with appropriate arguments regarding the compliance of potential copyright infringement with the principles of “fair use”. After all, the final decision of the court depends on the professional competence and validity of the analytical conclusions of the experts.

Among many resonant court hearings that occurred in the United States in recent years about possible “fair use” of intellectual property objects, the most publicized case was “Patrick Carey vs. Richard Prince”. For six years, professional photographer P. Carey lived in the mountainous regions of Jamaica and collected materials for the future collection of author's photographs related to the exotic folk culture of local natives. In 2000, his completed collection was published under the name of “Yes Rasta”. In the same year, the popular postmodern artist R. Prince bought it in the bookstore in Saint Barth and decided to create a series of paintings and collages based on P. Cary's photos. He subsequently showed them to American audiences at his own exhibition “Canal Zone”.

The artist reproduced thirty photographic works of P. Carey by means of reprocessing: significantly increased their size, painted some areas and added new graphic elements (color ovals on the faces of men, fragmentary images of naked women, electric guitars in the hands of some characters). In 2008, R. Prins exposed almost all art objects presented at the Canal Zone exhibition for sale. The author estimated each of the submitted works in several hundred thousand dollars.

In early 2008, upon learning of the unauthorized use of his own photographs, P. Carey filed a lawsuit against R. Prince and his commercial agents in the District Court of the State of New York. In response, the legal representatives of the artist acknowledged the reproduction of photos from the Yes Rasta collection through creative reprocessing, but appealed to the principles of the “fair use” doctrine of fine art works. The court of first instance confirmed the fact of infringing the P. Carey's copyright and ordered R. Prince to stop selling immediately and pay the photographer a significant monetary compensation.

However, in April 2013, after detailed consideration of the arguments of defendant's side and new conclusions of forensic experts concerning most of P. Carey's photos used in the art compositions of R. Prince, the New York State Federal Court of Appeals recognized his actions as appropriate to “fair use”. Only five out of thirty works were recognized as a violation of copyright. On November 12, 2013, the Supreme Court of the United States rejected the cassation appeal of the representatives of P. Carey and upheld the decision of the Board of Appeal.

The results of survey study of the North American forensic experts' experience in reviewing the materials of judicial disputes over the suit of “P. Carey vs. R. Prince” have substantial practical significance for Ukrainian forensic professionals, who have no any officially approved methodology now for researching the works of fine art as objects of intellectual property.

The scientific and methodological experience of foreign analysts will contribute to the formation of new professional competencies of domestic specialists. The *relevance* of the exploration is determined by the need to expand the methodological base, introduce new research strategies and improve the analytical tools used by the forensic experts of Ukraine.

The circumstances of the court hearings with the participation of P. Carey and R. Prince were widely covered in the North American printed and electronic media, as well as considered in detail by specialized professional publications of the United States. In 2014, on the ground of expert examination findings of this case, there was a publication of an official scientific report “Copyright, Permis-

sions, and Fair Use among Visual Artists and the Academic and Museum of Visual Arts Communities” (under authorship of experts from the College Art Association, who took part in the court hearings in the appellate instance). Specialists of expert institutions also prepared general recommendations “Code of Best Practices in Fair Use” for experts and other specialists who appear in the courts of the United States. However, for today these materials remain little-known to Ukrainian experts.

So, the *task of the article* is a generalized definition of the leading scientific and methodological concepts and research practices of North American forensic experts who examined the materials of the court cases “P. Cary vs. R. Prince” “on the use of photographic works through reprocessing into graphic works and collages in the context of the basic provisions of the “fair use” doctrine. The doctrine of “fair use” fixed in the North American copyright law supports a kind of legal balance between the legitimate rights of authors of primary works of art and the rights of others who have the purpose to use these copyrighted works in a certain way as methods of creative self-expression¹.

When considering the materials of the claim “P. Cary vs. R. Prince”, the experts had to investigate the following factors² decisive for the final withdrawal of judges:

- determination of the *purpose and nature* of using the P. Cary's photographs in graphic works and collages of R. Prince, including whether such use has a *pronounced commercial nature* or use occurred in *non-profit (educational, scientific, etc.) purposes*;

- determination of the *total volume* and *specific fragments* of R. Prince's graphic works, which were reproduced by reprocessing, with respect to the copyrighted photographic works of P. Cary as a whole;

- characteristic of the general level of novelty and originality of graphic works in relation to their original sources (photographs) protected by copyright;

- determination of the *economic effect* (potential losses) from the sale of paintings by R. Prince on the modern national art market, which is of significant importance for the sale of copyrighted photographs of P. Carey.

Based on the conclusions of the expert studies, the court of first instance came to a decision in favor of P. Carey and ruled that none of the works of R. Prince complies with the principles of the “fair use” doctrine. In particular, the court referred to the findings that specialists could not see the *original artistic meaning* in the artist's works, and their ideological message intended for viewers, according to experts, was also *devoid of novelty* in comparison with the works of P. Carey. It is interesting that during the interrogation in court R. Prince also said that he cannot describe in words “artistic novelty” of his paintings and collages. However, after additional series of expert studies, the Court of Appeal radically changed the original decision, thereby establishing new standards for dealing with cases on “fair use” of fine art works. It should be

¹ See: *Osterberg R. Substantial Similarity in Copyright Law* / R. Osterberg, E. Osterberg. — New York : Practising Law Institute, 2015. — 358 p.

² See: *Rips M. Rewriting Fair Use* / M. Rips // New York Law Journal. — 2013. — Vol. 250, No.78. — P. 12.

noted that one of the representatives of the appeal – Judge G. Clifford Vollas refused to support the collegial decision, having called it *unnecessarily dependent on modern art theories*.

The first conclusion of the appeals instance representatives was that the evaluation of each specific case of “fair use” of fine art works by their reprocessing depends on the *artistic context that is determined by the analytical practice of expert studies*, that is why there is *no single universal rule for considering similar cases* – each case is unique.

Moreover, the concept “fair use” can in some cases be given a *much broader interpretation* than that which is directly indicated in the legislation (in particular, the use of works of art as illustrations for various reports, critical and scientific publications, news and educational materials, as indicated in the text of the Copyright Act of 1976). According to the materials of new examinations conducted by fine art experts, the representatives of the Court of Appeal ruled that the testimony of the author of the reprocessed works is subjective and cannot be taken into account. But in the context of the doctrine of “fair use”, the most important criterion for evaluating the facts of using the works by means of reprocessing should be the criterion for perceiving these works of art by a so-called “reasonable spectator”. It should be noted that this theoretical concept is used by North American analysts as one of the leading scientific and methodical tools for researching the intellectual property objects and does not provide for the immediate presence of a witness – a real “man from the street” during the conduct of examination¹. It is rather a kind of abstract person, who, according to the professional experience of specialists involved in the examination, could evaluate the works of art submitted for examination in a certain way.

In the opinion of the college of specialist who submitted their findings to the Court of Appeal, if the abstract “reasonable spectator” can recognize the graphic works of R. Prince as those, which have a *sufficiently high level of visual transformations* (including the color palette, sizes and material from which new pictures and other elements are created as well as properties of their graphic system), then, in his opinion, they will have *another semantic content* and meet the principles of the doctrine of “fair use”. As a consequence, the Court of Appeal recognized 25 of 30 paintings and collages of R. Prince as those that do not violate P. Cary's copyright, because despite the considerable similarity of the external form, they emphasize a completely different artistic and ideological content. This conclusion rests on the theories and practical guidelines widespread among North American experts concerning such scientific fields as poststructuralism and *receptive approach* to the study of art works. From the position of supporters of these research concepts originating in the works of M. Heidegger and G. Gadamer, the historical and cultural experience of the ordinary recipient of artworks rises above all other criteria for assessing the content of art works. The well-known French semiotic scientist R. Barthes aptly characterized this scientific approach, calling it the “death of the author” – the disap-

¹ See: Brodsky S. Testifying in Court: Guidelines and Maxims for the Expert Witness / S. Brodsky. — New York : American Psychological Association, 1991. — 208 p.

pearance of the constant of the author's content from the field of view of contemporary critics and researchers who focus on multifaceted *factors of perception* of art works by ordinary viewers, readers and listeners¹.

Decision of the Court of Appeal in the case "P. Carey vs. R. Prince" created an interesting precedent if we compare it with the results of another well-known hearing that happened under similar circumstances. In 1989, the American photographer A. Rogers filed a lawsuit against the popular artist J. Koons. The subject of the dispute was a black and white photo called *Puppies*, which was created for further use in advertising products and design of printing products. The photo shows a man and a woman sitting on a bench, and holding nine puppies of a European shepherd dog on their knees. Having seen the photo made by A. Rogers on a postcard in a New York store, J. Koons decided to create the sculpture "String of Puppies" on its basis. It was later presented to the audience at his own show "The Banality Show". Representatives on the part of the plaintiff appealed to the basic principle of "fair use", which, in their opinion, J. Koons consciously violated in his sculptural work.

When researching the materials of the case, analysts came to the conclusion that the object of art formed during the process of reproduction by means of reprocessing, shall not be an identical copy of the original work in order to make substantially similar artistic expression (so that it may violate copyrights). In experts' opinion, *changing the material carrier or some parts* cannot be considered sufficient to ensure that the *meaningful content* of the final product does not have a significant similarity with the original one. So, J. Koons was recognized as a violator of copyright.

However, in the case with the participation of the artist R. Prins, the experts used a different research technique that was based on the concept of the advantage of purely *receptive factors* (the perception of objects of art by the "reasonable spectator") in the process of creating a new or distinct content of artistic works, that resulted in completely different conclusions in the context of implementing the principles of the "fair use" doctrine, the main problem of this expert approach (inherent in the scientific thought of many modern theorists and practitioners) is that in 1976, at the time of the approval of the text of the Copyright Act, none of its creators knew about the existence of such areas of scientific thinking as post structuralism or criticism of the reader's response. Consequently, the provisions of the law no longer correspond to those avant-garde methods of scientific analysis, which are used by North American forensic experts of the new millennium.

Other problems include a certain subjectivity of the conclusions of various groups of analysts who use different scientific and critical theories in the process of conducting expert studies according to this method. If the *similarity of the external form* of expression fades into the background in comparison with the *new content* of works reproduced by reprocessing (as evidenced by the results of the "P. Cary vs. R. Prince" Appeal), it is quite natural to ask why the researchers did not use the other Academic theories, which have no less spread

¹ See: *Барт Р. Избранные работы: Семиотика. Поэтика* / Р. Барт. — М., 1994. — С. 251.

in the spheres of cultural studies and art criticism. In particular, if we consider the paintings of G. Prince and the photos of P. Carey from the perspective of modern gender criticism, their content will be recognized *absolutely similar*, because in their figurative systems women play minor, secondary roles compared to men, which accentuates their negative gender orientation. It is about such cases that modern feminist researchers in the fine arts like to write. No fewer coincidences and analogies between different aspects of the substantive substratum of the works of R. Prince and P. Carey can be found by supporters of the scientific principles of the New Historism, because they (in contrast to their colleagues from the camp of receptive approach admirers) take into account the author's intentions (author's meaning), which are expressed in the ideological and artistic nature of certain objects of art.

Thus, the receptive approach to the expert study of the reproduction of graphic works through reprocessing in accordance with the principles of the "fair use" doctrine has a huge practical potential in view of the wide spread of the postmodern paradigm of artistic thinking in contemporary art. More often, the popular authors not only in the United States, but all over the world openly turn to creative borrowing for creating the compilative installations consisting of fragments of copyrighted works of other persons. In the event of litigation, they often declare their own inalienable right to "fair use".

Of course, from the point of view of the adepts of the "high-brow" esthetics of postmodernism, the receptive approach to expert interpretation of the circumstances of the "fair use" of graphic works contributes to the overall human civilization progress, as unauthorized copying is viewed in this context through the prism of active creative perception of artistic values that stimulates the development of the world culture.

However, this approach cannot be extended to study the facts of possible "fair use" of graphic works by means of reprocessing in areas far from art. The mass production or small-scale production of various kinds of goods and products with using the copyrighted graphic objects and their fragments *has no artistic value*, since such use is carried out for purely commercial purposes, and therefore should not be considered according to the research methodology, which was used by experts in the case of "R. Prince vs. P. Kerry".

ДОКТРИНА «ДОБРОСОВІСНОГО ВИКОРИСТАННЯ» ТВОРІВ ОБРАЗОТВОРЧОГО МИСТЕЦТВА В АНАЛІТИЧНІЙ ПРАКТИЦІ ПІВНІЧНОАМЕРИКАНСЬКИХ СУДОВИХ ЕКСПЕРТІВ

Калініченко М. М.

Репрезентовано деякі з основних положень північноамериканських методик дослідження творів образотворчого мистецтва як об'єктів інтелектуальної власності в контексті правової доктрини «добросовісного використання» за матеріалами резонансної судової справи «Патрік Керіу проти Річарда Принса». Акцентовано практичну значущість розглянутих науково-методичних настанов для сучасних українських судових експертів. Надано критичний аналіз деяких специфічних особливостей північноамериканських методик, які викликають суперечки серед правників і експертів Сполучених Штатів Америки.

Ключові слова: доктрина «добросовісного використання», дослідження творів образотворчого мистецтва, «розсудливий глядач», північноамериканська судова практика.

**ДОКТРИНА «ДОБРОСОВЕСТНОГО ИСПОЛЬЗОВАНИЯ»
ПРОИЗВЕДЕНИЙ ИЗОБРАЗИТЕЛЬНОГО ИСКУССТВА
В АНАЛИТИЧЕСКОЙ ПРАКТИКЕ СЕВЕРОАМЕРИКАНСКИХ
СУДЕБНЫХ ЭКСПЕРТОВ**

Калиниченко М. М.

Представлены некоторые из основных положений североамериканских методик исследования произведений изобразительного искусства как объектов интеллектуальной собственности в контексте правовой доктрины «добросовестного использования» по материалам резонансного судебного дела «Патрик Кериу против Ричарда Принса». Акцентируется практическая значимость рассмотренных научно-методических установок для современных украинских судебных экспертов. Представлен критический анализ некоторых специфических особенностей североамериканских методик, которые вызывают споры среди юристов и экспертов Соединенных Штатов Америки.

Ключевые слова: доктрина «добросовестного использования», исследование произведений изобразительного искусства, «здравомыслящий зритель», североамериканская судебная практика.

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PERSONAGE AS AN INDEPENDENT COPYRIGHT OBJECT

Consideration is given to problematic issues of granting legal protection to the personages. The paper gives the “personage” concept definition and the classification of personages. Specific conditions for granting legal protection to the personages are determined. Analysis is made for the international practice of detailing the personage's characteristics, according to which it is determined whether the controversial personage is endowed with traits that allow him to be included in the protected objects of copyright. Account is given of some main provisions for defining the criteria according to which the free reproduction of a personage for commercial purposes is not allowed.

Keywords: literary work, personage, part of the work, copyright object.

Copyright objects are works regardless of their completeness, purpose, value, etc., as well as of the manner or form of their expression. Works are objects of copyright without performing any formalities with respect to them

(Part 2, Art. 433 of the Civil Code of Ukraine)¹. Art. 433 of Civil Code of Ukraine, Art. 8 of the Law of Ukraine “On Copyright and Related Rights” contain a list of certain types of works. This list is not of exhaustive character².

In practice, many disputes arose about the possibility of granting the legal protection to such parts of the work as the title, names of personages, individual phrases, utterances and so on. It was their unauthorized use that often allowed certain individuals to take advantage of the success of a part of the work or personage without the author's consent. This issue becomes especially urgent with development of brands, the basis of which are the personages of well-known works (Smeshariki, Prostokvashino, etc.)³.

According to Art. 9 of the Law of Ukraine “On Copyright and Related Rights”, the part of work that can be used independently is considered to be a work and protected in accordance with the Law. Since the personage can be used independently, it also falls under the protection of copyright. It should be noted that a character or personage is a fairly broad concept that is used not only in the context of personage in a literary work, but also in audiovisual works, computer games and even in TV shows.

So, the name of the work, phrases, word-combinations and other parts of the work that can be used independently, including personages, are subject to protection as objects of copyright only if they are the result of the author's creative activity and are original (item 18 of the Resolution Of the Supreme Court of Ukraine “on the application of the norms of legislation by courts in cases on the protection of copyright and related rights” dated 04.06.2010 No. 5)⁴.

Unfortunately, the absence of clear criteria in the legislation on the provision of legal protection to the structural elements of works leads to the commission of illegal actions relative to intellectual property objects, certain abuses, unauthorized use of them and creates obstacles to the proper implementation and protection of the authors' rights to elements of works, makes the chosen topic of research relevant and confirms the feasibility of carrying out scientific developments in this field.

All personages, which can be recognized as the result of the author creativity, are parts of works and shall be protected by copyright, which is currently in effect on the territory of Ukraine. At that, it is necessary to distinguish the entire work and the personage itself, since it can be protected by the law independently of the whole work.

Let's try to determine what a personage is in the context of copyright. This word comes from the Latin “persona” and means the actor of the play, script, film

¹ See: Цивільний кодекс України : Закон України від 16 січня 2003 р. № 435-IV // Відом. Верхов. Ради України. — 2003. — № 40–44. — Ст. 356.

² See: Про авторське право і суміжні права : Закон України від 23 грудня 1993 р. № 3792-XII // Відом. Верхов. Ради України. — 1994. — № 13. — Ст. 64.

³ See: Кулініч О. О. Умови надання правової охорони творам та окремим їх елементам / О. О. Кулініч // Актуальні проблеми держави і права [Електронний ресурс]. — Режим доступу : <http://apdp.in.ua/v58/70.pdf>.

⁴ See: Кулініч О. О. Indicated work.

novel and other art works. In the works of fine art, a personage is a portrait or an image of a particular person or of a fictional, for example, mythological or allegorical hero.

A synonym for the personage of a literary work is a literary hero or sometimes a literary character. In literary criticism, a personage is most often understood as an actor characterized both in action and in description.

There are various classification of the personages in the work, but the most complete one is the classification proposed by D. Borisenko, according to which all the personages can be divided into the following groups:

- fictional personages, including those created by artists (living personages);
- animation personages, including those from cartoons, movies and comics (lifeless characters);
- real popular, famous personalities¹.

Typically, the copyright laws protect the personage in the context of a work in which the personage appears. The question of individual protection of the personage arises when it is separated from the original works, so that it leads a new and independent life in separately written works. Personages who are able to lead an independent life are most rememberable, because they remain in the imagination of the reader long after the original plot was forgotten.

One of the typical ways of commercial use of a personage is its use for the individualization of goods and services, as well as of trademark, which is the name or appearance (image) of the personage; in particular, such trademarks are used in the advertising of goods and services. The second most common type of commercial use of personages is the production of souvenirs with using the name and/or image of the personage on the basis of concluding the relevant license agreement with the right holder.

Popular personages, in particular, animated characters participate in civil turnover separately from the work as a whole. These types of commercial use prove the independent use of personages as one of the criteria for the protection stipulated by Art. 9 of the Law of Ukraine “On Copyright and Related Rights”.

Today, one of the topical issues in copyright law remains the issue of transferring the rights to works and their certain structural elements (name, personages) for use, for example, as signs for goods, services and commercial names.

The name and the personage are the most recognizable elements of the work for the general public, to some extent, they are its “trademarks”. It is probably the reason for recognizing their special status. Unfortunately, neither the Civil Code of Ukraine nor the Law of Ukraine “On Copyright and Related Rights” does not mention the protection of the personages of works, but the protection of copyrights to them is mentioned in the Law of Ukraine “On Protection of Rights to Marks for Goods and Services”. Part 4 of Art. 6 of this Law contains a list of grounds for refusing to register a designation of names, works of science, literature and art known in Ukraine or quotes and characters from them, works of art and their

¹ See: *Борисенко Д.* Персонаж как законодательно признанная часть произведения, на которую распространяется авторское право / *Д. Борисенко* // *Интеллектуальная собственность. Авторские и смежные права.* — 2011. — № 2. — С. 17–25.

fragments as a mark for goods and services without the consent of copyright owners or their successors¹.

Keeping in mind the judicial practice, it is obvious that the legal protection of the personages will face certain difficulties, since only those characters which are an independent result of the author's creative work and are expressed in an objective form shall be subject to protection. It is rather difficult to solve this problem, since special examinations will be required for this. To ensure that the claims for paid use of personages do not unreasonably restrict the right to freedom of creativity, it is necessary to introduce certain criteria, according to which the free reproduction of the personage for commercial purposes is not allowed. Such criteria can be the following:

- the original name and appearance of the personage;
- individualized character traits;
- the unity of the visual image and artistic description (image, character traits, manners of behavior) in the consciousness of a certain circle of persons (for which the personage was created);
- the availability of commercial potential for its use due to their fame (popularity) among a certain circle of persons.

There are three main ways to protect the rights to the character. The first way is that part of the work that can be used independently is considered to be a work and protected by the Law of Ukraine "On Copyright and Related Rights". Therefore, a character that can be used independently shall be protected like other copyright objects from the moment of its creation. But the protection only extends to the form of expression of the work and does not protect the image of the personage that arises and remains in the human imagination.

The second way protects the rights to the personage as an object of industrial property under the Law of Ukraine "On protection of rights to signs for goods and services". The object of the sign can be a personage in the form of a personal name or its image, and consequently, any registration of a literary personage as a sign for goods and services will be possible only with the consent of the subject of copyright to the corresponding part of the work.

The third way is implemented through the application of the Law of Ukraine "On Protection from Unfair Competition", in which violation is considered to be the use of the name, signs for goods and services, other designations, names of literary and artistic works without the permission of the authorized person, which may lead to confusion with the activities of another economic entity. So, in recent years, the number of people using the same "widely promoted" personage in animated films, television programs, video games and other works has been growing, as this expands the scope of commercial exploitation. Therefore, the issue of the right to protect intellectual property on a personage is of paramount importance. Now the legislation allows it to be protected in three ways and, depending on the person's interest, the person decides which one to use.

¹ See: Про охорону прав на знаки для товарів і послуг : Закон України від 15 груд. 1993 р. № 3689-XII // Відом. Верхов. Ради України. — 1994. — № 7. — Ст. 36.

The analysis of legislation and jurisprudence in some countries testifies to the availability of different approaches to solving this problem, in particular, the receipt of the copyright protection for names, characters and images of personages. Thus, in the USA and Britain, the protection of personages is the result of the case-law development, and in France, Germany, Italy, it is a consequence of the established judicial practice. In Russia (item 7 of Art. 1259 of the Civil Code of the Russian Federation), the legal protection of personages is directly stipulated in the legislation. In Ukraine, the legal protection of personages has not yet developed.

It is important to note that under the Ukrainian legal system, for recognizing any result of intellectual activity as an object of copyrights, this result should meet the criteria of protectability. The law defines two common legal criteria for the protection of copyright objects.

So, copyright extends to works of science, literature and art if they:

— are the result of creative activity;

— exist in any objective form.

The absence of at least one of these criteria does not allow speaking about the existence of a work as an object of copyright.

Since there are no criteria for recognizing the personage as an independent object of protection in Ukraine, we will consider two examples from the judicial practice of other countries.

The Supreme Court of the Russian Federation in the definition of June 30, 2015 No. 309-ES14-7875 was the first in Russian practice to formulate criteria for recognizing the personages as independent objects of copyright: personages of the audiovisual work as an independent result can be created and recorded in the audiovisual series of cartoons, the dynamic painted (puppet) images of which principal characters possess such a combination of attributes that make them unique, recognizable and different from other personages due to their appearance, movements, voice, facial expressions and other signs intended for visual and audio perception (in case of sound accompaniment)¹.

The USA Copyright Act of 1976 does not have the concept of a personage. This fact allows courts to freely approach the definition of its content and the attributes necessary for recognizing the personage as an independent object.

In September 2015, the US court dealt with the case “v DC Comics. Towle”, 802 F. 3d 1012 (9th Cir. 2015) about the “Batmobile” manufacture by the person for sale, and in this case the court applied a three-stage test:

- 1) the personage must have physical and semantic (conceptual) qualities;
- 2) the personage must be significantly expressed for its recognition as one and the same personage at every its appearance, that is, the personage must demonstrate permanent conditioned properties and attributes, but at the same time the personage should not have a permanent appearance;
- 3) the personage must contain the original elements of expression.

¹ See: *Фридман В. Э.* Охрана частей и структурных элементов произведения как объектов авторского права в России и США / В. Э. Фридман [Электронный ресурс]. — Режим доступа : <http://lawbook.org.ua/aa/12.00.03/2016/02/06/050393038.doc.html>.

Based on the above, it can be concluded that the USA judicial practice has formed more stringent criteria for providing protection to the personages.

International jurisprudence should draw the attention of Ukrainian lawmakers to the need of amending the current legislation to detail the personage characteristics, according to which the courts could more confidently determine whether the controversial personage is endowed with features that allow him to be considered as a protected copyright object.

Despite the fact that the commercial use of personages is not included and is unlikely to be included in the Law “On Copyright and Related Rights” as a separate property copyright in the near future, a study of the jurisprudence of Russia and the United States allows us to conclude that such type of use, as well as its volume, should be specially stipulated in the copyright agreements.

The absence of such provisions in the copyright agreement due to the lack of legislative regulation and ambiguous judicial practice in Ukraine makes the position of copyright users very vulnerable. In the absence of clear legislative regulation in the use of part of the work, the development of approaches and criteria becomes particularly important for the resolution of relevant disputes by Ukrainian courts.

Taking into account the revealed general tendencies, it is possible to apply the criteria developed in the judicial practice of the United States in the practice of Ukrainian courts. These criteria are based on the doctrine of “fair use” and, in particular, include the purpose and scope of use as well as the potential harm to the right holder¹.

Thus, the foregoing confirms the advisability of further research to determine the conditions for granting the protection to individual personages with a view to make appropriate changes to the current legislation. There is need for further development of the problem of determining the legal protection of certain types of personages, their original names and the conditions for their use, both in commercial and in non-commercial purposes, as well as consideration of questions about individual cases of copyright restrictions on use of personages.

ПЕРСОНАЖ ЯК САМОСТІЙНИЙ ОБ’ЄКТ АВТОРСЬКОГО ПРАВА

Заніна Т. А., Копитько А. П.

Розглянуто проблемні питання щодо надання правової охорони персонажам. Надано визначення поняття “персонаж” і класифікацію персонажів. Визначено спеціальні умови надання правової охорони персонажам. Проаналізовано міжнародну практику деталізації ознак персонажу твору, за якими визначають, чи наділений суперечливий персонаж рисами, що дозволяють віднести його до охоронюваних об’єктів авторського права. Репрезентовано деякі з основних положень у визначенні критеріїв, за умови відповідності яким не допускається вільне відтворення персонажа з комерційною метою.

Ключові слова: літературний твір, персонаж, частина твору, об’єкт авторського права.

¹ See: Фридман В. Э. Indicated work.

ПЕРСОНАЖ КАК САМОСТОЯТЕЛЬНЫЙ ОБЪЕКТ АВТОРСКОГО ПРАВА

Занина Т. А., Копытько А. П.

Рассмотрены проблемные вопросы, касающиеся предоставления правовой охраны персонажам. Даны определение понятия «персонаж» и классификация персонажей. Определены специальные условия предоставления правовой охраны персонажа произведения, по которым определяют, наделен ли противоречивый персонаж чертами, позволяющими отнести его к охраняемым объектам авторского права. Представлены некоторые из основных положений в определении критериев, при условии соответствия которым не допускается свободное воспроизведение персонажа с коммерческой целью.

Ключевые слова: литературное произведение, персонаж, часть произведения, объект авторского права.

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GENERAL METHODOLOGICAL APPROACHES TO CARRY OUT EXPERT RESEARCHES WHOSE OBJECTS ARE VARIOUS MEANS OF INDIVIDUALIZATION

The methodological approaches to the execution of expert researches related to various means of individualization are formulated on the basis of generalizing the publications on theoretical, common methodological issues as well as on the basis of the analysis of forensic expert practice in the field of intellectual property, where the objects of research are the means of individualizing the goods, services and participants in civil circulation.

Keywords: forensic examination, intellectual property, commercial (company) names, trademarks, places of the origin of goods.

In the general system of intellectual property objects, among the types of intellectual activity, there is a separate group, which includes the means of individualizing the goods, services¹ and participants in civil turnover. In accordance with the legislation of Ukraine, these means of individualization include such

¹ See: Цивільний кодекс України : наук.-практ. комент. (пояснення, тлумачення, реком. з використ. позицій вищ. суд. інстанцій, М-ва юстиції, наук., фахівців) : Т. 6: Право інтелектуальної власності / за ред. І. В. Спасибо-Фатєєвої. — Х. : ФО-П Лисяк Л. С., 2011. — 592 с. — (Коментарі та аналітика); Право інтелектуальної власності. Академічний курс : підручник для студ. вищ. навч. закл. / за ред. О. А. Підпригори, О. Д. Святоцького. — [2-ге вид., переробл. та допов.]. — К. : Вид. Дім «Ін Юре», 2004. — 672 с.

objects of intellectual property rights as commercial (company) names, trademarks (designations for goods and services), places of the origin of goods. A common feature that unites these objects and at the same time distinguishes them from other objects of intellectual property right is their purpose. Thus, trademarks (marks for goods and services) and places of the origin of goods are designations that distinguish the related goods and services of certain participants in civil circulation, while the commercial names serve as means of identifying the subjects of entrepreneurial activity and indicate the commercial origin of goods and services.

Legal protection is provided to the following means of individualization of goods, services and participants in civil circulation:

- designations that have been given legal protection in Ukraine as a mark for goods and services;
- designations (marks) recognized as well-known in the manner prescribed by law;
- commercial (company) names;
- qualified indication of the origin of goods.

As it is known, the intellectual property objects by their nature belong to non-material objects that acquire legal protection only if they are embodied in a certain material object and comply with all the conditions established by law. So, the property right to a trademark is proved by a certificate with a copy of mark image and list of goods and services registered in the State Register of Ukrainian certificates for marks of goods and services. The right to use a qualified indication of the origin of goods shall be certified by a Certificate of Registration of the right to use a qualified indication of the origin of goods. The protection of rights to a well-known mark shall be carried out on the basis of recognizing the mark as a well-known by the Appeals Chamber – the collegial body of the Institution, which is a central executive body that implements state policy in the field of intellectual property or by the court. Legal protection of commercial names is associated with using such name in the manufacturing process, sale of goods and services and is provided only to those names that are able to single out one person among others, do not mislead consumers about its current activities.

As expert practice shows, the conflicts arise in civil circulation both between designations that have received legal protection as commercial (company) names, trademarks (marks for goods and services), qualified indications of the origin of goods, and between the mentioned means of individualization and marks that have not received legal protection.

When dealing with cases on the violation of intellectual property rights to various means of individualization as well as with cases on the recognition of invalid registration for these objects, it becomes necessary to conduct a forensic examination in order to establish the identity or similarity of various means of individualization and to identify the probability of misleading the consumer regarding goods, services or persons. The necessity of solving these expert tasks is related to the fact that according to the Law¹, the designations cannot obtain legal

¹ See: Про охорону прав на знаки для товарів і послуг : Закон України від 15 груд. 1993 р. № 3689-XII // Відом. Верхов. Ради України. — 1994. — № 7. — Ст. 36.

protection if they are false or such that can be misleading about a product, service or a person who produces a product or provides a service.

The works of several authors¹ are devoted to the development of methodological bases for carrying out expert researches related to means of individualization. These works reveal common approaches to the execution of researches related to these objects of intellectual property right. However, the study of expert practice has shown that there is a need to identify the main tasks of the expertise, the objects of which are various means of individualization of goods and services, to formulate the list of materials required for a full and objective research as well as to refine the research algorithms. The presented results are an integral part of the researches conducted in 2013–2015 in accordance with the thematic plan for scientific works of research institutions of forensic examinations of the Ministry of Justice of Ukraine in order to develop the methodology for conducting expert researches related to means of individualization. The conducted research showed that the *main tasks* of the expertise, the object of which are various means of individualization, are to determine the following:

- identity of various means of individualization or their similarity to such an extent that they can be confused;
- possibility of misleading the consumer about the goods, services or persons.

In this case, the objects of expertise may be: marks for goods and services; qualified indications of the origin of goods; commercial (company) names; marks of goods and services that have not received legal protection. To ensure the conduct of a full research and to provide an objective and informed conclusion, the intellectual property expert should be provided with objects in which the intellectual property object is embodied, as well as other materials containing information about the objects of the research.

For example, a copy of the certificate for the mark for goods and services, which provides a clear image of the mark and list of goods and services for which legal protection is provided; a copy of the certificate for registering the right to use the qualified indication of the origin of goods, which provides a qualified place of the origin of goods; a current extract from the State Register of Ukraine's certificate for marks applied for goods and services; a current extract from the State Register of origin names and geographical indications of the origin of goods and rights to use the registered qualified indications of the origin of goods; a copy of the decision of the Appeals Chamber of the State Service of Intellectual Property of Ukraine to recognize the mark as a well known in Ukraine; a copy of the court's decision to recognize the mark as a well-known in Ukraine. Materials provided for conducting the research related to commercial names should include documents

¹ See: *Крайнєв П. П. Судові експертизи у сфері інтелектуальної власності* / П. П. Крайнєв, Н. М. Ковальова, М. В. Мельников ; за ред. П. П. Крайнєва. — Вінниця : Поліграф. центр «Фенікс», ДІВП ВАТ «Інфракон» – «Інфракон-І», 2008. — 376 с.; *Методологічні основи судової експертизи об'єктів інтелектуальної власності : звіт про НДР (закл.)* / МЮУ, КНДІСЕ, ХНДІСЕ ; кер Г. В. Прохоров-Лукін ; викон.: А. В. Андрєєва [та ін.]. — № ДР 0104U003403. — К. : КНДІСЕ, 2006. — 290 с.

certifying the date of the first use (or the earliest date of use), information on goods and services offered with using such a commercial name, the territorial boundaries of using the commercial name, etc.

It should be noted that the registration and constituent documents of the legal entity do not indicate the actual use of the commercial name, which is the conclusion of transactions, financial transactions, advertising in the media, the actual production and/or sale of goods and services, and so on. In this case, it should be noted that the object of expert research is precisely the trademark, commercial names; qualified indications of the origin of goods. That is materialized in the media in which these objects are embodied.

The research of various means of individualization, which are used for the individualization of goods, services and participants in civil circulation, shall be carried out through the following stages of expert research, which are also used in other types of expertise:

- preparatory stage (preliminary research), separate (analytical) research, comparative research, evaluation of the results of the conducted research and formulation of conclusions, drawing-up of the procedure and results of the expert research with the conclusion.

At the *preparatory stage*, the expert determines the following:

- compliance of the submitted materials with those specified in the definition (decision) and/or in the cover letter;
- sufficiency of the submitted materials to solve the problems assigned to the expert;
- the presence of all sheets in the materials of the case and the correctness of their numbering (if the materials provided for the study are not numbered and not stitched, then the commission of experts shall do this, about what the relevant act should be drawn up);
- the availability of sufficient information about the objects of research (marks for goods and services, commercial (company) names, qualified indications of the origin of goods) and about the objects that are opposed.

After preliminary acquaintance with the materials of the case, it becomes clear whether the expert understands the content of the expert task posed by the body (person) who appointed the expert (attracted the expert) and whether its decision falls within the expert's competence.

It is necessary to carry out the identification of objects subject to research, to establish the list of goods and services for which means of individualization are registered or used. If the object and/or list of goods and services is not specified in the court decision, the expert shall submit a petition to the court to clarify the content of the task and/or determine the objects of research.

If the object of research are designations that are recognized as well-known, while the materials of the case do not contain an image of such a mark and/or a list of goods and services for which it is recognized as well-known, and the date on which the mark is recognized as well-known in Ukraine, the expert shall submit a petition to the court to clarify the content of the task and/or determine the objects of research.

At this stage, it is also considered the expediency of solving the issues by the expert as an expert initiative and the need to involve specialists who have certain special knowledge in the relevant field of science, technology or crafts in order to conduct a full and objective investigation. In case of need to use images of objects in the text of research, it is necessary to take a picture or make fixation by other technical means. In the absence of certain materials required for the examination, or the presence of poor-quality images and unreadable texts, the expert shall submit an application to the person or body that has appointed an examination for the provision of additional materials.

At the stage of *separate (analytical) research*, the expert describes the objects subject to research, reveals and analyzes their properties and attributes. In this case, the homogeneous properties and features of objects under research are reflected and distinguished upon the results of studying all the information contained in the case materials. If at this stage it is established that the material carriers presented for the study (for example, photographs, photocopies of documents, etc.) do not fully or inaccurately reproduce the objects of research, while the provision of comparative samples, or materials is insufficient to solve the task, then the expert, in accordance with the established procedure, sends an application for additional materials.

The expert reveals from which types of designations the objects subject to research consist (i. e. whether they contain signs of verbal, pictorial, volumetric, combined or other designations) and then the expert determines the elements that dominate in them. Among the elements that make up the examined designations, which are used for the individualization of goods, services and participants in civil circulation, it is necessary to identify the elements that are excluded from the legal protection by law. These designations may be a part of the mark for goods and services as elements that are not protected if they do not occupy a dominant position in the designation. At that, account is taken of the semantic and/or spatial significance of such an element.

Upon examination of the *mark for goods and services*, the conclusion shall contain the image of mark for goods and services, the list of goods and services for which this mark is registered and in respect of which the protection functions, information on colors to which protection is provided, the date of filling the application, the application number, if there is any priority – the date of priority, information about the applicant, information about the owner, the date of publishing the issuance of certificate and the date of information entry into the register, the bulletin number, the determination to which type of designation the image belongs (verbal, graphic, combined, etc.), dominant and secondary elements of the designation.

Upon examination of a *qualified indication of the origin of goods*, the conclusion shall contain the image of such indication, application number, date of registration and/or cancellation of the decision on registration, the date of information publication, goods and services for which it is registered, circle of persons entitled to use it; indicates the boundaries of the territory on which it is registered, determines to which kind of the designations the image belongs

(verbal, graphic, combined, etc.), determines the dominant and secondary elements of the designation (for this purpose, use is made of an actual extract from the Ukraine State Register for names of origin of goods and of rights to use the registered qualified indications of origin of goods).

Upon examination of a *commercial (firm) name*, the conclusion shall contain information on the commercial (company) name, information on the actual first use (or the earliest date of use), information on actual activities, information on the territory of activity, determination of the main (body) and expressive parts (mandatory and optional parts) of the commercial name.

During the examination of *designations* that did not receive legal protection, the conclusion shall contain an image of the designation, information about goods and services for which the designation is applied, the person, who uses this designation, if necessary: the date from which it became known and the territory on which the designation is used; determination to which kind of the designations (verbal, graphic, combined, etc.) the image belongs, determination of its dominant and secondary elements. The results of the analytical study with the relevant illustrations shall be reflected in the research part of the conclusion.

At the *stage of comparative research*, the similar general and particular features of different individualization means are compared, the existing coincidences and discrepancies are analyzed and an intermediate conclusion is drawn about the presence or absence of the identity (similarity) of the corresponding means of individualization or about the possibility of misleading. This stage always takes place if it is established that the various means of individualization are so identical or similar that they can be confused, or if it is established that there is the possibility of misleading the consumer about the goods, service or person.

In general, a comparative research is conducted in two stages. At the first stage, it is necessary to determine the kinship of goods or goods and services or services and services. At the second stage, the common and particular attributes of different means of individualization are compared.

It should be noted that the sequence of the first and second stages of the research can be changed depending on the expert task. The sequence of its solution is of no decisive importance.

The determination of similarity is based on a complex, comprehensive analysis of the compared designations, namely: the perception of dominant and secondary graphic elements, comparison of the sound composition, associative series and the degree of semantic proximity. In this case, the first visual perception of the designations under examination is the main one. The very first visual perception of an object affects the consciousness of a person, and the designations are remembered in the mind of the consumer in a similar way. In the course of researching the similarity of combined designations, the similarity of both the full designation as a whole and its constituent elements is determined with taking into account the significance of the location of the identical or similar element in the claimed designation. Components that have a low distinguishing power are not taken into account, and the dominant elements of the design-

nation are to be compared. The course of research at this stage depends on the type of designations that make up the comparative means of individualization.

Since commercial (company) names and qualified indications of the origin of goods by their nature are overwhelmingly verbal designations (individual exceptions are geographical indications, which may include graphic elements), a comparative research of marks for goods and services (verbal) and commercial names, marks for goods and services and indications of goods origin, commercial names and designations of goods origin shall be carried out in compliance with methodological approaches specified for the research of verbal designations.

Research of such objects as a mark for goods and services and designations that have not received legal protection; a mark for goods and services and a well-known mark that contain pictorial, volumetric or combined elements, shall be conducted with taking into account the approaches specified for the research of these species. The results of the comparative research on the determination of kinship with the indication of the corresponding justifications shall be reflected in the research part of the conclusion; and the expert makes an intermediate conclusion whether the goods and services under investigation are related or unrelated. Then an intermediate conclusion is formed regarding the presence or absence of the identity (similarity) of the corresponding means of individualization, or regarding the misleading of the consumer about the goods, services, manufacturer, and so on. The main approaches to determine the identity or similarity of designations with such of them that can be confused, as well as to determine the relationship of goods and services during execution of the forensic examination are considered in the works of P. P. Krainev, G. V. Prokhorov-Lukin and other authors¹.

On the basis of generalization of literary sources and existing normative acts, we have formulated algorithms for solving expert problems by various means of individualization, which are set forth in the Methodology for conducting expert researches related to means of individualization².

The proposed methodological recommendations are based on approaches to determining the similarity of means of individualization, which are stated in the Rules for the preparation, filing and looking of an application for the issue of a

¹ See: *Крайнев П. П., Ковальова Н. М., Мельников М. В.* Indicated work; Методика судово-експертного дослідження зазначень походження товарів : звіт про НДР (закл.) / МЮ України, КНДІСЕ ; кер. Г. В. Прохоров-Лукін ; викон.: А. В. Андреева [та ін.]. — № ДР 0111U000411. — К., 2011. — 114 с.; Методика судово-експертного дослідження знаків для товарів і послуг (торговельних марок) : звіт про НДР (закл.) / МЮ України, КНДІСЕ, НДЦСЕПВ, НДПВ АприНУ ; кер. Г. В. Прохоров-Лукін ; викон.: А. В. Андреева [та ін.]. — № ДР 0108U005823. — К. : КНДІСЕ, 2009. — 400 с.; Методика судової експертизи комерційних (фірмових) найменувань : звіт про НДР (закл.) / МЮ України, КНДІСЕ ; кер. Г. В. Прохоров-Лукін ; викон.: А. В. Андреева [та ін.]. — № ДР 0110U002834. — К., 2011. — 78 с.

² See: Методика проведення експертних досліджень, пов'язаних із засобами індивідуалізації : звіт НДР (закл.) / МЮ України, НДЦСЕПВ ; кер. І. В. Стародубов ; викон.: Н. В. Кісіль [та ін.]. — № ДР 0113U000471. — К. : НДЦСЕПВ, 2015. — 99 с.

certificate of Ukraine for a mark applied for goods and services; in the Methodological recommendations on certain issues of conducting an expertise of the application for a trademark, in the regulations for conducting an expertise in the process of acquiring the rights to trademarks in the European Union, the United Kingdom, the United States of America, France, Russia, and the Republic of Belarus.

After conducting a comparative research, it is necessary to *evaluate the results of the research and to formulate the conclusions*. At this stage, the estimation is given to the totality of the coincidences and differences revealed in the examined objects upon the comparative research with taking into account the results of the research on the kinship of goods and services. In the event of a divergence of intermediate conclusions, it is determined which of signs is the most important (significant) for a particular designation.

A comparison is made with other case materials, with explanations provided by the parties and additionally attracted specialists. Thereafter, a final conclusion is drawn about the presence or absence of the identity (similarity) of the appropriate means of individualization, or about misleading the consumer regarding the product, service, producer.

At the *final stage* of the expert research, its results shall be formalized in the forensic expert's opinion in accordance with the established rules (in compliance to procedural legislation and the Instruction on the appointment and execution of forensic examinations and expert researches).

So, on the basis of generalizing the publications on theoretical, common methodological issues as well as on the basis of the carried out analysis of forensic expert practice in the field of intellectual property concerning the various means of individualizing the goods, services and participants in civil circulation, the methodological approaches to the execution of expert researches related to means of individualization are formulated.

However, it should be noted that in connection with the accumulation of experience in expert practice, certain provisions may require clarification and expansion, in this case, the Methodological recommendations will be amended accordingly.

ЗАГАЛЬНІ МЕТОДИЧНІ ПІДХОДИ ДО ПРОВЕДЕННЯ ЕКСПЕРТНИХ ДОСЛІДЖЕНЬ, ОБ'ЄКТАМИ ЯКИХ Є РІЗНІ ЗАСОБИ ІНДИВІДУАЛІЗАЦІЇ

Кісіль Н. В.

На основі узагальнення публікацій із теоретичних, загальнометодичних питань та проведеного аналізу судово-експертної практики у сфері інтелектуальної власності, де об'єктами досліджень виступали засоби індивідуалізації учасників цивільного обороту, їх товарів і послуг, сформульовано методичні підходи до проведення експертних досліджень, пов'язаних із різними засобами індивідуалізації.

Ключові слова: судова експертиза, інтелектуальна власність, комерційні (фірмові) найменування, торговельні марки, зазначення походження товару.

**ОБЩИЕ МЕТОДИЧЕСКИЕ ПОДХОДЫ К ПРОВЕДЕНИЮ
ЭКСПЕРТНЫХ ИССЛЕДОВАНИЙ, ОБЪЕКТАМИ КОТОРЫХ
ЯВЛЯЮТСЯ РАЗЛИЧНЫЕ СРЕДСТВА ИНДИВИДУАЛИЗАЦИИ**

Кисиль Н. В.

На основе обобщения публикаций по теоретическим, общеметодическим вопросам и проведенного анализа судебно-экспертной практики в сфере интеллектуальной собственности, объектами исследований которых выступали средства индивидуализации участников гражданского оборота, их товаров и услуг, сформулированы методические подходы к проведению экспертных исследований, связанных с различными средствами индивидуализации.

Ключевые слова: судебная экспертиза, интеллектуальная собственность, коммерческие (фирменные) наименования, торговые марки, обозначения происхождения товара.

FORENSIC PSYCHOLOGICAL AND FINE ART EXAMINATIONS

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INFLUENCE OF INTEGRATION AND DIFFERENTIAL PROCESSES IN MODERN PSYCHOLOGY ON FORENSIC PSYCHOLOGICAL EXAMINATION

Consideration is given to theoretical and methodological issues of conducting the forensic psychological examination. The paper determines its subject, object and tasks in the aspects of scientific psychology and forensic examination; the grounds for the identification of substantive types of forensic psychological examinations and the implementation of the differential approach when they are appointed and conducted; outlines the prospects for the development of new researches in the aspect of integration processes.

Keywords: expert practice, substantive types of forensic psychological examination, object, subject, tasks, differential approach.

There is a large number of psychological factors, the knowledge, expedient and mandatory accounting of which is necessary for an objective legal assessment of the subject of investigation and forensic examination (of fact in proof). The effectiveness of applying the forensic psychology examination to resolve such issues is now undoubted. However, expert practice makes it possible to state the existence of a stable tendency to inaccurate (sometimes, insufficiently correct, inadequate) definition of the actual subject of forensic psychology examination in the event of its appointment, which leads to the formulation of inexpedient (both excessive and erroneous, even provocative) expert tasks.

To prevent this negative trend and to level it out, the analysis was made of sources of the erroneous definition of psychological subject matter at appointment and carrying out of forensic psychological examinations and researches.

Most often there is a desire to explain certain psychological phenomena (when the latter are given legal significance) with the help of numerous popular scientific and scientific psychological literature, which is combined with an insufficiently critical assessment of the correlation of scientific data borrowed from literary sources with the subject of expert psychological research.

This is quite understandable, since psychology studies very diverse phenomena, which determined the allocation of independent branches of psychologi-

cal knowledge (personality psychology, social psychology, political psychology, medical psychology, engineering psychology, legal psychology, etc.), with a specific subject of research for each of psychological science directions (and for single highly specialized scientific experiments). This feature, due to the logic of the scientific knowledge development, naturally results in the need to differentiate the subject of expert forensic psychological analysis. However, it is difficult for the initiator of forensic psychological examinations and researches to orientate in this matter, since he is not able to take it into account, and this affects the issues put to the examination.

If the psychological side of the circumstances investigated in the case (the psychological aspect of the situation) has a vivid manifestation (for example, affective delicts), or if the appointed examinations have already been granted the traditional status both for legal practice and in the daily practice of a psychologist expert (for example, in relation to minors), then no any significant deviations from the really scientific subject of forensic psychological examination occur when it is assigned. In the case when the circumstances of the case are multi-aspect in their psychological nature, i. e. their research reflects the need to apply and synthesize scientific knowledge from different fields of psychology (general psychology, cognitive psychology, social psychology, psychology of communication, family relations), then the appointment of a forensic psychological examination takes place with a certain eclecticism in the definition of its subject matter and undifferentiated definition of the questions posed before the examination, as well as with relying on one's own life experience (with ordinary psychologization). This is to some extent a natural process, because for certain objective reasons, scientific developments in the field of forensic psychology are not yet ahead of legal practice requirements.

Among the conditions contributing to the undifferentiated definition of the psychological field of analysis in the appointment of forensic psychological examinations and researches, the support of undifferentiated views regarding the subject of research is also provided by the psychological examination executor (expert). This entails, for example, assessment of the evidence as reliable or unreliable; provision of suggestions for using the preventive measures against the person to whom the examination was assigned; determination of sincerity/insincerity of the person's repentance, reflection of critical judgments in the expert research text on the imperfection of investigation and conclusion of the preliminary examination and so.

There are also cases of unacceptable (unreasonable) use (mechanical transfer) of a terminology set from branches of scientific disciplines which are not related to the expert's professional knowledge (according to the professional training and profile of higher education received). However, the practical experience of forensic psychology testifies that such terminological eclecticism contradicts the essence of forensic examination itself (assistance in establishment of truth in the matter of case), since it leads to unproven, unreasonable conclusions, causes disagreements in understanding the research.

It is well known that artificial fusion of terms does not correspond to the theory and methodology of correct scientific research, heuristic synthesis of the

terminological set is possible only if the special scientific research is carried out.

There are cases of using a simple (simplified) analogy of approaches suitable for carrying out other forensic examinations (for example, as in an autotechnical examination, when the rigidly related variants of the behavior of physical objects can be considered according to the given parameters). When conflicting or incomplete source data are provided for the psychological examination (the inconsistency and incompleteness of which is not eliminated even in the course of examination), the expert should confine himself to the conclusion "it is not possible". The opposite ("if so, then yes", "if not so, then another") is unacceptable, since it engenders a superficial, frivolous attitude to psychological examination, even humiliates the inherent scientific approaches and the theoretical and methodological positions of psychology itself.

For carrying out the forensic psychological examinations and expert researches, it is of fundamental importance to have an explanation why the expert comes to a certain conclusion, which should be theoretically and methodologically sound, in which it is not permissible to substitute the subject-specific research for general value judgments. Therefore, the presentation of the research part of the expert opinion should be complete, the text should be clear and understandable, the use of scientific terms should not contain an inadequate confusion of concepts (borrowed terminology). At the same time, the initiators of the examination need to be reliably oriented about the necessary conditions and their own professional opportunities for carrying out a thorough research, in which scientific deviations that are unexplainable from the standpoints of psychology are not allowed. The latter conceal the consequences of unjustified expansion of the psychological examination competence and a simplified view of its tasks, discredit psychological knowledge, necessitate the scientific and social rehabilitation of psychological expertise (the need to justify its existence), i. e. they are an obstacle in the development of its new varieties, forming not only an undifferentiated but distorted view of the subject and the possibility of psychological expertise. The danger of the above is emphasized by the notorious period of the forensic psychology history – a period of sustained negativity of expert psychological research – that existed in jurisprudence in 60s of the 20th century. At the present stage of the forensic psychology development, prevention of discrediting the psychological knowledge in conditions of growing needs of practice improvement, the implementation of justice in Ukraine is the observance of fundamentally important professional positions (rules) by the examination executor.

First of all, this is a correct use of psychology science achievements by the expert, without simplification of the theoretical and methodological basis of expert psychological research and without any deviations from the examination tasks.

Peculiarities of the psychological nature of the circumstances that are subject to consideration both in criminal proceedings and in civil cases often set before the forensic psychological examination new (non-standard) tasks that have not yet been included in the list of traditional forensic psychological examinations and studies and create certain problems regarding their appointment and execution. The solution of such problem situations is ensured to a certain extent by the scientific essence of forensic examinations and research. It means that (accor-

ding to the theory and generalized data from the practice of forensic examinations), in certain cases, an unusual, not ordinary (such that has not yet been met in practice) expert task is solved by the expert at the expense of his own practical experience, with the help of, so to speak, a creative approach to its solution.

An important condition for the solution of such problematic (atypical, new) expert situations is the scientifically correct definition of the subject field of psychological analysis (and the consequent definition of specific expert tasks), which should take place in the aspect of the main provisions of scientific (not ordinary) psychology and forensic expertise.

The basic (maternal) science of forensic psychology is general psychology¹. For forensic psychological examination, all the main points of general psychology are important, which are the scientific basis for the development of its general theoretical and methodological tools – methodology, theory and practice². Based on the categories and concepts of general psychology, the forensic psychological examination also produces its terminological set (“working” concepts), including positions that are fundamentally important for expert research. Thus, the systemic and activity approaches adopted in the theory of psychology allowed us to determine the initial principle of expert psychological analysis, which is the principle of contextuality³. This principle presupposes the determination of the psychological analysis view, differentiation of expert tasks and specific methods of expert research (diagnostics) depending on the peculiarities of circumstances and the content of expert tasks, the solution of which should be carried out with taking into account the polymorphic psychological causality, since in the determination of circumstances investigated in the case, a complex interaction of many causal factors (for example, historical, socio-economic, sociocultural, microsocial, age-related, individual typological, etc.) is involved. These factors naturally form a kind of psychological context of human life and can play a role in the logic of the person's behavior, which became the subject of judicial and investigative proceedings.

¹ See: *Рубинштейн С. Л.* Бытие и сознание // О месте психического во всеобщей взаимосвязи явлений материального мира / С. Л. Рубинштейн. — М. : Изд-во АН СССР, 1957. — 328 с.; *Выготский Л. С.* Собрание сочинений в 6 т. / Л. С. Выготский. — М. : Педагогика, 1984; *Лурия А. Р.* Лекции по общей психологии / А. Р. Лурия. — СПб. : Питер, 2009. — 320 с.

² See: *Коченов М. М.* Судебно-психологическая экспертиза: теория и практика. Избранные труды / М. М. Коченов. — М. : Генезис, 2010. — 352 с.; *Костицкий М. В.* Введение в юридическую психологию: методологические и теоретические проблемы / М. В. Костицкий. — Киев : Вища школа, 1990. — 259 с.; *Сахнова Т. В.* Основы судебно-психологической экспертизы по гражданским делам : учеб. пособие / Т. В. Сахнова. — М. : Юристъ, 1997. — 136 с.; *Кудрявцев И. А.* Судебная психолого-психиатрическая экспертиза / И. А. Кудрявцев. — М : Юрид. лит., 1988. — 224 с.

³ See: *Ломов Б. Ф.* Методологические и теоретические проблемы психологии / Б. Ф. Ломов. — М. : 1984. — 443 с.; *Леонтьев А. Н.* Деятельность. Сознание. Личность / А. Н. Леонтьев. — М. : Политиздат, 1975. — 304 с.; *Алікіна Н. В.* Експертиза судово-психологічна // Юридична енциклопедія : в 6 т. / Н. В. Алікіна, З. С. Ковальова. — К. : Укр. енцикл., 1999. — Т. 2. — С. 343–344.

The forensic psychological examination space in general (generic) meaning is determined by the peculiarities of mental activity of mentally healthy persons in situations of legal significance – that is, it determines the limits of the forensic expert's competence and, accordingly, the possibilities of psychological examination.

The reference to the origins of maternal science – scientific psychology – is determined by the fact that its subject is formed by psychological facts (phenomena) that reflect a particular form of human life: mental processes, properties, states and patterns of mental activity¹. Proceeding from the subject of scientific psychology, it is possible to give a clear definition of the subject of forensic psychological examination: these are psychological facts (phenomena) that reflect the totality of psychic phenomena (mental processes, non-pathological mental states, individual psychological features, behavioral acts, subconscious mental processes, etc.), which are manifested in the behavior of a person in the circumstances of a case that is under proceedings of the preliminary investigation bodies or court. That is, the psychological facts that form the subject of forensic psychological examination, consist of an individual-original complex of a person's mental (subjective) reflection of various phenomena occurred in objective reality, which is important for objectifying the consideration of circumstances of the case in the criminal and civil proceedings to establish the truth in the case.

The general (generic) subject of forensic psychological examination transforms into the specific (species) subject according to the following expert tasks: study of individual psychological features of the personality, motivational factors of its behavior, specifics of emotional states, regularities of mental processes, level of their development, and so on. Execution of the forensic psychological examination, as a rule, includes several interrelated specific subjects of research, among which the leading one is defined, – which makes it possible to determine the subject-specific types of forensic psychological examinations (for example, to examine the degree of ability of a complainant's witness to perceive and reproduce the circumstances of the events that are being investigated in the case).

Investigation of psychological facts that are subject to examination, provides for a clear definition of information sources – an object of expert analysis, which contains information about these facts and provides the possibility of their (psychological facts) knowledge.

In expert activity one should adhere to the general object of maternal science, the properties of which determine the general tools of knowing the psychological facts. The object of scientific psychology knowledge is formed by social subjects, psychological patterns of their life activity². In this case, the tools of knowing the psychological facts have their own specifics, since psychological facts are learned indirectly – by examining various external manifestations of the person's behavior (his actions, deeds, products of vital activity, results of the experimental psychological examination, etc.).

¹ See: Гиппенрейтер Ю. Б. Введение в общую психологию : курс лекций / Ю. Б. Гиппенрейтер. — М. : АСТ, Астрель, 2008. — С. 25–34.

² See: Гиппенрейтер Ю. Б. Indicated work. — С. 25–34.

Execution of a forensic psychological examination presumes taking into account both the specified specificity of the scientific psychology object and the object inherent in forensic expertise – sources of information, carriers of information about circumstances of the case, which reflect certain psychological facts, the analysis of which is a tool of knowing the subject of expert research. Such a synthesizing approach makes it possible to identify the objects of forensic psychological examination, which include: a person as a social subject and a collection of materialized sources of information (case materials, material evidence, products of mental activity, etc.), which reflect information about a person's mental activity in the circumstances of a case that is in the proceedings of preliminary investigation bodies or courts.

The specified objects of forensic psychological examination are equal, and their synthesis is inherent and natural. However, the excessive concentration on one of the objects or a certain disregard for a thorough investigation of one of the objects may lead to non-compliance with the principles of forensic examination – the thoroughness, completeness and objectivity of the research¹.

The definition of the subject and object of forensic psychological examination in this sense allows, in our opinion, to use the capabilities of various branches of psychology for differentiating the types of psychological research as well as for defining the methods of research in accordance with the assigned tasks. It should be noted that the psychological analysis of the case materials, that is, the psychological analysis of the listed carriers of information about a person as an object of cognition² – the concretization of the subject of research in accordance with the specifics of circumstances of the case, the detalization of materials/initial data, the selection of optimal psychological methods/techniques and special literature – realizes in general a differential approach in the appointment and conduct of forensic psychology examination and research.

Judicial and investigative practice has an inherent scope of tasks, that are put on the decision of expertise, so the subject of forensic psychological examination has the perspective of permanent differentiation, constant refinement of specific expert tasks with searching for methods and techniques of their solution.

At that, the use of achievements in the forensic psychological examination from different branches of psychological knowledge and from their special fields, that is, the use of total scientific psychological knowledge (for example, in the field of clinical psychology, psychopathology, psychodiagnostics, differential psychology and the psychology of individual differences, social psychology with its sections on the behavior of crowd, the psychology of speech activity and psycholinguistics, the psychology of perception, psychology of personality, ethnopsychology, the psychology of reli-

¹ See: Про судову експертизу : Закон України від 25.02.1994 № 4038-ХІІ // Відом. Верхов. Ради України. — 1994. — № 28. — Ст. 232 (із змінами станом на 2 лип. 2015 р.).

² See: *Ананьев Б. Г. Человек как предмет познания* / Б. Г. Ананьев. — СПб. : Питер, 2001. — 288 с.

gion, etc.), as well as the need to identify a symbiotic link of actions with other specific scientific industry knowledge, which should be used during execution of comprehensive forensic examinations of a certain type providing the synthesizing (integration) answer to the posed questions with the participation of a psychologist, raises the question of integrative expert¹ as one of the important conditions for solving the non-standard problems that arise in expert practice and lead to differentiation of the subject of expert psychological research.

The emergence of new scientific fields associated with topical social issues and with the definition of scientific knowledge possibilities of responding to various practical requests and challenges is a sign of the development of any science. The current intensification of the differentiation and integration processes in psychology including the tendency to distinguish certain branches of psychology, to provide details of objects and subjects of their study, and the simultaneous existence of a tendency to bring the problems together to a partial intersection of the subject and problem links in other fields of psychological knowledge, allows us to see certain prospects in the development of forensic psychological examination as a direct psychological practice, which is inseparable from interaction with fundamental psychology in establishing the subject and object of its research in their integration-differential embodiments according to the specified definitions. The latter is of fundamental importance, since it makes it possible to define the purpose and means of expert knowledge of psychological facts, the limits of competence, the tasks and methods of expert research; to differentiate the subject-specific types of forensic psychological examinations; to determine the possibilities of atypical expert research – to ensure the appointment and execution of forensic psychological examinations (researches) in scientifically-correct (scientific-objective) limits.

ВПЛИВ НА СУДОВО-ПСИХОЛОГІЧНУ ЕКСПЕРТИЗУ ІНТЕГРАЦІЙНИХ І ДИФЕРЕНЦІЙНИХ ПРОЦЕСІВ У СУЧАСНІЙ ПСИХОЛОГІЇ

Алікіна Н. В., Єгорова Т. М., Савкіна Т. В.

Розглянуто теоретико-методичні питання щодо проведення судово-психологічної експертизи: визначено її предмет, об'єкт і завдання в аспектах наукової психології й судової експертизи, підстави виділення предметних видів судово-психологічної експертизи та реалізації диференціального підходу при їх призначенні й проведенні, окреслено перспективи розвитку нових досліджень в аспекті інтеграційних процесів.

Ключові слова: експертна практика, предметні види судово-психологічної експертизи, об'єкт, предмет, завдання, диференційний підхід.

¹ See: *Винберг А. И.* Судебная экспертология (общетеоретические и методологические проблемы судебных экспертиз) : учеб. пособие / А. И. Винберг, Н. Т. Маляховская. — Волгоград : ВСШ МВД СССР, 1978. — С. 179.

ВЛИЯНИЕ НА СУДЕБНУЮ ПСИХОЛОГИЧЕСКУЮ ЭКСПЕРТИЗУ ИНТЕГРАЦИОННЫХ И ДИФФЕРЕНЦИАЛЬНЫХ ПРОЦЕССОВ В СОВРЕМЕННОЙ ПСИХОЛОГИИ

Аликина Н. В., Егорова Т. М., Савкина Т. В.

Рассмотрены теоретико-методические вопросы, касающиеся проведения судебно-психологической экспертизы: определены ее предмет, объект и задачи в аспектах научной психологии и судебной экспертизы, основания выделения предметных видов судебно-психологической экспертизы и реализации дифференциального подхода при их назначении и проведении, очерчены перспективы развития новых исследований в аспекте интеграционных процессов.

Ключевые слова: экспертная практика, предметные виды судебно-психологической экспертизы, объект, предмет, задачи, дифференциальный подход.

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CLASSIFICATION OF FORENSIC ART EXAMINATION OBJECTS

The paper gives the classification of forensic art examination objects. Consideration is given to the features of conducting the forensic art examination and to the main directions of objects research on the issues of belonging to those that have a cultural value. Determination is made for the authenticity and cost of objects, as well as for the availability of pornographic signs and propaganda of violence and cruelty cults.

Keywords: forensic art examination, works of plastic and applied arts, antiques, cultural value, pornographic production, propaganda, the cult of violence and cruelty.

The history of the existence of forensic art examination in Ukraine barely lasts fifteen years, but, as time has shown, it is actively developing and improving. In order to provide the forensic art examination with the methodical support, the appropriate methods and methodological recommendations are developed for the study of objects that are subordinated to it. At the present stage of forensic art examination development, the objects it operates with are distributed, first of all, in the fields of issues that it solves.

In general, art criticism is a science, on the one hand, about plastic arts, architecture, painting, sculpture, graphics, applied and decorative arts, and on the

other hand, it is a complex of sciences that study the art and artistic culture of society as a whole, certain types of art and their relation to reality, the totality of questions of the form and content of art works, and also includes the theory and history of art and art criticism. Art criticism includes literary criticism, musicology, theatre history, plastic arts, and so on. Proceeding from this, it should be noted that the forensic art examination is based on the theoretical principles of art criticism as a science, but its essence is limited to the content of those issues that currently need to be solved in accordance with a specific applied problem.

The art examination as a form of forensic examination shall be carried out within the framework of criminal proceedings in which works of art or those that probably belong to them appear.

Most often, criminal cases are connected with customs matters related to smuggling, theft, fraud, as well as with matters of damage or destruction of monuments and memorials of history, culture, archeology, construction etc. The art examination, which is appointed to solve the issues of criminal proceedings in such direction, refers to the first direction of forensic art examinations. The second direction of forensic art examination should refer to criminal proceedings related to the violation of the Law of Ukraine “On the Protection of Public Morality”.

So, summing up the above, it is possible to single out two directions of forensic art examination according to the nature of issues which it solves with respect to certain objects, that is:

- where the objects of research are works of plastic and applied arts and antiques;
- where the objects of research are information (video, photo images, texts) relating to public morality.

In other words, it can be determined that the first direction of forensic art examinations includes the material cultural values that have (or may have) historical, artistic, scientific, ethnographic or other significance, while the second direction includes spiritual values reflecting certain aspects of public morality.

In practice, the cultural valuables, such as forensic examination objects are most often encountered in cases involving a range of normative legal regulation in the following directions:

- antique market – legal and illegal (the most common type of offense – fraud);
- the movement of cultural valuables across the border (the most common type of offense – smuggling);
- theft of cultural property belonging to citizens or institutions;
- in connection with the determination of the value for cultural valuables in cases of property division, or in other offenses between individuals and legal entities.

At the common level, cultural valuables are understood as something vague, but precious and beautiful, and the most important thing is that it is antique. This is the reason for the significant growth of interest in cultural valuables in society. The charming word “valuables” is associated with the word “value”, which is not always the same. However, over the past two decades, there was a real compre-

hension of these associations, which has led to a huge rise in value of cultural valuables. They are the means of deposits, maintenance and growth of capital, given that the annual price increase, in some positions, amounted to 50–100%. And now they have reached the level of world prices. The antiques market is dynamically developing and, in its main characteristics, it constantly enters the mainstream of world trends and traditions, which brings its both positive and negative aspects. Specificity of the antique market of Ukraine resulted from historical events that took place on the territory of the former USSR in the XX century. A number of wars, revolutions, global devastation, peculiarities of government policy led to a significant reduction in antiques, which includes the concept of cultural valuables.

That boom, which was observed at the antique market in the mid-90's. XX century and which resulted in a large number of art works of the highest quality, is over. Today, the antique market has become impoverished, there has been a redistribution of cultural valuables. At auctions, in antique shops and from dealers, the antiques items that have a high status are rare. It is commonly known that the holy place is never empty. Many fakes appeared in the antique market, which is facilitated by the state of scientific and technological level of modern society. As practice has shown, the most common are fakes in such industries as numismatics, faleristics and painting, where the proportion of falsifications according to literature data makes up 40–80%. In recent years, china ware and products of archeology are approaching to them.

So, the *first component of the first direction* is determined. It can have significant dimensions in the near future, and it already has its sad history in the world criminal space. The trade in counterfeit antiquarian items, the number of which is already determined by seven-digit figures, is extremely common, however, unlike the world judicial practice, this component has not yet been adequately evaluated in Ukraine.

The *second component of the first direction* is associated with a controversial range of normative legal regulation, which concerns the movement of cultural valuables across the state border.

Art. 1 of the Law of Ukraine “On Export, Import and Return of Cultural Property” gives the following definition: “Cultural valuables are objects of material and spiritual culture that have artistic, historical, ethnographic and scientific significance”¹. This definition, sometimes with some clarifications, passed into other regulatory documents, such as the Law of Ukraine “On culture”, the Statute on the Museum Fund of Ukraine, the Instruction on the procedure for registration of the right to export, the temporary importation of cultural valuables and control over their movement across the state border of Ukraine, etc.

In these definitions, there is a concept of the image or of the term “cultural valuables” and the criteria by which it is necessary to determine the belonging of the object to the image – that is, it must have an artistic, historical, ethno-

¹ See: Про вивезення, ввезення та повернення культурних цінностей : Закон України від 21.09.1999 № 1068-XIV // Відом. Верхов. Ради України. — 1999. — № 48. — Ст. 405.

graphic and scientific significance. The question of belonging of the subject submitted for research to cultural valuables, and, therefore, of the scope of actions, which are regulated by the relevant legal documents, is the most common in the practice of forensic art examination.

Practice has shown that in 90% of cases in the judgments on the appointment of forensic art examinations of this direction, the question is formulated as follows: "Is the subject submitted for research an artistic, historical and cultural valuable?". A certain element of fuzziness and substitution of concepts in the classification and definition of cultural valuables is introduced into this issue from the very beginning. The question should be posed as follows: "Does the subject submitted for research belong to cultural valuables that have artistic, historical, ethnographic or scientific value?".

The *third component of the first direction* concerns the scope of both criminal and civil cases related to the evaluation of stolen valuables and appraisal of objects of civil legal relations. The number of art examinations in criminal cases in this field along with the number of violations of this category is growing rapidly. Their main purpose is to determine the value of cultural valuables that are objects of theft from private individuals or from state collections, mainly from museums. In general, the execution of these art examinations is not particularly difficult, if the subject itself is provided for the research. However, as a rule, the subject is stolen, and only its inaccurate description is submitted for the research. In this case, the qualification of the expert, his practical experience and provision with special reference literature are of great importance.

Depending on the role in the process of resolving the issues of forensic art examinations, the final and intermediate or major and auxiliary objects are distinguished. The process of solving an expert task is sometimes multistep and consists of solving a number of individual subtasks. The final or main object of forensic examination is one of the objects that allows to solve the issue posed to the expert by the investigator or the court. Intermediate objects are both parts that make up complex system objects that are main, as well as individual material formations that are part of their composition and are investigated when solving the sub-tasks of forensic art examination.

It should be noted that the unifying link of forensic art examinations of all three components of the first direction, where the objects of research are cultural valuables, is the fact that to resolve any issue of research it is necessary to begin with determining the authenticity of the work by using both stylistic, and tehniko-technological, physical, chemical, material testing and other methods of research. In other words, it is necessary to carry out the attribution of the work. Such research should be executed with the involvement of relevant specialists.

Also an important feature in the research of cultural valuables is the concept of the artistic level of the work. The artistry itself is such basic quality and main feature of art that distinguishes it from other forms of reflection and knowledge of life (for example, scientific). The basis of artistry is the reflection of life in certain images and their harmonious totality, their integral unification with one another.

As the analysis of the literature shows, for the concept of artistry, the following are fundamental: 1) artistry is the source of the origin of artwork; 2) artistry is an inherent quality of artwork; 3) artistry is an attribute of artwork; 4) the property of artistry is the source of perception of artwork; 5) artistry is inextricably linked with aesthetics.

It is obvious that the intersection of all these moments in the artwork allows us to talk about its artistic content and the level of artistic mastery of its performance, so the main task of art research is to establish the presence of all these components in it.

The *first component of the second direction* of forensic art examinations dealing with certain aspects of public morality, is devoted to research on belonging of submitted materials to pornography.

The analysis of these objects is carried out by means of comparing the generally accepted concepts and definitions of pornographic signs with content of images and texts, and by subsequent comparison of these characteristics with the obtained data.

The attribution of an object to an object of art is carried out according to signs of its belonging to mass culture. Mass culture is a generalized characteristic of the type of culture that dominates in modern society, transformed into an industrial-commercial form of producing the standardized spiritual goods, and disseminated by means of mass communications.

The main features of mass culture are primitivism of depicting human relations, entertainment, sentimentality, naturalistic relishing of violence, sex and so on.

Eroticism (eros-love, passion) is defined as a distinctive facet of artistic culture and in a broad sense it represents the totality of everything related to sexual relations, including the psychological aspects of sexuality, their manifestation in art, communication, fashion, etc.

The unified world conception of pornography (from the Greek word “*por-nos*” – a libertine) does not exist. The essence and definition of this term in each country is given in the legislative order and it has significant differences.

In Ukraine, the definition of pornography is given in Art. 1 of the Law of Ukraine “On Protection of Public Morality”. According to this definition: “Pornography is a vulgar, naturalistic, cynical, obscene fixation of sexual acts, autotelic special demonstration of genitalia, anti-ethical scenes of sexual intercourse, sexual perversions, sketches from nature that do not correspond to moral criteria, insult the honor and dignity of a person, induce low instincts.

Products of pornographic nature are any material objects, subjects, printed, audio, video products, including advertisement, announcements and files, production of mass media, electronic mass media, the content of which is a detailed depiction of anatomical or physiological details of sexual activities or which contain information of pornographic character”¹.

¹ See: Про захист суспільної моралі : Закон України від 20.11.2003 № 1296-IV // Відом. Верхов. Ради України. — 2004. — № 14. — Ст. 192.

Objects of pornographic nature include objects intended to excite unhealthy sexual passion through the cynical, vulgar-naturalistic, obscene or unnatural depicting of sexual life sphere in literature, art, theater, etc.

The conclusion about the presence or absence of pornographic content in video production is based on the criteria that are revealed in the analysis of the purpose provided the basis for the images, as well as of the ways to achieve this purpose.

The *second component of the second direction* of forensic art examinations, which deals with certain aspects of public morality, is devoted to research of the submitted materials for their belonging to those which propagandize the cult of violence and cruelty.

Propaganda is the dissemination in society as well as the clarification of any views, ideas, knowledge, teaching.

Cult is an excessive praise of something or someone (cult of personality), worshipping someone, anything, honoring someone, anything.

Violence is the use of physical force against someone, forced influence on someone, violation of personal integrity, enforcement as a way of exercising the power and supremacy (regardless of anyone or anything), the movement towards the achievement of the goal; the elementary force directed at coercion.

Cruelty is a cruel deed, behavior, ruthless infliction of pain.

These definitions are given in encyclopedic dictionaries and they are key for solving the forensic art examination issues that relate to the propaganda of violence and cruelty. Of course, showing or demonstrating is one of the forms of propaganda. The main criterion in deciding whether the object belongs to those that promote the cult of violence and cruelty is the definition of the purpose of their showing in the object, as well as the ways or means to achieve this purpose.

So, in terms of the nature of questions that are decided on certain objects, the forensic art examination is distributed to such directions where the objects of research are works of plastic and applied arts or antiques and where the object of research is information (video, photos, texts) that relates to public morality.

Each of the directions of forensic art examinations is divided into several separate components depending on the variety (classification characteristics) of the subject under research.

КЛАСИФІКАЦІЯ ОБ'ЄКТІВ СУДОВОЇ МИСТЕЦТВОЗНАВЧОЇ ЕКСПЕРТИЗИ

Долуда А. О., Пукліч О. С.

Наведено класифікацію об'єктів судової мистецтвознавчої експертизи. Розглянуто особливості проведення та основні напрями дослідження об'єктів мистецтвознавчої експертизи з питань належності предметів до таких, що мають культурну цінність, установлення автентичності та визначення вартості об'єктів, а також наявності порнографічних ознак і пропаганди культу насильства та жорстокості.

Ключові слова: судова мистецтвознавча експертиза, твори пластичних і прикладних мистецтв, антикваріат, культурна цінність, порнографічна продукція, пропаганда, культ насильства та жорстокості.

КЛАССИФИКАЦИЯ ОБЪЕКТОВ СУДЕБНОЙ ИСКУССТВОВЕДЧЕСКОЙ ЭКСПЕРТИЗЫ

Долуда А. А., Пуклич О. С.

Представлена классификация объектов судебной искусствоведческой экспертизы. Рассмотрены особенности проведения и основные направления исследования объектов искусствоведческой экспертизы по вопросам отнесения предметов к культурным ценностям, установления подлинности и определения стоимости объектов, а также наличия порнографических признаков и пропаганды культа насилия и жестокости.

Ключевые слова: судебная искусствоведческая экспертиза, произведения пластических и прикладных искусств, антиквариат, культурная ценность, порнографическая продукция, пропаганда, культ насилия и жестокости.

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OBJECTIFICATION OF LABORATORY DIAGNOSTICS OF ACUTE AND CHRONIC ALCOHOL INTOXICATION WITH USING MODERN BIOCHEMICAL MARKERS

The consideration is given to problems of alcoholic disease-pathology, which has recently become so widespread in many countries, and is ranked number three in the causes of death and disability after cardiovascular and oncological diseases. The article highlights the main issues of pathogenesis and diagnostics of the most common affection of internal organs resulted from alcoholic etiology. Special attention is paid to laboratory methods for diagnosing the acute and chronic alcohol intoxication.

Keywords: ethanol, acetaldehyde, alcohol intoxication, macro- and micro-elements, laboratory diagnostics, forensic medical examination.

One of the topical issues in the forensic medical examination is to determine the influence of alcohol on the human body in order to find out the cause and mechanism of the death onset. According to this point, the diagnosis of acute and chronic alcohol intoxication is an important link in the practical activities of forensic medical expert, mainly due to individual sensitivity of the organism to the action of ethanol, the possible presence of concomitant diseases, especially on the background of chronic alcohol abuse, the quality of alcohol products and other factors.

The social significance of this issue is stipulated by the fact that alcohol pathology causes a high mortality rate, especially for men of working age¹, and it concedes only to oncological and cardiovascular diseases.

¹ See: Анализ ГРВ-грамм трупной крови при остром отравлении этиловым алкоголем в практике судебно-медицинского эксперта / Д. П. Березовский, И. А. Киркин, М. А. Додохова, В. С. Гимбут // Наука. Информация. Сознание : материалы X междунар. конгресса по биоэлектрографии. — СПб., 2006. — С. 49–50.

According to the World Health Organization (WHO), 3.3 million people die every year as a result of harmful use of alcohol, which is 5.9% of all deaths. Harmful use of alcohol is the causative factor of 5.1% of common diseases and injuries. Alcohol consumption leads to death and disability of people at earlier stages of life: among people aged 20–39 years, approximately 25% of all deaths are associated with alcohol. There is a causal relationship between the harmful consumption of alcohol and a range of mental and behavioral disorders, infectious and noninfectious diseases. The use of alcohol causes significant social and economic damage to individuals and society as a whole¹. According to the WHO, the ingestion of 21 units of alcohol per week for men and 14 – for women is considered safe (the alcohol unit is 30 g of 40% (vodka), 100 g of 9–11% (dry wine) and 200 g of 3–5% drink (beer))².

One of the main tasks of forensic medical examination is the establishment of tanatogenesis on the background of alcohol intoxication, in particular, whether it is the direct cause of death or a factor that contributed to its onset from other causes. In each specific case, this task is solved on the basis of an analysis of preliminary information on the circumstances of death, forensic medical examination of the corpse and results of additional laboratory research. According to the current Methodological recommendations “Forensic diagnostics of fatal poisonings with ethyl alcohol”³, the forensic medical diagnostics of the cause of death from alcoholic intoxication in Ukraine is based on the definition and evaluation of more than 40 diagnostic and, as a rule, nonspecific signs, the diagnostic value of which is not established, while the expert's conclusion on the cause of death is based on a subjective assessment of their totality, which predetermines the complexity of diagnosing this type of death and the possibility of expert errors.

In recent times, the scientists, including experts in the field of forensic medicine, have paid much attention to using the principles of evidence-based medicine in scientific and expert examinations, which contributes to their objectivity and evidentiary significance⁴.

¹ See: Всемирная организация здравоохранения (ВОЗ) об алкоголе и табаке: Алкоголь // Информационный бюллетень №349 (май 2014 г.) [Электронный ресурс]. — Режим доступа : <http://brosaem.info/voz-ob-alkogole-i-tabake.php>.

² See: *Маевская М. В.* Алкогольная болезнь печени / М. В. Маевская // Клинические перспективы гастроэнтерологии, гепатологии. — 2001. — № 1. — С. 34–36.

³ See: Судово-медична діагностика смертельних отруєнь етиловим алкоголем : метод. рекомендації / [Ю. П. Шупик, В. Г. Бурчинський, Ф. М. Кахановський та ін.]. — К., 2004. — 20 с.

⁴ See: Метод определения достоверности вывода эксперта о причине смерти / В. А. Татаренко, Н. М. Губин, П. А. Каплуновский и др. // Теорія та практика судової експертизи і криміналістики : зб. матеріалів міжнар. наук.-прак. конф., Харків, 19–20 черв. 2002 р. — Х. : Право, 2002. — Вип. 2. — С. 573–576; *Ланач С. Н.* Основные принципы применения статистических методов в клинических испытаниях / С. Н. Ланач, А. В. Чубенко, П. Н. Бабиц. — Киев : Морйон, 2002. — 160 с.; *Витер В. И.* Объективизация доказательности морфологической диагностики острого алкогольного отравления / В. И. Витер, А. В. Пермяков // Актуальные вопросы судебной медицины и экспертной практики : сб. науч. работ. — Новосибирск : Межрегион. ассоциация «Судебные медики Сибири», 2003. — Вып. 8. — С. 60–62; *Пиголькин Ю. И.* Применение

The need to determine reliable diagnostic criteria in cases of forensic diagnosis of the cause of death from alcoholic intoxication was proclaimed by the decision of the All-Ukrainian scientific-practical conference of forensic experts with international participation¹.

Laboratory diagnostics of acute and chronic alcohol intoxication is one of the priority ways to improve the diagnosis of this pathology. In particular, the elucidation of biochemical mechanisms of the ethanol action on the organism of experimental animals and humans makes it possible to develop biochemical methods for improving the diagnosis of death from ethanol intoxication in forensic medicine practice. Such methods can be biochemical, in particular, the determination of the macro and microelement composition of organs and tissues of the deceased, as well as the determination of the concentration of acetaldehyde (AcA) in the human body.

The onset of death from alcohol intoxication depends not only on the amount of taken ethanol, but also on the concentration level of its partial oxidation products, for example, the concentration of acetaldehyde, which plays a very important role in the pathogenesis of alcohol intoxication².

принципов доказательной медицины в качестве критериев полезности новых методов исследования в экспертной практике / Ю. И. Пиголкин, И. Н. Богомолова // Судеб.-мед. экспертиза. — 2004. — № 2. — С. 36; Уваренко А. Р. Доказова медицина у спектрі наукової медичної інформації та галузевої інноваційної політики / А. Р. Уваренко. — Житомир : Полісся, 2005. — 188 с.; Определение степени достоверности выводов эксперта о причине смерти при судебно-медицинской диагностике алкогольной кардиомиопатии / В. А. Ольховский, П. А. Каплуновский, Н. М. Губин и др. // Бокаріусовські читання : зб. матеріалів першої міжнар. наук.-прак. конф. суд. медиків і криміналістів, Харків, 8–9 груд. 2006 р. — Х., 2006. — С. 78–79; Бондаренко В. В. Обґрунтування критеріальної значимості діагностичних показників у випадках отруєння алкоголем / В. В. Бондаренко // Медицина третього тисячоліття : зб. тез міжвуз. конф. молодих вчених. — Х. : ХНМУ, 2008. — С. 6–8.

¹ See: Бондаренко В. В. Новый подход к судебно-медицинской диагностике острых алкогольных отравлений / В. В. Бондаренко, В. А. Ольховский, Ю. В. Ковтюх // Актуальні питання фармацевтичної та медичної науки та практики : зб. наук. ст. — Запоріжжя : ЗДМУ, 2007. — Вип. 20. — С. 317–318; Бондаренко В. В. Обґрунтування критеріальної значимості діагностичних показників у випадках отруєння алкоголем : автореф. дис. на здобуття наук. ступеня канд. мед. наук : спец. 14.01.25 «Судова медицина» / В. В. Бондаренко. — К., 2008. — 20 с.

² See: Морозов Ю. Е. Судебно-медицинское значение продуктов ферментативно-го окисления этанола в головном мозге трупов / Ю. Е. Морозов // Судеб.-мед. экспертиза, 2002. — № 1. — С. 17–21; Новоселов В. П. Состояние сократительного аппарата кардиомиоцитов в зависимости от уровня концентрации ацетальдегида при алкогольной интоксикации / В. П. Новоселов, О. В. Хамович, С. В. Савченко // Актуальные вопросы судеб. мед. и эксперт. практики : сб. науч. работ. — Новосибирск : Межрегион. ассоциация «Судебные медики Сибири», 2003. — Вып. 8. — С. 97–100; Лосев Ф. О. Судово-медична діагностика отруєнь алкоголем з урахуванням концентрації його в гематомах : дис. ... канд. мед. наук : 14.01.25 / Ф. О. Лосев. — К., 2007. — 148 с.; Судово-медична експертиза (загальна частина) / укл. О. Герасименко. — Донецьк : Норд-Прес, 2007. — 508 с.

Despite convincing data on the diagnostic value of the acetaldehyde concentration in the blood at alcohol intoxication, it is not taken into account in the diagnosis of alcohol poisoning due to the lack of reliable criteria for its evaluation.

During the work, 289 corpses of males aged 19 to 74 years old, who died of alcohol intoxication (the main group) and for other reasons (due to diseases of the circulatory system and mechanical trauma) (control group) were examined. The average age of the deceased from the main group was 43 years, of the control group – 51 years. It was noticed that the persons from the control group had no ethanol in the blood and urine. It was confirmed by the negative results of the forensic toxicology examination. In each case, 38 diagnostic features were identified according to the Methodological Recommendations “Forensic diagnostics of fatal poisonings with ethyl alcohol”¹. Forensic autopsies of corpses were carried out with using the methods of G. V. Shor and A. I. Abrikosov². In the examination of the brain, the methods of R. Virchow and F. E. Fisher³ were used. In each case, there was a forensic histological examination of internal organs and a forensic toxicological examination of blood and urine for the presence of alcohol in the departments of forensic medical histology and forensic medical toxicology, respectively, of the Kharkiv Regional Bureau of Forensic Medical Examination (KhRBFME). The examination of the acetaldehyde concentration was carried out by gas-liquid chromatography on the base of the KhRBFME Department of Forensic Toxicology with using the chromatograph LXM-80. At the same time, it was used the method of A. E. Uspensky with co-authors (1982)⁴. This method provides for the simultaneous detection of ethanol and acetaldehyde concentration in biological objects. It is simple in execution, sensitive and allows the examination of small volumes of biological fluids.

The examination of the exchange of macro- and microelements in health and disease is topical⁵ due to the versatile role that they play in the body of animals and humans: they participate in metabolism, enter into the composition of metal-

¹ See: Судово-медична діагностика смертельних отруєнь етиловим алкоголем : метод. рекомендації.

² See: Шор Г. В. О смерти человека / Г. В. Шор. — Л. : Кубуч, 1925. — 272 с.; Абрикосов А. И. Техника патологоанатомического вскрытия трупов / А. И. Абрикосов. — М. : Медгиз, 1948. — 167 с.

³ See: Медведев И. И. Основы патологоанатомической техники / И. И. Медведев. — М. : Медицина, 1969. — 282 с.

⁴ See: Определение содержания этанола и ацетальдегида в биологических жидкостях / [А. Е. Успенский, А. Х. Абдрашитов, В. М. Смирнов, В. П. Листвина] // Судеб.-мед. экспертиза, 1982. — № 3. — С. 45–48.

⁵ See: Пац Н. В. Микроэлементный дисбаланс у детей Гродненской области и звенья медико-профилактических мероприятий для предупреждения развития синдрома дезадаптации // 200 лет Государственной службы управления здравоохранением Гродненщины : материалы науч.-практ. конф. — Гродно, 2002. — С. 108–112; Severe hyponatremia due to hypopituitarism with adrenal insufficiency: report on 28 cases / [S. Diederich, N. Franzen, V. Bahr, W. Oelkers] // Eur. J. Endocrinol. — 2003. — Vol. 148, № 6. — P. 609–617; Оценка микроэлементного профиля у детей со злокачественными новообразованиями / [В. М. Боев, Л. А. Перминова, О. В. Быстрых, Н. А. Лесцова] // Микроэлементы в медицине. — 2004. — Т. 5, Вып. 2. — С. 11–14.

loenzymes, vitamins, hormones; stimulate and normalize the metabolism¹, affect hematopoiesis, growth, reproduction, apoptosis of cells², and perform many other functions³. The content of macro- and microelements in organs and tissues (blood, liver, heart, kidneys, spleen, lungs, brain and hair) was determined by atomic absorption spectrophotometry with using the spectrophotometer Saturn-3 (for Ca, Mg, Zn, Cu) and by flame photometry with using the photometer of the flammable liquid analyzer PAG-2 (for K, Na) recommended by V. Prais⁴. The statistical analysis was carried out with using the package Statistica V.6.0. To test the hypothesis of the equality of general means of two independent samples, we used the statistical t-Student test with a preliminary determination of the normalcy of distribution, variant⁵.

When studying the content of macro- and microelements in organs and tissues of persons, who died of ethanol intoxication, it was found that the blood serum of the deceased persons had an increase in Na level by 21.9%, Ca – by 18.5%, Cu – by 29.0% and the decrease in K level by 11.3%, Mg – by 14.5% and Zn – by 15.8% as compared to the control group. The ratios of Na/K, Ca/Mg and Cu/Zn were higher than in the control group by 44.1, 44.8 and 75.0%, respectively.

Upon analyzing the results of the conducted researches, it can be concluded that the ratio of element concentrations in the serum is more informative factor than the absolute values. Thus, the Na/K and Ca/Mg ratios were 34.03 and 4.18, respectively, which is 1.44 times higher than in the control group; the ratio of Cu/Zn is 1.36, which is 1.68 times higher than in the control group. Thus, the ratios Na/K, Ca/Mg and Cu/Zn in the serum of persons who died from ethanol intoxication were increased in comparison with the control group.

When examining the content of macro- and microelements in the organs and tissues of persons who died from ethanol poisoning, it was found that there was a significant decrease in levels of Ca and Zn by 20.0 and 12.3%, respectively, in the heart, a decrease in levels of Mg and Zn by 25.3 and 18.7% respectively in the lungs, a decrease in the level of Zn by 18.4% and an increase in the level of Ca by 15.5% in the liver, a decrease in levels of Mg, Cu and Zn by 26.0, 22.5 and 12.7%, respectively, in the kidneys, an increase in the level of Ca by 15.3%

¹ See: До динаміки металоферментів при хронічному гепатиті // VI Український біохімічний з'їзд : тези доп. / [Є. М. Нейко, Т. І. Маковецька, І. Ю. Головач, В. Є. Нейко]. — К. : УСТА, 1992. — С. 176; Kadekaro M. Centrally produced nitric oxide and the regulation of fluid and blood pressure homeostasis / M. Kadekaro, J. Summy-Long // Clinica. and Experiment. Pharmacol. and Physiol. — 2000. — Vol. 27. — P. 450–459.

² See: Иммунофармакология микроэлементов / [А. В. Кудрин, А. В. Скальный, А. А. Жаворонков и др.]. — М. : Изд-во КМК, 2000. — 537 с.

³ See: Siva K. State of potassium, sodium and water in the cytoplasm of cages / K. Siva, R. Elber // Proteins. — 2003. — Vol. 50. — P. 63–80; Скальный А. В. Биоэлементы в медицине / А. В. Скальный, И. А. Рудаков. — М. : Мир, 2004. — 254 с.; Терещенко И. В. Микроэлементы и эндемический зоб / И. В. Терещенко, Т. П. Голдырева, В. И. Бронников // Клинич. мед. — 2004. — № 1. — С. 62–68.

⁴ See: Прайс В. Аналитическая атомно-абсорбционная спектроскопия / В. Прайс. — М. : Мир, 1976. — 355 с.

⁵ See: Лакин Г. Ф. Биометрия / Г. Ф. Лакин. — М. : Высш. шк., 1990. — 352 с.

and a decrease in levels of Cu and Zn by 28.2 and 18.1%, respectively, in the spleen, a decrease in the level of Cu by 25.0% in the brain, an increase in the level of Cu and Ca by 26.6 and 19.1%, respectively, and a decrease in the level of Zn by 21.3% in the hair.

It is typical for persons, who died of ethanol poisoning, to have an increase in the content of copper, sodium and calcium with a parallel decrease in the content of zinc, magnesium and potassium in the blood serum, a predominant increase in calcium and a decrease in zinc in the liver, calcium and zinc – in the heart, magnesium and zinc – in the lungs, magnesium, zinc and copper – in the kidneys, copper – in the brain, an increase in the content of calcium and a decrease in the content of copper and zinc in the spleen, an increase in the content of copper, calcium and a decrease in the content of zinc in the hair.

The research results showed a direct correlative relationship between levels of ethanol and acetaldehyde concentration in the blood, which give grounds to consider the acetaldehyde blood concentration index as an additional diagnostic criterion of alcohol intoxication (AI).

The determination of the criterial significance of the acetaldehyde (AcA) concentration indices occurred with using the mathematical statistics methods, in particular, with using the statistical t-Student test and the Gubler-Genkin method. So, it has shown that the levels of AcA concentration of 0.02‰ and more (+6.4) in the blood shall be subject to forensic medical evaluation as informative indicators of AI presence, while the levels of AcA concentration up to 0.001‰ (–8.2) in blood as informative indicators of AI absence. At other AcA blood concentrations from 0.001 to 0.02‰, there was no statistically significant difference in such levels of AcA concentrations between cases of alcohol intoxication and other causes of death ($p > 0.05$), which indicates the absence of their diagnostic significance in cases of AI. The research results showed that any level of AcA concentration in urine is not an informative criterion of AI, as evidenced by the absence of a statistically significant difference between AI cases and other causes of death ($p > 0.05$).

Thus, based on the analysis of the results of examinations conducted on cadaveric material, the additional criteria were developed for diagnosing the death from ethanol intoxication by determining the content of macro- and microelements, in particular, of potassium, sodium, calcium, magnesium, zinc and copper in organs and tissues as well as the content of acetaldehyde in the blood, which can increase the objectivity and accuracy of forensic diagnostics for this type of death.

ОБ'ЄКТИВІЗАЦІЯ ЛАБОРАТОРНОЇ ДІАГНОСТИКИ ГОСТРОЇ ТА ХРОНІЧНОЇ АЛКОГОЛЬНОЇ ІНТОКСИКАЦІЇ З ВИКОРИСТАННЯМ СУЧАСНИХ БІОХІМІЧНИХ МАРКЕРІВ

Дереча Л. М., М'ясоєдов В. В., Бондаренко В. В.

Розглянуто проблеми алкогольної хвороби-патології, що отримала останнім часом значне поширення в багатьох країнах і займає третє місце серед причин

смертності та інвалідності після серцево-судинних і онкологічних захворювань. Висвітлено основні питання патогенезу та діагностики найбільш поширених уражень внутрішніх органів алкогольної етіології, особливу увагу приділено лабораторним методам діагностики гострої та хронічної інтоксикації алкоголем.

Ключові слова: етанол, ацетальдегід, алкогольна інтоксикація, макро- і мікроелементи, лабораторна діагностика, судово-медична експертиза.

ОБЪЕКТИВИЗАЦИЯ ЛАБОРАТОРНОЙ ДИАГНОСТИКИ ОСТРОЙ И ХРОНИЧЕСКОЙ АЛКОГОЛЬНОЙ ИНТОКСИКАЦИИ С ИСПОЛЬЗОВАНИЕМ СОВРЕМЕННЫХ БИОХИМИЧЕСКИХ МАРКЕРОВ

Дереча Л. Н., Мясоедов В. В., Бондаренко В. В.

Рассмотрены проблемы алкогольной болезни-патологии, получившей в последнее время широкое распространение во многих странах и занимающей третье место среди причин смертности и инвалидности после сердечно-сосудистых и онкологических заболеваний. Освещены основные вопросы патогенеза и диагностики наиболее распространенных поражений внутренних органов алкогольной этиологии, особое внимание уделено лабораторным методам диагностики острой и хронической интоксикации алкоголем.

Ключевые слова: этанол, ацетальдегид, алкогольная интоксикация, макро- и микроэлементы, лабораторная диагностика, судебно-медицинская экспертиза.

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DETERMINATION OF TYPE AND MARK OF PROJECTILES BY METHOD OF X-RAY FLUORESCENCE SPECTRAL ANALYSIS IN THE STUDY OF PNEUMATICALLY SHOT INJURIOUS TO SOME CLOTHING MATERIALS

The X-ray fluorescence spectral qualitative and quantitative analyses were performed for the elemental composition of 4 marks of bullets for pneumatic weapon of home and foreign production, and also for imitators of common clothing materials – camouflage fabric and cotton knitwear. It is determined that lead bullets for pneumatic weapons are capable to introduce some elements of their composition, which are inherent in one or another mark of bullets, to the area of damage on certain clothing materials, in particular, camouflage fabric and cotton knitwear. This expands the possibilities of forensic medical examination when dealing with a problem of determining the type and mark of a bullet or of a small group of bullets similar in their elemental composition, due to which the pneumatically shot injuries of examined objects took place.

Keywords: X-ray fluorescence spectral analysis, elemental composition, 4.5-mm caliber bullets, pneumatical shot injuries, camouflage fabric, cotton knitwear.

The X-ray fluorescence spectral analysis (XRFS¹) has high sensitivity and accuracy, which allows to carry out the qualitative and quantitative analysis of all chemical elements (from fluorine to uranium) composing the substance without any change in the object. To implement the XRFS, the industry of different countries produces numerous devices, among which the domestic analyzers ECOLOGIST of Expert series, which measure mass shares of chemical elements in addition to determining their qualitative composition in the object. In the Expert 3XL elemental analyzer, the method of energy-dispersive X-ray fluorescence elemental analysis is carried out by using the fundamental parameters method with excitation of the characteristic radiation of sample atoms by photons of the braking spectrum of a low-power X-ray tube and registration of this radiation by a semiconductor PIN detector with thermoelectric cooling.

This method has recently been applied in the course of forensic medical and criminalistic examination of objects for damage caused by shots from various types of barreled weapons, not only from the most common firearms, but also from so-called “non-lethal weapon” or *traumatic action weapon* (cursive is ours – I. K.)². The X-ray spectral fluorescence analysis is used in examining the pneumatic gunshot damage of various objects of forensic medical and criminalistic examination, because this method allows to determine the elemental composition of the examined object quickly and with high accuracy while leaving it in an unchanged state.

S. A. Raizberg and co-authors carried out an experimental research to determine the action features of shot products after shooting from the 9-mm Big Bore 909 S air rifle (manufactured by Sam Yang, South Korea) with the air pre-pumping system (APS). They carried out shots at obstacles made of white coarse calico from a distance of 100 cm by standard lead naked bullets produced by Air Venturi company (USA), which differed only in the shape of their head part (HP). On this basis, the bullets were divided into three groups: I – with hemi-

¹ In the special literature, other names can be found: X-ray fluorescence analysis (XRFA), X-ray spectral fluorescence analysis (XRSFA), X-ray fluorescence spectroscopy (XRFS), though this is the same method.

² See: Олейник В. П. Использование анализаторов рентгеновского спектра в целях экспрессдиагностики металлов в следах повреждений : практ. рекомендации / В. П. Олейник, Т. М. Самойлова. — СПб., 1994; Havel J. Energie disperzní rentgenová fluorescenční spektrometrie – forenzní chemie metoda pro detekci reziduí kuličky kovu v střelnými ranami / J. Havel, K. Zelenka // Soud. Lek. — 2003, Apr. — № 48(2). — P. 22–27; Бабаханян А. Р. Судебно-медицинские аспекты повреждений, причиненных из оружия нелетального действия / А. Р. Бабаханян, Р. В. Бабаханян, В. Д. Исаков // Судеб.-мед. эксперт. — 2005. — № 4. — С. 5–8; Привнесение химических элементов в трикотажные ткани в случаях применения травматического газового оружия с резиновыми пулями / [В. В. Пудовкин, А. В. Воронин, Р. Р. Мингалимов и др.] // Судеб.-мед. эксперт. — 2007. — № 2. — С. 25–28.

spherical HP; II – with flat HP; III – with a five-point deepening in the HP center. One of the methods used in the examination was the XRFSA. The X-ray wave dispersion spectrometer SPECTROSCAN-MAKS GV was used to determine the chemical elements, which form part of bullets relating to groups I–III, as well as the elements introduced to edge zones of the experimental obstacle damage.

They found that Pb, Cu, Fe, Sn are components of bullets relating to I–III groups, while bullets relating to groups II and III also contain Sb. A large amount of lead was detected in bullets of group I (3.1 and 2.7 times more in contrast to the bullets of groups II and III, respectively), as well as in the areas of damage caused by these bullets on the obstacles. Bullets of group III contain copper (2.4 and 1.3 times more than bullets of groups I and II, respectively), contain iron (1.2 and 1.1 times more than bullets of groups I and II, respectively) and tin (1.2 and 10.3 times more than bullets of groups I and II, respectively). There were more of same elements in the area of damage from bullets of group III on the obstacles. In the authors' opinion, the differences in the qualitative and quantitative characteristics of the elemental composition of the examined bullets depend on the shape of their head part¹. This statement cannot be accepted, because the very form of bullet HP in no way can affect its elemental composition. Since the composition of bullets for pneumatic weapons (PWs) is primarily determined by their designated purpose, in this case the presence of a large amount of tin in bullets of group III with a deepening in the HP, that is, in expanding bullets, results from the manufacturer's task to make a “soft” projectile for enhancing its casualty-producing properties. Besides, it is not indisputable that the white cotton fabric – coarse calico – was chosen as an imitation of the clothing fabric for obstacles at which experimental shots were fired. This material, thanks to its properties, is traditionally used for experimental shots of barreled weapons, but now it is practically not used for making outerwear and even underwear, as in the past².

In our opinion, during experiments with barrelled weapons, it is necessary to use modern common materials for imitators of clothes.

Using the XRFSA method, we examined 13 most common marks in Ukraine of home and foreign projectiles for pneumatic weapons of 4.5-mm caliber. In the composition of these projectiles, we found 20 different elements, among which Cl, Ca, Cr, Mn, Fe, Ni, Cu, Zn, Ga, As, Sr, Y, Zr, Cd, Sn, Sb, I, Os, Ir and Pb. These elements were found in various combinations in the examined projectiles, and there was no any dependence of the elemental composition on the shape of

¹ See: Райзберг С. А. Судебно-медицинская характеристика факторов выстрела и повреждений, причиненных из 9,0 мм пневматической винтовки / С. А. Райзберг, И. Ю. Макаров, А. С. Лоренц // Судеб.-мед. эксперт. — 2012. — № 3. — С. 4–8.

² See: Козаченко І. М. Оптимізація вибору матеріалів-імітаторів одягу для експериментальних досліджень ушкоджень зі ствольної зброї / І. М. Козаченко // Питання судової медицини та експертної практики : XI зб. наук. пр., присвяч. 90-річчю Донец. обл. бюро суд.-мед. експертизи та 60-річчю каф. суд. медицини Донец. нац. мед. ун-ту. — Донецьк, 2013. — С. 150–152.

the head part. It is established that all projectiles contain the main metal alloy (*base*), which is lead (Pb) for lead bullets, copper (Cu) for combined cored bullets, iron+copper (Fe, Cu) for BB bullets. Other discovered elements are the *ligatures*, that is, admixtures, which are added to the alloy to give it hardness and “stiffness”, or vice versa “softness” and lightness (antimony, tin, copper, silicon, etc.) and so-called “*primol*” (iron, titanium, nickel, chromium, etc.) that remained on all bullets due to contact with the mold or rolls during their manufacture¹.

The *purpose of the paper* is to determine with the help of XRFSA the elemental composition of some projectiles for pneumatic weapons of 4.5-mm caliber, as well as the presence of similar elements in experimental pneumatic gunshot damage on the imitators of some clothing fabrics, which will allow to determine the mark of a projectile or a group of similar projectiles according to the tracks left on the objects of forensic medical and criminalistic examination.

For the research, we used a software analytic complex consisting of the following: Expert 3XL elemental analyzer (Research and Production Enterprise “Institute of Analytical Control Methods”, Kiev) to measure the mass fractions of chemical elements in homogeneous volumetric samples by the non-destructive method of X-ray fluorescence analysis; personal computer and printer. The Expert 3XL analyzer consists of the measurement unit (MU) and processing unit (PU). We examined 4 most common marks in Ukraine of home and foreign lead projectiles for pneumatic weapons of 4.5-mm caliber: entirely metal expanding cap bullets² – LUMAN Field Target 0.68 g (Ukraine)³, all-metal expanding bullets of the diabolo type – Scarabey DS 0.62 g (Ukraine), Crosman Premier 0.68 g (USA), Diabolo Standard (Czech Republic).

To obtain the experimental damage in the imitator of clothes, the 4.5-mm air rifle Diana-350 Magnum (Germany) was used. The mixed camouflage fabric “Greta” with a pattern “Forest” (cotton 53%, polyester fiber 47%) and white cotton knitwear served as imitators of clothing materials widely distributed in Ukraine. At the same time, we proceeded from the fact that, firstly, the outer camouflage clothing is a uniform for the employees of the security agencies and security structures against which the pneumatic weapon can be used, and, secondly, the clothes made of this type of fabric have recently been widely distributed and used by fishermen, hunters, tourists and other citizens, and, moreover, as working clothes or clothes for everyday wear – even by ordinary citizens. Cotton knitwear is a common material for a variety of outer summer clothes and underwear.

¹ See: Козаченко І. М. Застосування рентгенофлуоресцентного спектрального аналізу при визначенні виду та марки снарядів до пневматичної зброї / І. М. Козаченко // Теорія та практика судової експертизи і криміналістики : зб. наук. пр. — Х. : Право, 2012. — Вип. 11. — С. 212–220.

² See: Він же. Класифікація снарядів до пневматичної зброї // Ibid. — Х. : Право, 2009. — Вип. 9. — С. 262–268.

³ Hereinafter, the name of the mark of the shells is given according to the packaging in compliance with the language and register.

The bullets were taken for examination from new packs purchased in specialized arms trade establishments in Ukraine. We “blindly” took 20 bullets from each package. Prior to the analysis of the elemental composition, all selected bullet samples were weighed on the Axis® AN series analytical balances with an accuracy of 0.0001 g. The actual mass of the bullets is shown in Table. 1.

Table 1

Technical characteristics of the examined projectiles

Mark of projectiles	Design features	Weight of projectiles (g) n = 20; p < 0,05
LUMAN Field Target 0.68 g	cap bullet	0.679 ± 0.00369
Scarabey DS 0.62 g	bullet of “diabolo” type	0.622 ± 0.00794
Crosman Premier 0.68 g	«-”-»	0.673 ± 0.00343
Diabolo Standard	«-”-»	0.503 ± 0.00721

For further researches, we took 3 samples of 20 bullets of each mark. The mass of bullets did not exceed the standard deviation (σ) of the mean value ($\bar{X}$) at the confidence interval $p < 0,05$. From pieces of camouflaged fabric and cotton knitwear previously washed in ordinary tap water, we cut out 15 × 10 cm shreds, which were used for experimental pneumatic gunshot damage.

Shots with bullets selected for the examination were carried out from a distance of 2 m, on which the action of particles of projectile and bore materials practically do not exist. In total, we conducted 24 tests with 8 series of three shots, one shot for each obstacle. Before the experiment and after each series of shots, the rifle was thoroughly cleaned without using the rifle grease and metal instruments.

The examination of selected samples of projectiles for pneumatic weapons, as well as of damage and control areas on obstacles were performed on the Expert 3XL analyzer according to the method of energy dispersive X-ray fluorescence elemental analysis with excitation of the characteristic radiation of sample atoms by photons of the braking spectrum of a low-power X-ray tube and registration of this radiation by a semiconductor detector with thermoelectric cooling.

The ambient temperature in the room, where the examinations were conducted was + 20–22 °C, humidity – not more than 80%. The test samples were placed on the protective film in the measuring chamber of the analyzer measurement block and the lid was closed. The samples were irradiated with x-rays for 120 s with the filter closed and the helium supply switched off under the following conditions: calibration mode is 54–45-CAL, voltage is 45 kV, the current is 44–68 μ A. The x-ray fluorescence spectrum was recorded with using the Expert 3XL analyzer software. Measurement parameters and analysis results for each group consisting of 3 samples of projectiles and 3 obstacles were provided as a report file in the src-format. The results are processed with using the Microsoft

Office statistical software package. The received files are processed and stored in the PC archive.

So, according to the XRFSA method, we found that the composition of research bullets includes eleven elements: Fe, Ga, As, Sr, Y, Zr, Sn, Sb, Os, Ir, Pb. Among them, the main metal (*base*) is lead (Pb), which mass fraction is 98–99%, 9 elements of the remaining 10 elements are the mentioned admixtures to the alloys (*ligature*), and 1 element – iron (Fe) is a “*primol*”. The mass fraction of these 10 elements is in the range of 0.033–1.26%. Lead (Pb) and iron (Fe) are present in all examined bullets, while the appearance and number of elements belonging to ligatures are not the same in the composition of different marks of bullets. Thus, yttrium (Y) and iridium (Ir) are found in all bullets, arsenic (As) – in bullets Lumann Field Target 0.68 g and Diabolo Standard, antimony (Sb) – in bullets Scarabey DS 0.62 g and Crosman Premier 0.68 g. Other elements are found in a single bullet: gallium (Ga) – in Scarabey DS 0.62 g, strontium (Sr) – in Crosman Premier 0.68 g, zirconium (Zr) – in Lumann Field Target 0.68 g, osmium (Os) – in Diabolo Standard. The examination of control areas on the obstacles revealed the following elements: camouflage fabric – Fe, Cu, Br, Rh, Cd, Sn, Te; knitwear – Ca, Sc, Fe, Zn, Sr, Ag, Sn. The pneumatic gunshot damage on the obstacles were of through type and looked like defects of a round shape with a diameter of 0.2–0.3 cm (knitwear) and 0.3–0.4 cm (camouflage fabric) with dark grey belts of whipping 0.1 cm wide at the edges. Examinations of damage on the camouflage fabric and knitwear revealed Fe and Ga, Y, Zr, Ir, Pb, which are absent in the control areas of obstacles.

So, iron (Fe) is the only element present in the composition of bullets in case of the pneumatic gunshot damage and in control areas. On this basis, it was not included in further comparative analysis of the elemental composition of bullets and damage on obstacles. We also did not analyze those elements from the composition of bullets that were not present in damage to obstacles. The results of the analysis are given in Table. 2.

The comparative analysis of the data given in Table. 2 indicates the following. Lead (Pb), as the main element (*base*) and yttrium (Y) from the composition of ligatures, were found in all examined bullets and in the damage to obstacles from both clothing materials. At the same time, the type, quantity and mass fraction of other elements belonging to the ligatures are not the same in the composition of the damage to obstacles for different marks of bullets.

Thus, in the obstacle damage caused by bullets Lumann Field Target 0.68 g, zirconium (Zr) and iridium (Ir) are additionally present, while gallium (Ga) is absent. In the damage caused by bullets Scarabey DS 0.62 g, only gallium (Ga) is additionally present, while zirconium (Zr) and iridium (Ir) are absent. In the damage caused by bullets Crosman Premier 0.68 g and Diabolo Standard, only iridium (Ir) is additionally present, while gallium (Ga) and zirconium (Zr) are absent. So, in the composition of each mark of bullet or a small group of bullets there are certain elements (inherent in these projectiles), which they introduce to the damage of obstacles.

Table 2

**Elemental composition of all-metal projectiles
and of pneumatic gunshot damage to clothing materials**

Bullet, clothing materials	Mass fraction of element in the object (%) and its purpose in the alloy ($\bar{X} \pm \sigma$)				
	Base	Ligature			
	Pb ⁸²	Ga ³¹	Y ³⁹	Zr ⁴⁰	Ir ⁷⁷
LUMAN Field Target 0.68 g	99.105 ± 0.082	—	0.083 ± 0.027	0.048 ± 0.009	0.352 ± 0.069
Camouflage fabri	87.969 ± 0.614	—	0.694 ± 0.134	0.564 ± 0.133	1.729 ± 0.165
Knitwear	73.960 ± 0.849	—	0.839 ± 0.179	1.138 ± 0.200	2.224 ± 0.193
Scarabey DS 0.62 g	98.701 ± 0.059	0.056 ± 0.018	0.115 ± 0.028	—	—
Camouflage fabri	83.297 ± 0.762	0.138 ± 0.043	0.931 ± 0.122	—	—
Knitwear	58.125 ± 0.733	0.219 ± 0.017	0.378 ± 0.132	—	—
Crosman Premier 0.68 g	98.128 ± 0.084	—	0.075 ± 0.026	—	0.356 ± 0.066
Camouflage fabri	88.184 ± 0.580	—	0.789 ± 0.136	—	1.455 ± 0.166
Knitwear	77.484 ± 0.708	—	1.091 ± 0.190	—	2.392 ± 0.195
Diabolo Standard	99.061 ± 0.086	—	0.063 ± 0.028	—	0.557 ± 0.069
Camouflage fabri	84.331 ± 0.713	—	0.491 ± 0.128	—	1.303 ± 0.162
Knitwear	79.544 ± 0.708	—	1.085 ± 0.190	—	2.008 ± 0.201

Thus, the results of the examination allow us to draw a conclusion, that lead bullets for pneumatic weapons are capable to introduce some elements of their composition, which are inherent only in one or another mark of bullet, to the damage of certain clothing materials, in particular, of camouflage fabric and knitwear. In its turn, this expands the possibilities of forensic examination in deciding the issue of the type and mark of the projectile (bullets, pellets, etc.) or small group of similar in their elemental composition projectiles that caused pneumatic gunshot damage to the examined objects.

Moreover, in cases when the mark of the projectile is exactly known, and some elements that are not part of this particular projectile are identified in the damage to the obstacle, it can be concluded that after the last cleaning of the submitted sample of weapon, shooting was also carried out with using other projectiles, which contain elements found on the obstacle.

ВИЗНАЧЕННЯ ВИДУ ТА МАРКИ СНАРЯДІВ МЕТОДОМ РЕНТГЕНОФЛЮОРЕСЦЕНТНОГО СПЕКТРАЛЬНОГО АНАЛІЗУ ПРИ ДОСЛІДЖЕННІ ПНЕВМОСТРІЛЬНИХ ПОШКОДЖЕНЬ ДЕЯКИХ МАТЕРІАЛІВ ОДЯГУ

Козаченко І. М.

Виконано рентгенофлуоресцентний спектральний якісний і кількісний аналізи елементного складу 4-х марок куль до пневматичної зброї вітчизняного й іноземного виробництва, а також імітаторів поширених матеріалів одягу – камуфльованої тканини та бавовняного трикотажу. Визначено, що свинцеві кулі до пневматичної зброї здатні привносити до пошкоджень на окремих матеріалах одягу, зокрема на камуфльованій тканині та бавовняному трикотажі, деякі елементи зі свого складу, які притаманні лише тій чи іншій марці кулі. Це розширює можливості судово-медичної експертизи під час вирішення питання щодо визначення виду й марки кулі або невеликої групи схожих за елементним складом куль, які заподіяли пневмострільні пошкодження на досліджуваних об'єктах.

Ключові слова: рентгенофлуоресцентний спектральний аналіз, елементний склад, кулі калібру 4,5 мм, пневмострільні пошкодження, камуфльована тканина, бавовняний трикотаж.

ОПРЕДЕЛЕНИЕ ВИДА И МАРКИ СНАРЯДОВ МЕТОДОМ РЕНТГЕНОФЛЮОРЕСЦЕНТНОГО СПЕКТРАЛЬНОГО АНАЛИЗА ПРИ ИССЛЕДОВАНИИ ПНЕВМОСТРЕЛЬНЫХ ПОВРЕЖДЕНИЙ НЕКОТОРЫХ МАТЕРИАЛОВ ОДЕЖДЫ

Козаченко И. Н.

Выполнен рентгенофлуоресцентный спектральный качественный и количественный анализы (РФСА) элементного состава 4-х марок пуль для пневматического оружия отечественного и иностранного производств, а также имитаторов распространенных материалов одежды – камуфлированной ткани и хлопчатобумажного трикотажа. Установлено, что свинцовые пули для пневматического оружия способны привносить в повреждения на некоторых материалах одежды, в частности на камуфлированной ткани и хлопчатобумажном трикотаже, отдельные элементы из своего состава, присущие только той или иной марке пули. Это расширяет возможности судебно-медицинской экспертизы при решении вопроса об определении вида и марки пули или небольшой группы сходных по элементному составу, причинивших пневмострельные повреждения на исследуемых объектах.

Ключевые слова: рентгенофлуоресцентный спектральный анализ, элементный состав, пули калибра 4,5 мм, пневмострельные повреждения, камуфлированная ткань, хлопчатобумажный трикотаж.

HISTORY OF FORENSIC EXAMINATION DEVELOPMENT

(To the 85th anniversary of the death of Honored Professor M. S. Bokarius
and the 50th anniversary of the death of Professor M. M. Bokarius)

UDC 340.6:929

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PERSONALITY OF HONORED PROFESSOR N. S. BOKARIUS IN REVIEWS OF HIS FOREIGN CONTEMPORARIES

The article is dedicated to the 85th anniversary of the death of outstanding scientist Nikolai Sergeevich Bokarius. Emphasis is placed on given references of contemporaries, pupils, and followers about N. S. Bokarius, in which they appreciated his outstanding scientific, pedagogical and organizational talents. The article contains original texts of obituaries placed in foreign specialized scientific journals in memory of the unique personality of N. S. Bokarius.

Keywords: outstanding scientist N. S. Bokarius, forensic medicine, criminalistics, forensic medical examination.

December 23, 2016 marks 85 years since the death of the brightest representative of the Kharkov medical school, an outstanding forensic physician and criminalist, head of the department of forensic medicine of Kharkov Medical Institute (now – the Kharkov National Medical University), the founder of the Institute of Scientific and Forensic Examination (now – the Kharkov Research

Institute of Forensic Examinations) – Honored Professor Nikolai Sergeevich Bokarius. Many works are devoted to the contribution of N. S. Bokarius to the development of domestic science. Contemporaries, numerous pupils and followers appreciated his outstanding scientific, pedagogical and organizational talents. After the death of N. S. Bokarius, obituaries were placed in many domestic and foreign specialized scientific journals in memory of the unique personality of the professor. Some copies of foreign journals remain deposited in the archive of the Chair of Forensic Medicine and Medical Law in the Kharkov National Medical University. Since 85 years have passed from that time and at present, many foreign journals of that time are rare and difficult to access, we considered it our duty to present the verbatim reviews of foreign forensic doctors and criminalists about N. S. Bokarius after his death. We are sure that the following materials once again remind us of his talent and invaluable contribution to the theory and practice of forensic medicine, criminalistics and forensic examination.

The Cuban journal “Revista de Medicina Legal de Cuba” (Año X, Diciembre, 1931. Num. XII) has the introductory article “Prof. N. Bokarius” written by I. Castelanos (Fig. 1).



Fig. 1. Article “Prof. N. Bokarius” written by I. Castelanos in Cuban journal “Revista de Medicina Legal de Cuba” (1931)

The article states: “In his monumental monographs on the crystals of hemin and hemochromogen, Antonio Lecha-Marzo – a prematurely deceased Spanish specialist – gave us the opportunity to get acquainted with a major scientific figure – prof. N. Bokarius, Kharkov, Ukraine. According to the unforgettable comrade, prof. Bocarius is an admirable researcher with the thorough technique and brilliant originality.

The quoted words of Lecha-Marzo and his experimental works, which testify to the personal assistance of prof. N. Bokarius in revealing and resolving the urgent problems of forensic medicine, forced us to look for his published works.

Having received them, we became convinced that prof. Bokarius, as Lecha-Marzo says, is an expert of exceptional abilities.

Profound and great work of prof. N. Bokarius, which is the product of his exemplary and fruitful life, could not be traced by us in every detail. Unfortunately for us, the main works of prof. N. Bokarius “Forensic medicine”, “Exterior examination of the corpse”, “Manual for practical work on forensic medicine”, “Some micro-chemical reactions of sperm”, etc. were written by him in Russian, just in that of the European languages, which is the least accessible to us. Thanks to a number of many other works published in German and French, we had the opportunity to learn more about his methods of research. How much we have been able to achieve this, you will see in our extensive work on forensic hematology, which will appear in the near future. Recently, after a heart attack Prof. N. Bokarius suffered an amputation of his left leg. It seems that nature took advantage of this misfortune to give him a break from scientific and give respite in his tireless work. However, having barely recovered, after some time upon leaving the clinic, he returned to his institute to conduct his research work. As before, he continues his research and publication with the same passion.

Even if this exceptional person who headed the Institute of Scientific and Forensic Examination – this well-deserved center located on the Veterinary Square – would not give international recognition to the Institute of Forensic Medicine and a multivolume treatise that could make up the library of forensic medicine, then it is enough to review some chapters of his Forensic Medicine, to make sure that, while continuing research work without a foot, he gained fame and is a candidate for immortals.

The Journal of Forensic Medicine of Cuba, to which prof. N. Bokarius paid attention by neatly sending his works and publications, expresses his deep sympathy to him. The faithful Israel Castellanos joins his Cuban counterparts in order to honor the professor”.

The Belgian Journal “Internacia Medicina Revuo” (10a Jaro. N-ro 1. Januaro-Marzo 1932) in chapter “Niaj Eminentaj Tekaanoj” gives a photograph of N. S. Bokarius (Fig. 2) with his pupils and brief information about his death.

The Argentine journal “Archivos de Medicina Legal” (Año II. – No 1. Marzo-Abril 1932. Buenos Aires) placed the obituary “Profesor N. S. Bokarius” on page 103 (Fig. 3). The article states: “On December 23 last year, an outstanding scientist prof. N. S. Bokarius died in Kharkov, in the old university city of the Republic of Ukraine.

His life – a noble example of hard work – was almost entirely devoted to the study and teaching of forensic medicine. Having graduated from the medical faculty of the old Kharkov University, he gave him all his knowledge and all the power of his mind. The list of all the scientific posts he held is very solid. Suffice it to say that at the time of his death he was a professor of forensic medicine at the medical and law faculties of the Institute for Advanced Medical Education. He established the Faculty of Forensic Medicine and the Institute of Scientific and Forensic Examination, and so on and so forth.



Fig. 2. Obituary and photograph of N. S. Bokarius with his pupils in the Belgian journal “Internacia Medicina Revuo” (1932)

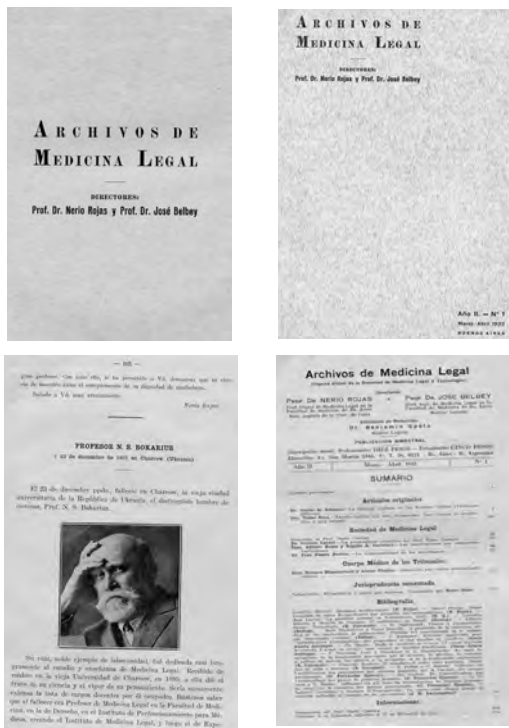


Fig. 3. Obituary “Profesor N. S. Bokarius” in the Argentine journal “Archivos de Medicina Legal” (1932)

His work as a publicist was significant both in quality and in the number of published material, which reached thirty works on forensic medicine and criminology, and in addition, he supervised a significant number of works published by his staff. He left museums of great value in two institutes, developed new methods of teaching and research. His extensive knowledge enabled him to get closer to his colleagues from all over the world in order to cooperate and continuously expand it. A fine example of the noble life of a scientist, who has left being full of energy and in a constant striving for the truth".

In the Brazilian journal "Archivos da Sociedade de Medicina Legal e Criminologia de S. Paulo" (Vol. III. Anno III. Dezembro de 1932. Fasciculo 3) on page 113 (Fig. 4), there was published the obituary "Professor N. S. Bokarius" of the following content: "With the death of prof. N. S. Bokarius in December, 1931, in Kharkov, Ukraine, forensic medicine lost one of its brilliant employees.

He was born in Odessa in 1869, where he received a secondary education. Being a young man, he entered the medical faculty in Kharkov, which he graduated in 1895. In 1902, in Moscow, he brilliantly defended his graduation project and received a degree of Doctor of Medicine. From that moment until his death, the life of Professor Bokarius was devoted to higher education in his homeland, where, owing to his training, his excellent qualities, he held various responsible posts.

Thus, at the beginning of professional activity, we see him as an assistant in the surgical clinic of prof. Grube, where he was engaged in purely anatomical and thanatological studies until 1897, when he became a prosecutor of forensic medicine. Passing all the steps of his career, he was elected professor of forensic medicine at the Kharkov University in 1910 and finally in 1925, he received the title of Honored Professor of the same department, which he held until the end of his life.

Forensic medicine of Ukraine is very indebted to prof. N. S. Bokarius for many things, especially for the establishment of the Institute of Scientific and Forensic Examination in 1923, the first director of which he was. He was also a professor of forensic medicine at the Faculty of Law, chief expert of the Commissariat of Justice, the Commissariat of Health, the editor of the journal of criminology and forensic medicine.

Besides, prof. N. S. Bokarius during his life, as a scientist, published a series of remarkable works, among which a particularly excellent treatise on forensic medicine in two volumes. Being well acquainted with the latest scientific achievements in his specialty, he created a school represented by a pleiad of enlightened employees and pupils, which he left behind him.

The famous professor supported a lively scientific exchange with the forensic medical section of Oskar Frere of the medical faculty of San Paulo and repeatedly expressed his approval, quoted and commented on the works of this section in his Archives of Forensic Medicine in Kharkov.

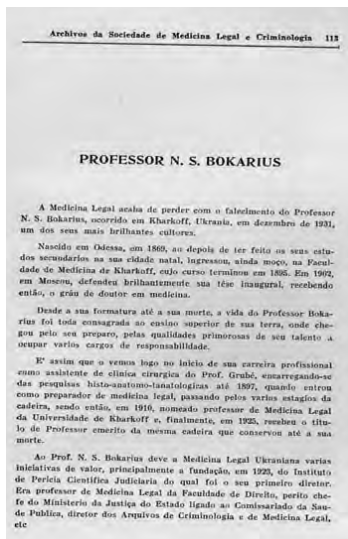
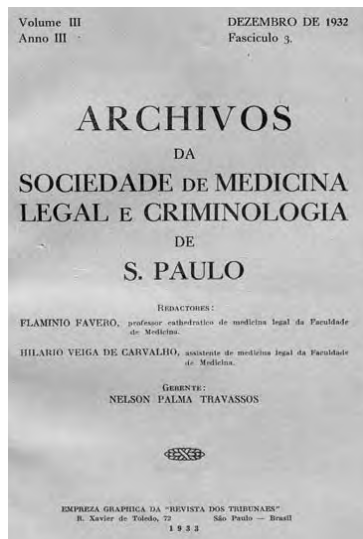


Fig. 4. Obituary “Professor N. S. Bokarius” in the Brazilian journal “Archivos da Sociedade de Medicina Legal e Criminologia de S. Paulo” (1932)

Upon learning of the death of the famous professor, the Society of Forensic Medicine in San Paulo expressed condolences at its meeting on December 14, 1932, and Arnaldo Ferreira delivered a speech on the life of the professor”.

Summing up, we once again proudly want to remember and honor the memory of our outstanding countryman – Honored Professor Nikolai Sergeyevich Bokarius, who devoted his entire life to the development of forensic medicine, criminalistics and forensic examination for the benefit of justice

ЛИЧНОСТЬ ЗАСЛУЖЕННОГО ПРОФЕССОРА Н. С. БОКАРИУСА В ОТЗЫВАХ ЕГО ЗАРУБЕЖНЫХ СОВРЕМЕННИКОВ

Лесовой В. Н., Ключев А. Н., Ольховский В. А., Губин Н. В.

Посвящена 85-летию со дня смерти выдающегося ученого – Николая Сергеевича Бокариуса. Приведены отзывы современников, учеников, последователей о Н. С. Бокариусе, которые по достоинству оценили его выдающийся научный, педагогический и организаторский таланты. Представлены оригинальные тексты некрологов в память об уникальной личности Н. С. Бокариуса в зарубежных профильных научных журналах.

Ключевые слова: выдающийся ученый Н. С. Бокариус, судебная медицина, криминалистика, судебно-медицинская экспертиза.

**ОСОБИСТІСТЬ ЗАСЛУЖЕНОГО ПРОФЕСОРА М. С. БОКАРІУСА
У ВІДГУКАХ ЙОГО ЗАРУБІЖНИХ СУЧАСНИКІВ**

Лісовий В. М., Ключев О. М., Ольховський В. О., Губін М. В.

Присвячено 85-річчю від дня смерті видатного вченого – Миколи Сергійовича Бокариуса. Наведено відгуки сучасників, учнів, послідовників про М. С. Бокариуса, які гідно оцінили його видатний науковий, педагогічний і організаційський таланти. Подано оригінальні тексти некрологів у пам'ять унікальної особистості М. С. Бокариуса в зарубіжних профільних наукових журналах.

Ключові слова: видатний учений М. С. Бокариус, судова медицина, криміналістика, судово-медична експертиза.

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**FATHER AND SON BOKARIUS – OUTSTANDING FOUNDERS OF
THE NATIONAL FORENSIC EXAMINATION**

The article highlights the life path, scientific and practical activities of the Honored Professor M. S. Bokarius and his son Professor M. M. Bokarius – famous domestic scientists in the field of forensic medicine and forensic examination, whose 85th and 50th anniversaries are in 2016. Account is given of their great contribution to the creation of the forensic examination system in Ukraine, where the leading role, of course, belongs to an outstanding scientist and practitioner M. S. Bokarius, since it was he, with his inherent predictability, who saw the urgent need of the investigative and judicial bodies in an independent and objective forensic examination, which would be based on modern achievements of science.

Keywords: M. S. Bokarius, M. M. Bokarius, forensic medicine, forensic examination.

2016 is the year of the anniversaries of father and son Bokariuses – the 85th anniversary of the Honored Professor Mykola Sergiiovych Bokarius and the 50th anniversary of Professor Mykola Mykolaiovych Bokarius. The forensic examination of our state cannot be imagined without these glorious names. Owing to their efforts, talent, authority, persevering and hard work, enthusiasm and creative inspiration, the Ukrainian forensic examination system has been created, and it exists to this day without any significant amendments or organizational changes.

The leading role in creating this system, of course, belongs to an outstanding scientist and practitioner M. S. Bokarius, since it was he, with his inherent predictability, who saw the urgent need of the investigative and judicial bodies in an independent and objective forensic examination, which would be based on modern achievements of science.



Mykola Sergiiiovych Bokarius
(1869–1931)



Mykola Mykolaiovych Bokarius
(1899–1966)

Mykola Sergiiiovych Bokarius was born on March 31, 1869 in Odessa. In 1890 he entered the Medical Faculty of the Kharkiv Imperial University, which he graduated brilliantly in 1895. In 1897 he became a prosecutor assistant, and in 1901 – a prosecutor of the Forensic Medicine Department of the Kharkiv University. In 1902, M. S. Bokarius defended his doctoral dissertation on the topic: “Fluorance crystals, their chemical nature and forensic medical significance”. Since 1903, he is a privat-docent, and since 1910 – Professor, Head of the Forensic Medicine Department, where he worked until his death. At that time, this department was considered to be the best among the forensic medicine departments in the territory of the former USSR.

During the period of scientific and practical activity of prof. M. S. Bokarius in Kharkiv, there was the process of forming the forensic medical examination in Ukraine. It is reasonable that he, as a well-known specialist and a talented organizer, could not stay away from this affair. M. S. Bokarius headed the Forensic Medicine Institute founded by him in 1913. He became the governor of city mortuary (by the way, without wages). In total, he carried out more than 3000 post-mortems of corpses and 5000 studies of physical evidences.

In 1920, the creation of the Forensic Medical Department in the People's Commissariat of Healthcare (PCHC) of the Ukrainian SSR, the leadership of which was entrusted to Mykola Sergiiiovych, in fact, was the beginning of organizing the forensic medical examination, which by that time had no definite forms. Forensic medical personnel were also absent. As soon as this department was organized, the posts of provincial forensic medical inspectors and district forensic physicians began to open. In 1921, the forensic chemistry laboratories were established in some provinces. M. S. Bokarius also supervised the work of the Kharkiv Forensic Chemistry Laboratory until 1925. On Octo-

ber 15, 1923, the Main Forensic Medical Inspectorate was first formed under the PCHC organization department, and then – under direct submission to the People's Commissariat. Having headed this inspectorate, M. S. Bokarius became de jure the first Chief State Forensic Medical Expert of the Ukrainian SSR. Realizing that the main task at that time was to train personnel, Mykola Serhiiovych began to conduct the individual training in forensic medical examination for physicians who came to him from different cities of Ukraine (Sumy, Krasnograd, Artemovsk, Pervomaisk, etc.), and in 1925 he organized six-week courses under his authority, in which 13 forensic physicians studied and improved their knowledge. Among them were district forensic medical inspectors from Krivyi Rig, Ekaterynoslav, Nezhin, Berdychev, Uman, Pervomaisk, Shepetivka, and others. Later on, 2–3 physicians from different regions of the republic constantly worked under the guidance of Mykola Serhiiovych. So, even in those distant times, M. S. Bokarius was, undoubtedly, the first in Ukraine who started postgraduate training of physicians – forensic experts. Taking care of training the expert personnel, at the same time, M. S. Bokarius actively participates in developing the Criminal Code and the Criminal Procedure Code of the Ukrainian SSR (1922), as well as in publishing the various regulations, rules and instructions. In order to establish the uniformity in forensic autopsies and to achieve an appropriate scientific justification for these examinations, in 1924 the USSR PCHC with his participation issued “Rules for forensic medical examination of corpses” and “Rules on the classification of injuries” – the first rules in the territory of the former USSR – which were mandatory for all physicians who performed the functions of experts. It should be noted that similar rules in the RSFSR were published only in 1928.

With his inherent insistence on quality and completeness of expert research and, to some extent, with meticulousness and pedantry, M. S. Bokarius supplements “Rules of forensic medical examination of corpses” with special sections concerning the features of examination of corpses with some common injuries, examination of corpses of unknown persons, compilation of a protocol of forensic autopsy, diagram of the protocol itself and instructions for the removal of tissues and organs from corpses for laboratory examinations.

Given that forensic examinations were carried out at that time in various expert institutions, in order to delimitate their activities as well as to improve the work quality both of the investigation authorities and the expert institutions themselves, three USSR commissariats (of Health, Justice and Internal Affairs) issued a number of instructions processed by M. S. Bocarius, namely: on delimitating the activities of scientific and forensic examination cabinets and forensic chemical laboratories and registration bureaus at the bodies of criminal investigation; on the procedure for sending corpses to forensic medical morgues for autopsy; on the procedure of forensic autopsies and on drawing up the protocols of these autopsies; on the order of directing the various kinds of objects for research.

The issuance of these instructions on behalf of three government departments made these documents mandatory for all investigators, physicians performing forensic medical research, as well as for forensic experts.

One of such instructions has a rather significant instructive regulation that when sending a corpse for a forensic autopsy, the investigator must simultaneously transmit the protocol of his external inspection at the scene of incident or at the place of its discovery, and prior to the autopsy itself, he should also send the available materials of the preliminary investigation in this case, in order the doctor who conducts the autopsy can get acquainted with the information to which, in essence and in the interests of the case, he should pay special attention, and it also has an instructive regulation that forensic autopsies shall be conducted without fail in the presence of the investigator.

To great regret, these instructions are now forgotten, with the exception, perhaps, of providing a protocol for the inspection of a corpse.

Realizing the importance of interrogation of the victim who was taken to a medical institution, and considering the possible occurrence of his death later on, M. S. Bokarius prepared the circular issued by the PCHC and the PCIA.

This document obliged the administration of medical institutions to immediately inform the nearest police station about hospitalizing the injured person. At the same time, employees of the police had to immediately interview the victim in order to ascertain the circumstances of the incident.

In 1925, M. S. Bokarius organized the first Ukrainian forensic medical congress, the participation in which was taken by 16 forensic experts from various places of Ukraine. In the report at the congress, he stressed the desirability of establishing links in the scientific work between scientists of central institutions and forensic physicians and representatives of law enforcement agencies at the local level. From the beginning of his scientific and practical work, Mykola Serhiiovych was cherishing an idea of the urgent necessity of criminalistic direction in development of forensic science and practice. This idea became the cornerstone of almost all his scientific research as well as it became the purpose of his practical activity as an organizer of the examination.

To fulfill this, in 1923 prof. M. S. Bokarius opened the Kharkiv Scientific and Forensic Examination Cabinet and was appointed as its manager. In 1925, at his suggestion, this Cabinet was reorganized into the Research Institute of Forensic Examinations, which he headed until the last days of his life.

Under his leadership, the Kharkiv school of forensic experts was established. The famous representatives of this school were M. M. Bokarius, V. P. Kolmakov, L. Yu. Arotsker, G. L. Granovskyi, S. M. Sokolovskyi and others. Later on, relying on the basis of forensic examination laid down by M. S. Bokarius, they successfully implemented the ideas of their mentor. In 1931, the Kharkiv Research Institute of Forensic Examination was named after its founder, the Honored Professor M. S. Bokarius.

For the successful application of scientific methods in investigating the crimes and improving the quality of expert institutions work, the appropriate special literature was required. The rich experience of educational research and practical expert work accumulated by prof. M. S. Bokarius, became the basis for his invaluable contribution to this matter.

Among the many monographs, manuals and other works written by him, there are many such ones that are created directly for practical forensic experts, lawyers

and police officers. Among them, there is the first monograph of the scientist “Forensic medical microscopic and micro-chemical studies of physical evidence” (1911), which for many years was used by forensic experts.

In 1915 the fundamental scientific work “Forensic medicine in the exposition for lawyers” was published. This work contains about 800 pages. The practical manuals “The handy reference album for criminal investigation officers and militia when drawing up a verbal portrait” (1924) and “Contour images of the human body parts for application to the protocols of forensic autopsy” (1930) were also published.

Separately, we should dwell on the manual “Initial external examination of a corpse under police and search inquiries”, which survived two editions (in 1922 and in 1925), and was a reference book of several generations of all those who somehow dealt with issues related to criminality. No wonder that prof. V. F. Chervakov (1964) noted that this work of M. S. Bokarius has no equal in its completeness and clarity in the world literature, and well-known forensic physicians V. P. Tsipkovskiy, Yu. S. Sapozhnikov and A. A. Matyshev have successfully used his basic provisions given in this work for their monographs on external examination of a corpse. In 1929, the new supplemented manual “Initial external examination of a corpse at the scene of incident or at the place of its discovery” was published, and in late 1930, the last work of Mykola Serhiiovych “Forensic medicine for physicians and lawyers” was published in two parts with a total volume of about 900 Pages.

It was assumed that these works would be the second and the third books of his contemplated five-volume edition “Desk-top Guide to the Mastery of Scientific Techniques in Investigation of Crimes”, which was no longer destined to be completed by him. Mykola Serhiiovych Bokarius is the author of 47 published works, most of which have not lost their relevance and practical significance to this day.

Simultaneously, he edited the journal “Archive of Criminology and Forensic Medicine” (1926–1927), which was distributed practically in all countries of the world, as well as the journal “Questions of Criminalistics and Scientific and Forensic Examination” (1931), which was published in Ukrainian. In particular, about 80 abstracts and reviews belonging to the pen of Mykola Serhiiovych himself were printed in them in many foreign languages, which he spoke fluently.

There is no doubt that the development of forensic examination in Ukraine cannot be considered separately from the name of Mykola Serhiiovych Bokarius. The recognition of his enormous efforts in this direction was the title of the Honored Professor, which he received in 1925. Professor Mykola Serhiiovych Bokarius was gone on December 23, 1931. All his life, scientific, pedagogical, organizational and practical activities are evidence of selfless service to domestic forensic medicine and criminalistics, one of the founders of which he is rightfully considered both in Ukraine and far beyond its limits.

His son Mykola Mykolaiovych Bokarius became a worthy successor to the case of M. S. Bokarius. He began his labor activity under the guidance of his father at the Department of Forensic Medicine of the Kharkiv Medical

Institute (now – the Department of Forensic Medicine, Medical Law, named after Honor. Prof. M. S. Bokarius of Kharkiv National Medical University). Being a boy of 15 years old, Mykola Mykolaiovych began to work at this department as a record keeper of mortuary. When he was already a student and after graduating from the Medical Institute in 1924 he worked as an anatomist of the Department, and in 1927–1931 – as an assistant. After the death of his father M. M. Bokarius headed the Department and directed it until 1961. And then several years was a professor at the Department.

Prof. M. M. Bokarius made a great contribution to the development of a number of such important problems of forensic medicine and criminalistics, as forensic medical traumatology, cadaveric phenomena and prescription of death, identification of objects under examination.

He was constantly engaged in training the scientists and practitioners of the forensic medical service in the Kharkiv region. Under his leadership, 30 theses were completed, 4 of which are doctoral. Later on, some of his students headed the forensic departments of higher educational medical institutions. These scientists are well-known far beyond Ukraine: Professors B. M. Zorin, M. P. Marchenko, V. I. Kononenko, M. M. Strelets, V. A. Tatarenko, V. P. Tsykovskiy. Many of his pupils occupied responsible positions in scientific and practical institutions at various times. Among them are Kharkiv citizens – Candidates of Medical Sciences: K. M. Bokarius, M. M. Gubin, G. L. Golobrodskiy, L. N. Namestnikova, V. N. Moisieiev, L. L. Sotnikova, E. L. Tunina and many others.

Along with active and fruitful activity at the Department, for many years Mykola Mykolaiovych performed significant pedagogical work in other educational institutions of Kharkiv: the Law Institute, the Institute for Advanced Training of Physicians, etc. For some time, he was a republican forensic expert, and in 1946–1952 he served as the Head of the Kharkiv Regional Bureau of Forensic Medical Examination.

In the years 1924–1946, M. M. Bokarius worked in the Kharkiv Research Institute of Forensic Examinations, where he consistently held the positions of Head of the section for biological research and identification, Deputy Director of the institute (since 1925) and Director – in 1931–1946.

Prof. M. M. Bokarius founded the Kharkiv Society of Forensic Physicians and Criminalists and was its permanent chairman until the day of his death. The official start of the work of the society was preceded by organizational work. In November 1947, an organizing committee was created, which included M. M. Bokarius, V. P. Kolmakov and I. A. Sapozhnikov (criminalists), M. I. Pogibko (forensic psychiatrist), A. S. Filippov (forensic physician).

At the first plenary meeting of the society, which took place on May 22, 1948, prof. M. M. Bokarius reported on its creation. The first members of the society were forensic physicians and psychiatrists, expert-criminalists and lawyers.

In June of the same year, at the second meeting, Mykola Mykolaiovych was elected as a chairman of the Board, associate professor V. P. Kolmakov – as his deputy and A. S. Filippov – as a secretary. The actual existence in Kharkiv of the scientific and practical union of forensic physicians and crimi-

nalists since the 1920s. XX century was reflected in the name of the society, as well as in its Charter and program of activities.

As an example, let us give the composition of the Society Management Board as of December 21, 1964: Chairman – Professor M. M. Bokarius; Vice-Chairmen – Head of the Department of Forensic Medicine of the Kharkiv Medical Institute, Associate Professor M. P. Marchenko and Head of the Department of Psychiatry of the Kharkiv Institute for Advanced Training of Physicians, Professor M. I. Pogibko; Director of KhRIFE, Professor V. P. Kolmakov; Secretary of the Board – Associate Professor of the Department of Forensic Medicine (KhMI) L. N. Namestnikova; Secretary of the plenary sessions – Associate Professor of the Kharkiv Regional Bureau of Forensic Medical Examination (KhRBFME) E. L. Tunina; Members of the Management Board – Head of KhRBFME V. N. Moisieiev; Associate Professor of the Department of Criminalistics of Kharkiv Law Institute V. A. Konovalova; Prosecutor-criminalist of Kharkiv Region Prosecutor's Office B. M. Kovryzhnych.

This once again confirms that Mykola Mykolaiovych Bokarius, with his creative approach to the matter as well as with concern for the future of forensic medicine as an applied science, successfully implemented the idea of his father – Honored Professor M. S. Bokarius – about the criminalistic direction of forensic medicine.

The active members of the society were not only teachers of the KhMI forensic medicine department and researchers of KhRIFE, but also forensic experts of KhRBFME, as well as expert-criminalists of the Kharkiv Ministry of Internal Affairs. Such an approach to the society work organization, which helped to strengthen the connection between science and practice, has survived up to now. Officials of Law enforcement bodies, prosecutor's offices, courts as well as lawyers were invited to the meeting of the society. This provided an opportunity, on the one hand, to acquaint the lawyers with the latest scientific achievements in the field of forensic medical and criminalistic examinations, and on the other hand – to listen to their wishes for improving the quality of forensic examinations. At the society meetings there were usually not less than 2 reports. The most discussed problems were the blunt force traumas, gunshot injuries, mechanical asphyxia, expertise of physical evidence, theory of forensic examination, personality identification. Provision was also made for reviewing the monographs and collections of scientific works. There was hearing of information provided by participants of congresses, conferences and seminars on forensic medicine and criminalistics.

Reports were made by outstanding domestic forensic physicians – Professors M. I. Avdieiev, A. P. Zagriadska, A. Kh. Porksheian, employees of the KhRIFE, Professors L. Yu. Arotsker, H. L. Hranovskiy, M. V. Salteviskiy, and others. From the very beginning of its existence, the society provides a rostrum for applicants of a scientific degree to discuss the results of their research and approbation of dissertations.

On November 2, 1966, after death of Professor M. M. Bokarius, the society was headed by his pupils: until 1990 – by the Head of the Forensic Medical De-

partment of KhMI, Professor M. P. Marchenko, and from 1991 to 2003 – by the Head of the Forensic Medical Examination Department of KhMAPE, Professor V. I. Kononenko. Under their leadership, those good and useful traditions of our society that were created by the efforts, first of all, of its first chairman, the famous scientist and talented organizer of forensic medical examination, Professor M. M. Bokarius, were kept and enlarged.

This work continues even now. In 2004, Associate Professor of the Forensic Medical Examination Department of KhMAPE I. M. Kozachenko was elected as a chairman of the society.

In 2006, the society initiated the Bokarius readings in the format of international scientific and practical conferences held in 2006, 2008 and 2009, which were dedicated to the Honored Professor M. S. Bokarius and Professor M. M. Bokarius. The materials of these conferences, which, in addition to highlighting the activities of Mykola Serhiiovych and Mykola Mykolaiovych Bokarius, discussed the vital problems of forensic science and criminal science and practice, were issued as collections of articles and theses.

At present, the society has 123 members in comparison with 22, which were at its first meeting. The society members are not only specialists of expert institutions and establishments of the city of Kharkiv, but also some forensic experts of the regional level.

On May 28, 2008, the Presidium of the Kharkiv Medical Society took a decision to assign the Kharkiv Society of Forensic Physicians and Criminalists the name of its founder and leader – Professor Mykola Mykolaiovych Bokarius. This is a tribute to the followers of the outstanding scientist for his hard and painstaking work aimed at creating the society and ensuring its fruitful activity for 18 years.

The 68-year history of the Kharkiv Society of Forensic Physicians and Criminalists testifies that the society successfully fulfills its main tasks in assisting the scientists in performing their scientific research, as well as the forensic experts and law enforcement officers in applying scientific achievements in forensic medicine and criminalistics. That facilitates the increase of their professional level.

Mykola Mykolaiovych was elected to the Board of the All-Union and Republican Societies of Forensic Physicians and Criminalists, was a member of the editorial board of the journal “Forensic Medical Examination”.

Professor M. M. Bokarius is the only forensic physician, who was awarded high state awards for his great services to the Motherland.

Mykola Mykolaiovych Bokarius should be considered as a worthy successor to his father's work.

In the memory of all those who knew Mykola Mykolaiovych, he will forever remain a great scientist, a talented teacher, a caring and strict teacher, a respectful friend, an exceptionally decent, intelligent and excellent man.

Judicial experts of Kharkiv are proud of the fact that they are heirs and followers of their outstanding teachers – Mykola Sergiiovych and Mykola Mykolaiovych Bokarius and continue their work with honor.

БАТЬКО Й СИН БОКАРІУСИ – ВИДАТНІ ФУНДАТОРИ ВІТЧИЗНЯНОЇ СУДОВОЇ ЕКСПЕРТИЗИ

Козаченко І. М.

Висвітлено життєвий шлях, наукову та практичну діяльність Заслуженого професора М. С. Бокаріуса і його сина професора М. М. Бокаріуса – відомих вітчизняних науковців у галузі судової медицини та судової експертизи, 85-та та 50-та роковини яких виповнюються 2016 р. Зазначено їх великий внесок у створення системи судової експертизи України, де провідна роль, безумовно, належить видатному вченому й практику М. С. Бокаріусу, оскільки саме він із притаманною йому першодобачуваністю побачив загальну потребу органів слідства та суду в незалежній і об'єктивній судовій експертизі, яка б спиралась на сучасні досягнення науки.

Ключові слова: М. С. Бокаріус, М. М. Бокаріус, судова медицина, судова експертиза.

ОТЕЦ И СЫН БОКАРИУСЫ – ВЫДАЮЩИЕСЯ ЗАЧИНАТЕЛИ ОТЕЧЕСТВЕННОЙ СУДЕБНОЙ ЭКСПЕРТИЗЫ

Козаченко И. Н.

Освещен жизненный путь, научная и практическая деятельность Заслуженного профессора Н. С. Бокариуса и его сына профессора Н. Н. Бокариуса – известных отечественных ученых в области судебной медицины и судебной экспертизы, 85-я и 50-я годовщины со дня смерти которых исполняются в 2016 г. Отмечен их большой вклад в создание системы судебной экспертизы Украины, где главная роль безусловно отведена выдающемуся ученому и практику Н. С. Бокариусу, поскольку именно он с присущей ему прозорливостью увидел насущную необходимость органов следствия и суда в независимой и объективной судебной экспертизе, которая бы опиралась на современные достижения науки.

Ключевые слова: Н. С. Бокариус, Н. Н. Бокариус, судебная медицина, судебная экспертиза.

IX CONGRESS OF DEPARTMENTS OF CRIMINALISTICS

On September 28–29, 2016, in Warsaw University (Poland), IX Congress of Departments of Criminalistics was held. The congress was organized by the Criminalistics Department of the Faculty of Law and Administration at the Warsaw University.

The congress was a part of the International Festival of Criminalistics devoted to celebration of the 60th anniversary of Criminalistics Department of the Faculty of Law and Administration at the Warsaw University and the 200th anniversary from the day of Warsaw University foundation.

The Festival of Criminalistics included the 12th International Scientific Conference “Criminalistics and Forensic Expertology: science, studies, practice” (September 29–30, 2016) organized by the Warsaw University, Polish Forensic Association, Lithuanian Forensic Association and the Lithuanian Forensic Science Center.

The Criminalistics Department Congress was the first congress which received the criminalists from different countries. About 80 representatives from Belarus, Bosnia and Herzegovina, Lithuania, Poland, Russia, Slovakia, Ukraine and Estonia took part in the event. The Congress working languages: English and Polish. 25 of the presented scientific reports were published in the journal “Problemy Współczesnej Kryminalistyki” (XX τ.).

The congress was held in the following topics: 1) forensic didactics; 2) researches related to criminalistics carried out in departments of criminalistics and other scientific institutions; 3) student's scientific research in criminalistics.

The congress was opened by Prof. Dr. Habil. Tadeusz Tomaszewski (Dean of the Faculty of Law and Administration and Head of Criminalistics Department of Warsaw University, (Poland). At the beginning of the event Prof. Dr. Habil. Tadeusz Tomaszewski and Prof. Dr. Habil. Ewa Gruza presented Dr. Jozef Gurgul (Poland) and Prof. Dr. Habil. Zdzisław Kegel (Poland) with special awards. On September 28, the first plenary session of the congress was moderated by prof. Dr. Habil. Tadeusz Tomaszewski (Poland) and prof. Dr. Habil. Zdzisław Kegel (Poland). Before beginning the speeches, prof. Dr. Habil. Ewa Gruza made her report devoted to the history of the Criminalistics Department of Warsaw University.

During the session, its participants presented the following scientific reports with presentations: “Reflections on the Process of Becoming and Being Prosecutor” by Dr. Jozef Gurgul (Poland); “Contemporary Professional Methods in Law

and Criminalistics”, by Prof. Dr. Habil. Monica Tsalkevich (Poland); “The Use of Active Teaching Methods in Conducting Classes in Forensic Science and Law” by Prof. Dr. Habil. Yaroslav Moschinski and Dr. Katarzyna Julia Furman (Poland); “Connections among Criminalistics and Evidential Law and Police Law. Didactic Practice of the Department of Criminalistics and Evidential Law WPiA UMCS in Lublin” by prof. Dr. Habil. Adam Taracha (Poland); “Practical Science of Criminalistics and Criminal Procedure on the examples from the Criminalistics Department of WPiA UW” by Dr. Habil. Pawel Waszkiewicz (Poland); “Alternative Forms of Criminalistic Didactics” by Prof. Dr. Habil. Peter Girdvoyn and Dr. Katzper Gradon (Poland); “Interdisciplinary Teaching of Criminalistics in Example: Catch Me if You Can – Practical Method of Lie Detection” by Dr. Magdalena Tomaszewska-Michalak (Poland); “The Education of Experts in the Russian Federation” by Docent Dr. Elena Ivanova and Docent Dr. Elena Logvinets (Russia); “Problems of Teaching Criminalistics in Ukraine” by Prof. Dr. Habil. Valeriy Shepitko and Dr. Mikhail Shepitko (Ukraine). After this fruitful work, a coffee break was announced, at which the participants of the event could talk and exchange views on problems of criminalistics.

The second plenary session of the congress was moderated by Prof. Dr. Habil. Jozef Wujcikiewicz (Poland) and prof. Dr. Gabil. Ewa Gruza (Poland). During the session, its participants presented the following scientific reports with presentations: “About necessity of Criminalistics Teaching” by Prof. Dr. Habil. Tadeusz Tomaszewski (Poland); “Methodological Problems in the Criminalistics Teaching in the Legal Education” by Docent Dr. Olesya Vashchuk (Ukraine); “Criminalistics and Criminology: Similarities, Differences, Functions, Methodology” by Prof. Dr. Jozef Metenko (Slovakia); “Law and Practice of Preservation and Storage of So-called “Difficult” Evidences” by Dr. Janusz Bryk and Dr. Anna Swierczewska-Gasjorowska (Poland); “Dealing with “Difficult” Material Evidence – the Recognition of the Legal” by Dr. Aneta Lyzwa (Poland); “Dangerous and Hazmat Evidence and Mobile Robotic System – Contemporary Technologies at the Crime Scene” by Dr. Magdalena Zubanska (Poland).

After hearing the reports, the moderators announced a lunch break. In addition, the participants of the congress had the opportunity to see the exhibition of forensic and expert equipment.

The third plenary session was also held on the first day of the congress. It was followed by a gala dinner at the Kazimirov Palace. This part of the event was attended by the Rector of Warsaw University Prof. Dr. Habil. Marcin Palish.

The second day of the congress (September 29) included the plenary session with a coffee break, after which the final discussions and the congress closing procedure took place. The organizers invited all participants of the congress to tour “Criminal Warsaw”.

Information was provided by Dr. M. Shepitko

**XII INTERNATIONAL SCIENTIFIC CONFERENCE
“CRIMINALISTICS AND FORENSIC EXPERTOLOGY:
SCIENCE, STUDIES, PRACTICE”**

On September 29-30, 2016, the 12th International Scientific Conference “Criminalistics and Forensic Expertology: science, studies, practice” was held at the Warsaw University (Poland). The conference was organized by the Polish Forensic Association, Lithuanian Forensic Association, Warsaw University and the Lithuanian Forensic Science Center.

This event was held within the framework of International Festival of Criminalistics at the Warsaw University. The Festival was dedicated to the celebration of the 60th anniversary of Criminalistics Department of the Faculty of Law and Administration of the Warsaw University and the 200th anniversary from the day of Warsaw University foundation. The Festival of Criminalistics also included the holding of the IX Congress of Departments of Criminalistics (September 28–29, 2016).

The conference consisted of scientific and gala parts. The scientific part contained four topic blocks, discussions, blitz reports, summarizing of conference results. The conference languages: English, Polish, Russian.

About 150 participants from Belarus, Bosnia and Herzegovina, Hungary, Germany, Italy, Kazakhstan, Latvia, Lithuania, Poland, Russia, Serbia, Slovakia, Slovenia, the Czech Republic, Ukraine and Estonia attended the event. Scientific reports with presentations were published in the conference collection containing 46 reports.

The program of the conference included the following topic blocks:

1) creation of common criminalistics area in Europe; 2) adversarial principle and application of special knowledge in pre-trial stages of investigation and in the legal process; 3) contemporary cross-border crime and the capabilities of its prevention; 4) criminalistic archeology.

The conference was opened by Prof. Dr. Habil. Tadeusz Tomaszewski (Chairman of the scientific committee of the conference, Poland), Prof. Dr. Habil. Anna Giza-Poleshchuk (Vice-Rector of the Warsaw University, Poland) and Prof. Dr. Hendryk Malevski (Vice-Chairman of the Scientific Committee of the conference, Lithuania).

In the course of opening the conference, Prof. Dr. Hendryk Malevski and Prof. Dr. Snieguole Matuliene on behalf of the Lithuanian Forensic Association expressed gratitude to Prof. Dr. Habil. Mecheslaw Gotsu (Deputy Chairman of the Scientific Committee of the conference, Poland) for assistance in organizing and holding the conference. Prof. Dr. Rolf Ackermann (Germany) was awarded the certificate of Honorary Member of the Lithuanian Forensic Association.

After that, Dr. Petr Voytsichowski (President of the Management Board of Polish Securities Printing Office, Poland), as a representative of one of the sponsors of the event, noted the importance of the regular forensic conferences

in Poland for legal and expert practice. Then Prof. Dr. Rolf Ackermann (Germany) presented his scientific report on problems of criminalistics in the Western European tradition.

On the first day (September 29) of the conference, the plenary session was held. This part of the conference was moderated by Prof. Dr. Habil. Tadeusz Tomaszewski (Poland), Prof. Dr. Hendryk Malevski (Lithuania) and Docent Dr. Gabriele Juodkaite-Granskiene (Lithuania).

During the session, its participants presented the following scientific reports: "Forensic Expertology: Origin, Subject, System, Functions, Development Trends" by Prof. Dr. Habil. Elena Rossinskaya (Russia); "European Vision of Forensic Science 2020: Priorities and Potential Obstacles to Their Implementation" by Prof. Dr. Habil. Vidmantas Egidijus Kurapka, Prof. Dr. Egle Bilevechyute, Prof. Dr. Snieguole Matuliene, Prof. Dr. Hendryk Malevski (Lithuania); "How to Correct Criminalistics?" by Prof. Dr. Habil. Tadeusz Tomaszewski (Poland); "Criminalistic Tactics as a Basis for Criminal Investigation in Slovakia" by Prof. Dr. Jozef Metenko (Slovakia); "Role of Criminalistics in Adversarial Proceedings" by Prof. Dr. Habil. Valeriy Shepitko (Ukraine); "European Migration Crisis and the Concept of Hate Crimes and Bias-motivated Crimes in Czech Criminal Law Regulations" by Docent Dr. Marek Frishtak (Czech Republic). Presentations were accompanied by discussions on problems of criminalistics and forensic examination, photographing and coffee breaks. The first day of the conference ended with a gala dinner.



Conference participants

The second day of the conference (September 30) included two sessions:

1) session "A": block I – Creation of Common Criminalistics Area in Europe; block III – Contemporary Cross-Border Crime and the Capabilities of its Prevention; block IV – Forensic Archeology; 2) session "B": block II/A – Law and

Criminalistics; block II/C – Criminalistics in Theory and Practice; block II/B – Examination of Documents.

During these sessions, the following reports were heard: “Phasing out Categorical Forensic Opinions – Objectivity of Examination or its Guise” by Prof. Dr. Habil. Jaroslaw Moshchinski (Poland); “Criminalistics as the Initiator of Updating the Legal Science Paradigms and Educational Disciplines with Consideration for Adversarial Principle” by Prof. Dr. Habil. Yury Garmayev (Russia); “Involvement of Expert by Parties of Criminal Litigation as Reflection of Adversarial Principle at Pre-trial Investigation Stage” by Prof. Dr. Valeriy Kolesnik (Ukraine); “Use of Special Knowledge in Pre-trial Proceedings” by Prof. Dr. Habil. Ilona Makarenko (Russia); “Evaluation of Disorders as Noticed in Questioned Documents” by Prof. Dr. Francesco Cerotto (Italy); “Counteraction to Application of Adversarial Principle by Crimes against Justice” by Dr. Michail Shepitko (Ukraine); “Objectivisation of Evidential Process in Investigation – New Direction of Research in Russian Criminalistics” by Prof. Dr. Habil. Stanislaw Yalyshev (Russia); “The Use of Special Knowledge in Informational and Cognitive Activity in Crime Investigation” by Prof. Dr. Habil. Valeriy Tishchenko (Ukraine); “Contemporary problems of scientific and Methodical Securing of Expert and Judicial Activity” by Prof. Dr. Habil. Tatyana Averjanova (Russia); “Rights of Court Expert: Lithuanian Context in European Perspective” by Docent Dr. Gabrielė Juodkaite-Granskiene, Dr. Jurgita Pauzhaite-Kulvinskiene, Mgr. Virgilijus Pajaujis (Lithuania); “Characteristic features of tactics of specific interrogation in Cigarette Smuggling Related Crime” by Mgr. Jurgita Baltruniene (Lithuania); “Integration of the Term “Non-verbal Information” in Modern Criminalistics” by Docent Dr. Olesya Vashchuk (Ukraine), etc. Presentations were accompanied by discussions on important forensic issues. After the discussions, a coffee break and lunch took place.

The most active participants took part in the final discussions of the conference. The conference was closed with summing up the results of the event. After this procedure, it was decided that the next conference “Criminalistics and Forensic Expertology: Science, Studies, Practice” will be held in 2017 in Palanga (Lithuania).

*Information was provided by: Prof. Dr. **G. Malevski**, Docent Dr. **G. Juodkaite-Granskiene**, Dr. **M. Shepitko***

ANTHOLOGY OF FORENSIC EXPERTISE



M. M. Bokarius
(28.06.1899 – 2.11.1966)

PROF. M. M. BOKARIUS

**“ON THE HISTORY OF HON. PROF. M. S. BOKARIUS KHARKOV
RESEARCH INSTITUTE OF FORENSIC EXAMINATIONS”
(reprint reproduction)**

проф. Н. Н. ВОКАРИУС

К ИСТОРИИ ХАРЬКОВСКОГО НАУЧНО-ИССЛЕДОВАТЕЛЬНОГО
ИНСТИТУТА СУДЕБНОЙ ЭКСПЕРТИЗЫ ИМЕНИ ЗАСЛ. ПРОФ. Н. С. ВОКАРИУС

Среди существующих на Украине трех институтов Судеб-
ной Экспертизы, Харьковский Институт является самым молодым.

В 1923 году, в марте месяце, и Заведующему кафедрой
Судебной медицины Харьковского Медицинского Института профес-
сору Николаю Сергеевичу Вокариусу обратился, работавший тогда
в Харьковском следователем по особо важным делам, Сергей Семе-
нович Савченко, который высказал мысль о необходимости созда-
ния в Харькове Кабинета научно-судебной Экспертизы по типу
существовавших в Киеве и Одессе, где они были организованы
еще в дореволюционное время.

В статье по поводу смерти С. С. Савченко в 1980 году
Николай Сергеевич писал: "Хорошо помню, что я указывал Сергею
Семеновичу, какие большие трудности стоят на пути организации
такого сложного и такого ответственного учреждения. Но Сергей
Семенович неуклонно стремился к тому, чтобы обязательно
открыть в Харькове такой кабинет. Помню, с каким увлечением,
с каким большим и искренним желанием отдать себя работе в этом
учреждении говорил Сергей Семенович о будущем кабинета" ¹⁾.

В конечном итоге в Народный Комиссариат Юстиции
УССР была представлена мотивированная докладная записка по
вопросу об организации в Харькове Кабинета Научно-Судебной
Экспертизы. Авторами ее были проф. Н. С. Вокариус (впоследствии
назначенный Заведующим Кабинетом) и тов. С. С. Савченко (впослед-
ствии — завед. секцией судебно-фотографических исследований).

1) Вокариус Н. С. — Сергей Семенович Савченко (некролог) — Цитан-
ня Криміналістики та науково-судової експертизи. 1983р.
№ 1-2, стор. 40.

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10 июля 1923 года Совнаркопом УССР принял постановление об учреждении в Харькове, Киеве и Одессе Областных Кабинетов научно-судебной экспертизы²⁾. Цель создания этих кабинетов была сформулирована очень кратко, в первых строках упомянутого положения сказано, что Кабинеты учреждаются "для производства различного рода научно-технических исследований по судебным делам". Для выполнения указанных исследований в составе Кабинетов были предусмотрены четыре секции: 1. химических и физико-химических исследований; 2. Судебно-медицинских макро и микроскопических исследований; 3. Судебно-фотографических исследований и 4. идентификации личности. Для ускорения открытия Харьковского Кабинета было решено организовать его на базе Кафедры Судебной медицины и 1-го ноября 1923 года Харьковский Кабинет начал работу, причем первыми были организованы две секции: судебно-фотографических исследований и химических и физико-химических исследований. 30 ноября 1923 года Наркомостом была издана первая инструкция Областным Кабинетам Научно-судебной экспертизы³⁾, которой была предусмотрена организация в Харьковском Кабинете еще пятой секции по исследованию тела человека. Однако отсутствие соответствующих специалистов и необходимого оборудования не дало возможности одновременно открыть все секции и таковые были организованы в таком порядке: в январе 1924 года была открыта секция судебно-медицинских макро и микроскопических исследований, в мае 1924 года - секция идентификации личности и, наконец, в январе 1925 года секция исследования тела человека. Упомянутая инструкция более пространно говорила о задачах, стоящих перед Кабинетами, однако в основном речь шла только об обслуживании органов расследования и суда, т.е. только о научно-оперативной работе Кабинета. Вопрос научно-исследовательской работы оставался в стороне и о ней

2) Положение о Кабинетах научно-судебной экспертизы. Совр. Узак. и Расп. Р. Н. Прав. Украины 1923 г., отд. 1, № 20, ст. 364.

3) Инструкция Областным Кабинетам научно-судебной экспертизы - Бюллетень Наркомзема УССР, 1923 г., № 47-48.

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совершенно не упоминалось. Вполне понятно, что такое положение не могло удовлетворять сотрудников Кабинета, проводивших экспертизы и являвшихся научными работниками, не говоря уже о том, что сама жизнь требовала научной разработки тех или других вопросов, возникавших в процессе работы Кабинетов. И 25 апреля 1925 года Совет народных комиссаров УССР утверждает новое положение о Кабинетах научно-судебной экспертизы⁴⁾, которое предусматривает не только выполнение экспертиз по судебным делам, но и производство "научных работ и экспериментальных исследований по вопросам уголовной техники и методологии исследований преступлений и исследования личности преступника" (п. I). Для осуществления последнего этим же положением предусматривалась шестая секция в Кабинетах, а именно секция исследования личности преступника. Необходимо отметить, что эта секция в Харьковском Кабинете открыта не была.

В связи с расширением функций Кабинетов, в том же 1925 году Кабинеты были переименованы в Институты научно-судебной экспертизы и положение о них было включено в "Положение о Судебном устройстве УССР", утвержденное 23 октября 1925 года 2-й сессией ВУЦИК'а IX созыва⁵⁾. В разделе XI указанного Положения говорится об институтах научно-судебной экспертизы, причем указывается, что институты действуют в составе следующих шести секций: 1) химических и физико-химических исследований, 2) биологических исследований, 3) фотографических исследований, 4) идентификации личности, 5) судебно-медицинских исследований и 6) криминально-психологических и психо-патологических исследований.

4) О Кабинетах научно-судебной экспертизы - Постановление СНК УССР - Собр. Узак. и Расп. Р. и Прав. Украины 1925г., отд. I, № 42, ст. 169.

5) Положение о судебном устройстве УССР - Собр. Узак. и Расп. Р. и Прав. Украины 1925г., отд. I, № 92-93, ст. 322.

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Последняя секция, как уже было отмечено выше, в Харьковском Институте открыта не была.

В октябре 1926 года в Харьковском Институте были организованы: 1) Сывороточное отделение, в задачи которого входило изготовление преципитирующих сывороток для определения вида белка и сывороток для установления групп крови, 2) Рентгеновский кабинет для обслуживания главным образом секции судебно-медицинских исследований при освидетельствовании живых лиц и исследовании трупов и 3) Муляжная мастерская по изготовлению муляжей, для музея Института. Кроме того к этому времени в Институте уже существовал музей, имевший научно-практические и учебно-показательные цели и библиотека хорошо укомплектованная специальной литературой, как отечественной, так и иностранной.

В таком состоянии Институт существовал до сентября 1929 года, когда было введено в действие новое "Положение о судеустройстве УССР", в редакции 1929 года⁶⁾. Этим положением количество секций в Институтах уменьшалось до четырех, а именно были упразднены две секции: судебно-медицинских исследований и криминально-психологических и психо-патологических исследований.

В 1922 году в Харьковском Институте, в связи с требованиями, выдвинутыми оперативной работой было организовано ботаническое отделение.

В это время Харьковский Институт имел в своем составе следующее: секции: 1) идентификации, 2) фотографических исследований, 3) химических и физико-химических исследований и 4) биологических исследований; отделения: 1) сывороточное и 2) ботанических исследований; учебно-показательный музей и библиоте-

6) Положение о судеустройстве УССР в редакции 1929 года. - Пост. ВУЦИК и СНК УССР - Собр.зак. и расп. Р.А. Прав. Украины 1929 г. отд. I, № 26, ст. 203

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теку⁷⁾. В таком составе Харьковский Институт работал до октября 1941 года, когда в связи с эвакуацией г. Харькова работа его временно была прекращена.

По освобождению Харькова доблестной Советской Армией, Совнарком УССР 4-го ноября 1943 года принял постановление о возобновлении работы Харьковского научно-исследовательского Института Судебной Экспертизы им. засл. проф. Н.С. Сокариус, причем были предусмотрены четыре названия выше секции.

Такой краткий обзор официальных организационных изменений, которые имели место на протяжении всего времени существования Харьковского Института Судебной Экспертизы.

За истекший период деятельности Харьковского Института (ранее Кабинета), работа его в основном протекала по трем направлениям: научно-исследовательская, научно-оперативная (экспертизы) и учебного характера.

При проведении научно-исследовательской работы основное внимание уделялось вопросам методики исследования различных вещественных доказательств, как в смысле разработки новых методов с использованием последних достижений науки в других областях, так и в отношении проверки и усовершенствования существующих. Наряду с этим проводилось обобщение материалов, проходивших в Институте по линии научно-оперативной работы и описание наиболее характерных случаев из практики. Кроме того определенное место в научно-исследовательской работе принадлежит руководствам, автором которых являлся первый директор Института засл. проф. Н.С. Сокариус и редактирования издававшихся журналов. Вид работ был направлен к внедрению научных методов в практику расследования.

7) Положение об Институтах Научно-Судебной Экспертизы, утв. Наркомом Юстиции УССР 14 октября 1938г.

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Не имея возможности остановиться на всех научных работах, выполненных сотрудниками Института, количество которых приближается к 100, мы все-же считаем необходимым назвать некоторые из них.

Наиболее монументальные работы принадлежат перу Засл. проф. Н.С. Вокариус, которые и до настоящего времени не потеряли своего значения, это "Первоначальный наружный осмотр трупа", изд. 1925 года (54 стр.), "Наружный осмотр трупа на месте происшествия или обнаружения его", изд. 1929 года (188 стр.), "Судебная медицина для медиков и юристов" в двух частях, изд. 1930 года (всего 866 стр.). Определенный интерес представляет "Оправочный подручный альбом для работников укр. розыска и милиции при составлении словесного портрета", того же автора, изданный в 1924 году (87 стр.).

Среди работ, относящихся к вопросам методики исследования вещественных доказательств можно назвать такие:

по исследованию документов -
 "Установление последовательности нанесения чернильных текстов"
 (Павленко - 1930г.),

"Про судово-графічну експертизу" (Елисеев - 1939г.), "Исследование документов, исполненных симпатическими чернилами" (Раввадовский Е.Ф. - рукопись 1938г.), "О расследовании дел, связанных с подчисткой документов и методика исследования таких документов" (Левин М.М. - рукопись 1938г.), "Спаження документів, збирання їх і відновлення" (Кирсаба - 1940г.) и др.;

по исследованию различных следов, пятен и частей тела человека - "Дупа для работ над дактилоотпечатками" (Вокариус Н.С. - 1927г.), "Фрилад для дослідження куль" (Павленко - 1931г.), "Ще кілька слів до справи Teichmann'a на кров у плямах" (Вокариус Н.С.

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- 1931г.), "До питання про визначення статі по волосся за пропозицією Косякова" (Сокариус-Иваницкая - 1931г.), "Застосування кварцевої лампи при дослідженні плям крові" (Сокариус-Иваницкая - 1937г.), "Люминисцентный и спектрографический анализ пятен спермы на вещественных доказательствах" (Сокариус-Иваницкая - рукопись 1941г.), "Нова модифікація згортавання кристалів йод-гаматину з кров'яних плям" (Каплан - 1931г.), "Мікроспектральна метода дослідження плям крові без порушення цілості об'єкта" (Каплан - 1938г.), "Сравнительные результаты получения преципитирующих антител по методам Fujiwara и Uhlenhuth'a (Розенберг - 1927г.), "Результаты применения камбинированного метода иммунизации по Uhlenhuth'y и Fujiwara для получения преципитирующих сывороток" (Розенберг - 1927г.), "Відрізнєння споріднених видів крові за допомогою реакції преципітації" (Розенберг - 1931г.), "Визначення групи крові в плямах з невеликим вмістом крові" (Розенберг - 1930г.), "До диференціальної діагностики волосся лобкової ділянки" (Дипковский - 1937г.), "Роль случайных вещественных доказательств в практике следствия и дознания" (Сокариус И.П. - 1927г.), "Закрепление следов гипсом" (Елисеев - 1928г.), "Как исследовать следы на дереве" (Каплан - 1930г.), "Значущия розщеплення волокон тканини за вогнепальних пошкоджень" (Каплан - 1932г.), "К вопросу об извлечении стрихнина при судебно-химическом исследовании" (Валяшко и Розвадовский В.А. - 1928г.), "Про білу *темеріцу* (*Veratrum аль*) в судово-хімічній практиці" (Валяшко и Розвадовский В.А. - 1931г.), "До методів кількісного визначення стрихніну, екстрагованого з частин трупа" (Розвадовский В.А. и Брагиловская - 1937г.), "Сравнительное изучение реакций анабазина, никотина и *номіна* (Розвадовский В.А. - 1939г.) и др.;

по судебно-медицинскому исследованию человека (живого и мертвого):

"К микродиагностике у входного кожного пулевого просвета при судебно-медицинском исследовании трупа" (Бокариус Н.Н. - рукопись 1928 г., 108 стр.), "О болезненных явлениях, наблюдаемых у оживленных после повешения" (Вроблевский - 1926г.), "О травление клоачным газом, как профессиональная вредность" (Вроблевский - 1926г.), "К вопросу о плодомегнании в судебно-медицинском отношении" (Вроблевский - 1927г.), "К вопросу об определении возраста" (Вроблевский - 1928г.), "Визначення груп крові, додаткових у ній факторів *Min* і їх роль в справах спірного батьківства" (Розенберг - 1927г.) и др.

Следует еще назвать некоторые из работ, направленных к внедрению научных методов в практику расследования, а именно: "Огляд місць злочинів" (Елисеев - 1926г.), "Метрична фотографія і її застосування при огляді місця заподіяння злочину" (Павленко - 1926г.), "Фото на службі радіонової естії" (Павленко - 1926г.), "Мил и грязь, как улики" (Елисеев - 1927г.), "Собирание и закрепление различного рода следов и других вещественных доказательств" (Елисеев - 1928г.), "Преступление и экспертиза почерка" (Елисеев - 1928г.), "Про надсилання документів для дослідження" (Леви Е.С. - 1926г.), "Нове в методиці судово-медичних і криміналістичних досліджень" (Бокариус Н.Н. - 1926г.) и др.

В 1926-1927 годах вышли в свет три книги журнала "Архив Криминологии и Судебной медицины", ответственным редактором которого был Директор Ларьковского Института засл. проф. Н.С. Бокариус. В изданных трех книгах этого журнала, имеющих общей сложности 1600 страниц, наряду с отдельными работами

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сотрудников Харьковского Института, было напечатано 64 реферата и 17 рецензий, написанных также сотрудниками Института (Сокариус Н.С., Валяшко, Вируп, Вроблевский, Едисеев, Савченко).

В 1934 году издавался журнал "Питання Криміналістики та науково-судової експертизи", членом редакционной коллегии которого был также засл.проф. Н.С. Сокариус, однако последняя книжка журнала вышла уже после его смерти. За год вышло три двойных номера. В этом журнале также, кроме научных работ сотрудников, были напечатаны 10 рефератов (Сокариус Н.С.) и 1 рецензия (Вируп Н.К.).

В 1936 году был издан совместный сборник Украинского Института Судебной политики и Харьковского Института Судебной Экспертизы под названием "Питання Кримінального процесу та техніки розслідування злочинів". Из шести работ, помещенных в этом сборнике, пять принадлежит сотрудникам Харьковского Института.

В 1937 году вышел в свет сборник трех украинских (Киевского, Харьковского и Одесского) институтов научно-судебной Экспертизы под заглавием "Криміналістика і науково-судова експертиза". В этом сборнике напечатано 4 работы, принадлежащих сотрудникам Харьковского Института.

Останавливаясь на послевоенном периоде работы Института, необходимо отметить законченные уже и подготовленные к печати две больших работы монографического характера, а именно работу доц. Колмакова - "Криминалистическая экспертиза по делам о подделке печатей, штампов и их оттисков" (К вопросу о судебной сфрагистике), comprising 180 стр. и тов. Едисеева - "Осмотр места происшествия" (220 стр.). Кроме того был проведен еще ряд работ, из которых можно назвать следующие: "Выявление зачищенных штампованных изображений на металле" (Дарина - 1948г.) и

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"Методы идентификации неизвестного трупа" (Колманов - 1943г.).

Одновременно проводились работы конструкторского порядка:

"Модификация конструкции фотоаппарата Вюрнингга для с"емки пуль" (Цион) и "Конструкция прибора для переноса оттисков пересекающихся штрихов" (Цион). По первой работе экспериментальный экземпляр ^{прибора} уже изготовливается.

В настоящее время сотрудники Института работают над разработкой следующих проблем: "Криминалистическая экспертиза документов" (Елисеев, Леви, Розвадовский), "Исследование вещественных доказательств" (Колманов, Сапожников, Цион), "Криминалистическое исследование волокон и тканей с целью их идентификации" (Бокариус Н.Г., Каплан).

Определенное место в жизни Харьковского Института занимали научные конференции, а также участие сотрудников Института в работах с"ездов и конференций, проводившихся в Москве и Киеве, где они выступали с докладами. Не имея в настоящее время материалов о всех проводившихся конференциях, мы можем только указать, на те из них, о которых представлялась возможность найти сведения в печатных изданиях или которые в силу своей значимости задержались в памяти пишущего эти строки. Так в 1929 году было проведено научное совещание Института с заслушанием доклада проф. Курдюмова (из Астрахани), проводившего свою научную работу в Харьковском Институте⁸⁾. В 1932 году была проведена расширенная научная конференция Харьковского Института в связи с первой годовщиной смерти засл. проф. Н.С. Бокариус, где были заслушаны три научных доклада сотрудников Института (Каплан, Павленко, Розенберг). В 1936 году пять сотрудников Института (Бокариус Н.Н., Елисеев, Каплан, Павленко и Розенберг) выступали с докладами на научной конференции

8) Бокариус Н.С. - Судебная медицина. Харьков. 1936г., т. I, стр. 187-188.

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Украинского Института Судебной политики в Киеве, посвященной вопросам уголовного процесса, техники и методики расследования. В 1938 году в связи с 15-ти-летием существования Харьковского Института Судебной Экспертизы была проведена в Харькове расширенная научная конференция с участием сотрудников Киевского и Одесского Институты, а также довольно большого числа приглашенных иногородних работников по линии Криминалистики и Судебной медицины. На этой конференции был сделан доклад о работе Харьковского Института за 15 лет (Сокариус Н.П.), а также ряд докладов сотрудников Института (Валяшко, Розенберг, Елисеев, Павленко). В 1939 году в Киеве состоялась научная конференция всех украинских институтов научно-судебной экспертизы, посвященная вопросам исследования письма и почерка.¹⁰⁾ На этой конференции от Харьковского Института было сделано два доклада (Левы и Розвадовский).

В 1940 году Харьковский Институт совместно с Кафедрой Судебной медицины Харьковского Медицинского Института отметил пятнадцатую годовщину со дня смерти первого директора Института засл.проф. Н.С. Сокариус организацией расширенной научной конференции, где были заслушаны ряд докладов, в том числе три сотрудников Института (Сокариус Н.П., Елисеев, Розвадовский).

В настоящее время научные доклады регулярно заслушиваются на заседаниях Совета Института. За последнее полугодие было заслушано таких 6 докладов (Колманов, Елисеев — два доклада, Вольф, Марин, Пономаренко).

Заканчивая этот раздел, нельзя не остановиться на столь важном вопросе, как подготовка диссертаций. В настоящее время в Институте работают над диссертациями 7 человек, из них двое

9) В Українському інституті судової політики — Револьюційне Право, 1939р. № 9, стор.25.

10) Евгенийев — Підсумки наукової конференції інститутів науково-судової експертизи. Револьюційне Право. 1940р. № 8, стор.28.

над докторскими и пять над кандидатскими, из этих последних две работы уже закончены и представляются к защите (Каплан, Михайловская).

Переходя к рассмотрению научно-оперативной деятельности Харьковского Института за весь период его существования, необходимо оговориться, что, если в отношении научно-исследовательской работы, в послеоккупационный период удалось найти некоторые работы или сведения о них, далеко не исчерпывающие, то в отношении научно-оперативной работы никаких материалов обнаружить не представилось возможным и излагаемые ниже данные воспроизведены по памяти автора этих строк, почему и не могут полностью охарактеризовать научно-оперативную деятельность Института.

Оперативную свою работу Харьковский Институт начал 1 ноября 1938 года, когда были получены первые экспертизы. За первый год своего существования в Институт (называвшийся тогда Кабинетом) поступили на исследование объекты по 81 делу. Количество экспертиз росло из года в год и к пятнадцатой годовщине Института (в 1953 году) более чем в десять раз превысило цифру первого года работы Института; в этом — 1938 году в Институт поступило около 900 дел, а 1940 год дал свыше 1000 дел. К моменту прекращения работы Института, в связи со временной оккупацией Харькова немецко-фашистскими захватчиками, в сентябре месяце 1941 года шла тринадцатая тысяча дел, по которым были проведены экспертизы в Институте.

Как рост обращений в Институт, так и увеличение количества экспертиз совершенно ясно показывали, что Институт занял определенное место в работе органов расследования и суда, все более и более внедрявших в свою деятельность научные методы при расследовании преступлений. Вполне понятно, что этому в некоторой степени содействовала и работа Института по популяр-

ризации научных данных среди практических работников следствия и суда, од которой будет сказано ниже.

Подтверждением оказанному являются также отчетные данные последних лет по Харьковскому Институту; так в 1944 году (первом году после возобновления работы Института по освобождении Харькова) были проведены экспертизы по 85 делам, в 1945 году по 249 делам, а в 1946 году по 502 делам с общим количеством объектов, подвергнутых исследованию в последнем году 8274.

Из указанного количества дел на всем протяжении деятельности Института, как в довоенное время, так и в послевоенное, наибольшее количество дел падает на исследование документов по самым различным поводам (в 1946 году по 818 делам 2 183 документа). Большое место среди других проведенных экспертиз занимает огнестрельное оружие и боеприпасы (патроны, пули, гильзы), пятна крови, различные ткани (с целью их идентификации) и др. В довоенное время довольно большой процент дел падал на судебно-химические исследования внутренних органов от трупов людей и животных. Этого вида исследования Институт в настоящее время не выполняет.

Кроме производства экспертиз оперативная работа Института заключалась: а) в выездах на места происшествия, где сотрудники Института принимали участие в производстве осмотра мест происшествия, в выявлении и собирании вещественных доказательств и следов преступления, б) в выступлениях в судебных заседаниях в качестве экспертов и, наконец, в) в консультировании работников суда и расследования по отдельным вопросам, относящимся к компетенции Института.

Необходимо отметить, что круг вопросов, по поводу которых обращались в Институт органы расследования и суда

был исключительно обширен и разнообразен, причем в отдельных случаях вопросы выходили далеко за рамки деятельности Института и для разрешения их Институт пользовался предоставленным ему правом привлечения нужных специалистов на правах консультантов. Однако во всех таких случаях участие в комиссии представителя Института являлось обязательным. Опыт работы показал, что при этом условии результаты от проводимой экспертизы получались лучшие, чем при производстве экспертизы непосредственно специалистом в отсутствие работника Института, что является вполне понятным.

Несколько слов надо сказать о сывороточном отделении, существовавшем в Ларьковском Институте 15 лет (с 1926 по 1941 г.) Изготавливая преципитирующие сыворотки на белок человека и на 10 видов белка различных животных, сывороточное отделение значительно содействовало улучшению работы секции биологических исследований, работники которой могли широко пользоваться этими сыворотками. Кроме того указанные преципитирующие сыворотки, а также и сыворотки для определения групп крови пользовались большой популярностью в криминалистических и судебно-медицинских учреждениях нашего Союза, куда и высылались по их требованию. Количество указанных учреждений, в которые направлялись сыворотки Ларьковского Института достигало 60-70.

Учебная работа Института заключалась в подготовке специалистов в области научно-судебной экспертизы из числа находившихся при Институте аспирантов. Надо сказать, что в течение длительного времени аспирантура в Институте переживала неустойчивое положение, неоднократно производился набор в аспирантуру, а через некоторый срок таковая упразднялась за отсутствием надлежащих ассигнований и только в 1940 году окончательно был решен вопрос о существовании аспирантуры и был произве-

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ден набор в количестве пяти человек, из которых два по Функции идентификации, два по секции судебно-фотографических исследований и один по секции химических и физико-химических исследований. Однако война прервала их учебу. В настоящее время аспирантуры при Институте нет.

Более плодотворной была учебная работа, проводившаяся главным образом со следователями и прокурорами и в меньшей степени с судьями. Эта учебная работа имела различные формы: во-первых в виде участия научных сотрудников Института в проводившихся семинарах и на различных курсах, организуемых прокуратурой и органами юстиции по повышению квалификации названных работников; во-вторых путем выездов научных сотрудников Института с докладами на определенные темы на, так называемые, кустовые (межрайонные) совещания следователей, созывавшиеся Областной Прокуратурой; в третьих путем организации в Институте докладов и лекций по отдельным вопросам криминалистики; в четвертых путем посещения музея и лабораторий Института с дачей соответствующих объяснений и в пятых путем рассылки следователям и судьям методических писем, как общего характера, так и по отдельным конкретным вопросам и делам.

Отсутствие архивных материалов лишает возможности представить здесь определенные (цифровые) данные об объеме этой работы, но некоторым показателем ее является тот неизменный рост обращаемости в Институт работников расследования и суда, о чем говорилось уже выше.

В меньшей степени и в меньшем объеме проводилась также учебная работа с сотрудниками милиции по повышению их квалификации, но все-же таковая имела место.

Некоторой иллюстрацией сказанного может служить работа, проведенная в этом направлении Институте в 1946 году, когда были

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прочитано лекций и докладов общим количеством 108 часов, из них 61 час был дан на семинаре следователей Харьковской области, 30 часов на семинаре прокуроров и следователей Военной прокуратуры Южн. жел. дороги, 6 часов для следователей Военной прокуратуры Харьковского Гарнизона, 4 часа для прокуроров и следователей гор. Харькова, 4 часа для судей г. Харькова и 3 часа на Харьковском Областной совещании прокуроров и следователей. Кроме того было дано 92 письменных указания методического порядка судебно-следственным работникам и 12 консультаций.

В настоящее время Институт не распространял пока еще эту свою деятельность на другие области Украины, обслуживаемые Институтом и непосредственно на районы, что имело место в довоенное время, когда сотрудники Института выезжали, например, в Сталино, Полтаву, Сумы, Винницу, Лубны, Смилов и др., где в назначенный день собирались работники прокуратуры, суда, а иногда и милиции самого города и соседних районов и им читалась лекция на определенную тему или делался обзорный доклад по ряду наиболее актуальных вопросов криминалистики.

Несомненно положительную роль в этой учебной работе играл учебно-показательный музей Института, который не раз использовался и для научно-исследовательской работы. В первые годы его существования, когда Институт работал на базе Кафедры Судебной медицины и музей был совместный с кафедральным в нем вполне понятно значительно преобладали экспонаты судебно-медицинского характера. Однако впоследствии, по размещении Института в своем отдельном помещении, представилась возможность перестроить музей соответственно его целям и задачам и надлежало систематизировать имеющиеся экспонаты. непрерывное соби-
рание экспонатов, как из практики Института, а также путем получения материалов от судов по законченным делам в виде тех или

других вещественных доказательств и имевшаяся у Института возможность изготовления экспонатов (таблиц, фото и пр.) непосредственно у себя квалифицированными работниками привели к тому, что к 1941 году Институт имел вполне благоустроенный музей, в котором находилось свыше 1500 надлежаще оформленных экспонатов по соответствующим разделам криминалистики. Постоянным стремлением Института была такая организация музея, чтобы он не представлял собой архивного склада вещественных доказательств, а являлся учебным учреждением, где выставленные экспонаты говорили бы сами за себя и не требовали больших разъяснений. Отзывам посетителей музея, которые нам приходилось слышать давали основание считать, что этой цели Институт постепенно достигал.

Дать подробное описание музея и, в частности, имевшихся в нем экспонатов, к сожалению, не представляется возможным, так как все экспонаты, собиравшиеся и изготовленные на протяжении более 17 лет его существования уничтожены в период немецко-фашистской оккупации и не осталось не только ни одного экспоната, но даже и фотоснимков с них и помещений музея в целом.

Некоторое представление о характера имевшихся в музее Института экспонатов могут дать таблицы, находившиеся в Военно-юридической Академии Советской Армии, по заказу которой они были изготовлены для ее Кафедры Криминалистики и судебной медицины путем дублирования экспонатов, имевшихся в нашем музее.

Заканчивая этот раздел нельзя не сказать несколько слов о том внимании к Институту, которое ему оказывалось на протяжении всего времени его существования, как отдельными специалистами нашего Союза, так и криминалистическими учреждениями. Из последних можно назвать Высшую Центральную школу Главного Управления милиции РСФСР (Москва), которая в 1931 году направила в Харьковский Институт группу курсантов в 16 человек во гла-

ве с руководителем тов. Кузицким на месячную производственную практику по некоторым разделам криминалистики, которая и была проведена в июле мес. этого года; группу курсантов-криминалистов во главе с руководителем тов. Якимовичем, приезжавшую в Институт для ознакомления с его работой и др. Из отдельных специалистов, приезжавших в Институт на более или менее длительный срок для проведения той или другой работы или для ознакомления с работой лабораторий и библиотекой Института вспоминаются проф. Черваков, работавший тогда в Минске, проф. Курдюмов из Астрахани, доц. Захаров из Омска, ассист. Щедраков (теперь профессор) из Ростова на Дону, ассист. Муранко, впоследствии заведывавший Кафедрой Судебной медицины в Витебске, суд. мед. эксперт Шпиганович из Орла, эксперт-криминалист Яванов также из Орла и ряд других. Двери Института были широко открыты и для всех харьковских научных работников других Институтов, которым в связи со своей работой нужна была та или другая консультация или помощь от Института, а подчас и совместная работа с кем либо из научных работников Института. Как на пример такой совместной работы можно назвать работу Яценко, Розенберг и Тиденко, вышедшей из двух учреждений - Украинского Протоzoинного Института и Харьковского Института Судебной Экспертизы.

Материалы Института, как проходившие по линии его оперативной работы, так и находившиеся в музее использовались в научно-исследовательской работе не только самими сотрудниками Института, особенно широко в названных выше трех руководствах засл. проф. Н. С. Сокариус, но и другими авторами в своих работах, из коих можно назвать работы Червакова^{11, 12}, Терзилова¹³, Ко-

11) Черваков - Судебная баллистика, Москва, 1937, стр. 137

12) Черваков - в рук. "Криминалистика" под ред. Вышинского, Москва, 1938, стр. 245

13) Терзилов - Исследование крови и пятен, в которых подозревается наличие крови, в следственной и судебной практике. Соп. законность, 1938, № 11, стр. 26.

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чубинского¹⁴⁾, Долицкого¹⁵⁾, Громова¹⁶⁾ и др.

Особое место в работе, а я бы сказал в жизни Института занимала его библиотека. Начиная с первых книжек, появившихся в библиотеке Института в 1923-24 годах и в 1941 году книгохранилище Института имело уже свыше 5000 экземпляров книг, в основном, относящихся к областям работы Института и по смежным дисциплинам. В библиотеке Института наряду с руководствами и монографиями по специальности, очень широко была представлена периодика, как наша отечественная, так и иностранная. Достаточно сказать, что имелись полные комплекты за все годы издания всех советских юридических, судебно-медицинских и близких к ним, как Административный вестник и т.п. журналов. Возможность получения в обмен на редактировавшиеся засл. проф. Н. С. Сокариус наши журналы иностранной периодики в значительной степени содействовала расширению библиотеки. В отдельные годы Институт получал до 20-25 иностранных журналов по специальности. В его библиотеке была представлена периодическая литература по криминалистике, судебной медицине и смежным дисциплинам следующих стран: Франции, Бельгии, Англии, США, Германии, Италии, Польши, Аргентины, Бразилии, Кубы и др. При таком положении Институт имел возможность быть всегда в курсе всех последних достижений, как у нас в Союзе, так и за границей.

К сожалению вся библиотека Института была уничтожена фашистами в период временной оккупации Харькова и в 1944 году Институт вынужден был начать снова организацию библиотеки. За истекшие, после восстановления Института, годы удалось приобрести некоторое количество книг и в настоящее время их имеется

14) Чубинский - в рук. "Исследование дел об убийствах" под ред. Шмидинового, Москва, 1938, стр. 47.

15) Долицкий - Следственные упражнения. Москва, 1930, глава "Убийство или самоубийство".

16) Громов - Вестникские улики и научно-уголовная техника 1932, стр. 78.

около 2000 экземпляров. Однако отсутствие имевшейся в Институте до войны литературы дает себя чувствовать на каждом шагу, как при проведении научно-исследовательской работы, так и научно-оперативной, особенно если учесть еще то, что ни в какой другой библиотеке Харькова этой литературы не было и нет.

Остается сказать еще о тех людях, которые своим трудом содействовали организации Института (Кабинета), его развитию и впоследствии восстановлению, по освобождению Харькова. Ряд из них и сейчас продолжает еще работать в Институте лишь за плечами многолетний стаж работы в нем.

Первым директором Института (сначала заведующим Кабинетом) был, как уже указывалось выше, засл. проф. Николай Сергеевич Чокарус, являвшийся фактическим организатором Института. Начав работу с 1 ноября 1923 года Н.С. был бесспорным директором до дня своей смерти — 23 декабря 1931 года. Учитывая его заслуги в создании и организации Харьковского Института Судебной Экспертизы, Правительство Украины после его смерти присовокупило Институту его имя и с декабря 1931 года Институт с честью носит имя своего основателя.

Вторым директором Института с декабря 1931 года до декабря 1940 года (за исключением периода временной оккупации г. Харькова) явился автор этого очерка. С 1 декабря 1940 года директором Института назначен кандидат юридических наук доцент Колманов В.П.

В секциях, именуемых теперь отделами заведующими были следующие товарищи:

Отдел идентификации: Вокарус Н.Н. (I. 1924—II. 1925), Елисеев А.А. (I. 1925—II. 1929), Вокарус Н.Н. (II. 1929—XII. 1934), Павленко В.Я. (I. 1932—XI. 1934) и Елисеев А.А. (XI. 1934—IX. 1941 и с III. 1944 по настоящее время).

Отдел судебно-фотографических исследований: Савченко С.С. (II. 1928—I. 1930), Павленко В.Я. (I. 1930—I. 1941), Розвадовский Е.Ф.

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(У. 1941-У. 1941), Леви И.М. (У. 1944-У. 1944) и Розвадовский Е.Ф. (У. 1944 - по настоящее время).

Отдел биологических исследований: Вроблевский П.М. (Т. 1924-Т. 1925), Сокариус Н.Н. (Т. 1925-Т. 1930), Сокариус-Маваницкая Н.Г. (Т. 1930-У. 1941 и с У. 1944 по настоящее время).

Отдел химических и физико-химических исследований: проф. Валинко (У. 1924-У. 1944). В настоящее время должность эта еще не замещена.

В ранее существовавших секции и отделениях заведующими были:

секция судебно-медицинских исследований: Вроблевский П.М. с Т. 1925 до Т. 1930, когда секция эта была упразднена.

отделение сыновоточное: Розенберг Р.М. (У. 1924-1940), после чего временно заведывал этим отделением Познанский Я.С. (1940 - У. 1941).

отделение ботанических исследований: Михайловская Т.А. (У. 1924г. - У. 1941).

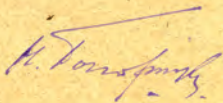
Из названных товарищей продолжают работать в Институте на других должностях: проф. Н.Н. Сокариус консультантом, тов. Т.А. Михайловская ст. научным сотрудником **отдела** биологических исследований и тов. И.М. Леви - ст. научным сотрудником **отдела** идентификации. Надо назвать еще одного старейшего работника Института начавшего работу ассистентом в марте 1924 года, работавшего **до** призыва в Советскую Армию в июне 1941 года и возвратившегося к работе в Институте после демобилизации из Армии в апреле 1946 года, это ст. научный сотрудник **отдела** биологических исследований С.Д. Каплан.

В заключение надо сказать, что начав работу в виде Кабинета на базе другого учреждения (Кафедры Судебной медицины), Харьковский Институт в 1928 году получил свое собственное помещение, по размерам площади вполне удовлетворявшее все его потребности. Оснащаясь всем необходимым на протяжении ряда лет, Институт в 1941

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году достиг такого положения, когда у него имелась вся необходимая аппаратура, нужные приборы и надлежащее оборудование при вполне соответствующем штате работников. Все это создавало определенные предпосылки для дальнейшей плодотворной работы, которая была прервана вероломным нападением фашистов на наш Советский Союз. Многие сотрудники Института ушли в Армию на защиту Родины, из них можно назвать С.А. Каплана, В.И. Постоева, А.А. Стратегопуло, Я.С. Познанского и Г.К. Карцева, которые и сейчас (время первого) продолжают службу в Советской Армии. Основное ядро научных работников эвакуировалось на восток. Работа Института была прервана. В августе 1943 года Харьков был освобожден, а в ноябре уже было принято постановление Правительства о возобновлении работы Института, однако осуществить это немедленно являлось затруднительным. Немецко-фашистские грабители полностью уничтожили все имущество Института, остались только стены здания с частью окон и дверей. Убытки, понесенные Институтом трудно определить какой-либо денежной суммой. В этих условиях было приступлено к восстановлению Института и также как и на других участках работы в нашем Союзе, в самое короткое время Институт возобновил свою работу. Многого еще нет из того, что было в Институте до войны, многое еще нужно, но мы знаем, что при том внимании, которым пользуется наука в нашей Стране все нужное Институту со временем будет у него. Нет сомнений в том, что с помощью партийных и советских организаций Институт в самое короткое время крепко станет на ноги и обостренными шагами пойдет вперед по широкой дороге советской науки, хорошо помня слова товарища Сталина, сказанные им на предвыборном собрании избирателей Сталинского избирательного округа г. Москвы 9 февраля 1943 года — "не только догнать, но и превзойти в ближайшее время достижения науки за пределами нашей страны".

14.12.1947.



СПИСОК научных работ сотрудников

Харьковского научно-исследовательского Института Судебной
экспертизы им. засл. проф. Н.С. Сокариус, с которых упоминает-
ся в настоящей работе, с указанием, где они напечатаны.

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Н. Тарасов

OUR HEROS OF ANNIVERSARY

VOLODYMYR ANDRIIOVYCH ZHURAVEL



This year we celebrate the 60-th anniversary of the birth of the famous domestic scientist and criminalist, the Chief Scientific Secretary of the National Academy of Legal Sciences of Ukraine, Doctor of Law, Professor of the Department of Criminalistics of the Yaroslav Mudryi National Law University, Corresponding Member of the National Academy of Legal Sciences of Ukraine *Volodymyr Andriiovych Zhuravel*, who was born on March 7, 1956 in Dnipropetrovsk. After serving in the Armed Forces, he entered Kharkiv Institute of Law named after F. E. Dzerzhynskyi (now – Yaroslav Mudryi National Law University) which he graduated in 1980 and stayed to work in it and rose from an assis-

stant to a professor (since 2001 till nowadays) of the Department of Criminalistics.

In 1984 he defended his thesis for the degree of the Candidate of Legal Sciences on the theme “Interrogation of the victim and use of his testimony for the construction of the technique for investigating certain types of crimes”, and in 1999 – thesis for the degree of the Doctor of Laws on the theme “Theory and Methodology of Forensic Prediction” (specialty 12.00.09). The scientific title of professor was conferred to him in 2003. In 2009 he was elected as the Corresponding Member of the Academy of Legal Sciences of Ukraine (now – the National Academy of Legal Sciences of Ukraine). During the years of his scientific activity V. A. Zhuravel published individually and in co-authorship 190 scientific and educational works, including 5 monographs, 8 scientific and practical guides, 8 textbooks, 3 encyclopedic editions. The scope of his scientific interests includes problems on the general theory of Criminalistics, forensic prediction, tactical and psychological bases of pre-trial investigation and conducting certain investigative (search) actions, criminalistic techniques, legal psychology.

Among the scientific works of V. A. Zhuravel, in particular, we name the following: “Problems of theory and methodology of criminalistic prediction: monograph” (in Ukrainian, 1999), “Criminalistics. Forensic tactics and technique for investigating crimes: a textbook” (in Ukrainian, in co-authorship, 1998), “Criminalistics. Forensic tactics and methods of investigating crimes: a textbook” (in Russian, in co-authorship, 2001), “Crimi-

nalistics: a textbook" (in Ukrainian, 2001, 2004, 2005, 2008, 2016), "The Investigator's Deskbook: a Scientific and Practical Edition for Investigators and Inquirers" (in Ukrainian, in co-authorship, 2003, 2007, 2011), "Investigation of Legalization (Laundering) of Proceeds from Crime: a Scientific and Practical Guide" (in Ukrainian, 2005), "Criminalistic Prevention of Economic Crimes: a Scientific and Practical guide" (in Ukrainian, in co-authorship, 2006), "Investigation of Crimes in the Sphere of Economic Activity: Separate Criminalistic Techniques: monograph" (in Ukrainian, in co-authorship, 2006), "International Police Encyclopaedia": in 10 volumes: V. 5. Criminal-Procedural and Criminalistics Activity of Police Organizations" (in Ukrainian, in co-authorship, 2009), "Investigation of Corruption-Related Crimes: a Scientific and Practical Guide" (in Ukrainian, in co-authorship, 2013), "Encyclopaedia of Criminalistics in Persons" (in Russian, in co-authorship, 2014), "Problems of Division into Periods of Pretrial Investigation" (in Ukrainian, 2014), "Separate Techniques in the System Criminalistic Knowledge" (in Ukrainian, 2015).

The member of editorial boards of scientific collections "Issues of Combating Crime" and "Theory and Practice of Forensic Examination and Criminalistics", Bulletin of the National Academy of Legal Sciences of Ukraine, Scientific Herald of Lviv Commercial Academy, International Scientific and Practical Juridical Journal "Criminalist first-printed".

Honored Worker of Education of Ukraine (2004), laureate of the Yaroslav Mudryi Prize (2003, 2006). Winner of the XIIIth regional competition "Higher School of Kharkiv – the best names" in the nomination "Teacher of professionally oriented disciplines" (2011). He was awarded with the medal "For serving the law and justice" (Derzhavyn Medal) (2010) and a certificate of honor of Kharkiv Province State Administration for significant personal contribution into the development of education and science, training of highly qualified specialists, long-term conscientious work and active scientific and pedagogical activity (2013).

The Editorial Board of the collection of scientific papers "Theory and Practice of Forensic Examination and Criminalistics" congratulates respected **Volodymyr Andriiovych** with his jubilee and wishes him good health for many years, prosperity, inexhaustible energy, strength and optimism, further creative successes.

IHOR MYKOLAIOVYCH KOZACHENKO



In 2015 there have been passed 75 years from the date of the birth and 50 years of the medical activity to the Chairman of Prof. M. M. Bokarius Kharkiv Society of Forensic Physicians and Criminalists, Docent of the Department of Forensic Medical Examination of Kharkiv Medical Academy of Postgraduate Education **Ihor Mykolaiovych Kozachenko**, who was born on December 21, 1940 in Kharkiv. In 1958 after graduating with a gold medal of the middle school, he entered the medical faculty of Kharkiv Medical Institute. During his studies at the institute he was going in for the forensic medicine, was an active member of the

student scientific circle. The first teachers of the future forensic expert were the famous forensic physician prof. M. M. Bokarius who in those days was the pro-rector for the academic work of KhMI, a consultant of the forensic medicine department and the head of Kharkiv Society of Forensic Physicians and Criminalistics, and also the head of the forensic medicine department, prof. M. P. Marchenko and docent L. M. Namestnikova.

In 1965 after graduating institute, I. M. Kozachenko was called up for active military service which began in the Arctic Region in settlement Tiksi at the position of the chief of the regiment infirmary. At the same time he served as a supernumerary forensic expert in both military garrison and Bulunskiy district of Yakut ASSR. In 1968 he passed the primary specialization in forensic medicine at the Department of Forensic Medicine of St. Petersburg Military Medical Academy. Later I. M. Kozachenko had to master a second specialty in this world-famous educational institution – an expert-criminalist and repeatedly improve his qualifications. He was fortunate to study and work under the leadership of the leading domestic scientists – forensic medics M. I. Avdieiev, V. V. Tomilin, V. I. Molchanov, V. L. Popov, S. D. Kustanovych, O. R. Denkovskiy, O. O. Matyshev and others.

In 1969 there begins the activity of I. M. Kozachenko as a full-time military forensic expert. He consistently holds the following positions: in 1969–1979 – Senior Medic-Specialist – forensic medical expert of the 124-th Forensic medical laboratory of the South Caucasus Military District (Rostov-on-Don city); in 1979–1989 – the chief of the 90-th Forensic medical laboratory – Chief forensic medical expert of the Turkestan Military District (Tashkent city). In 1989–1993 – Chief of the 63-rd Forensic medical laboratory – Chief forensic medical expert of the Western Group of Forces in Germany. In 1985 I. M. Kozachenko was promoted to the military rank “colonel of medical service”. He was a participant of combating actions in Afghanistan, has a military injury. In the years 1979–1980 he took an active part in the formation of the forensic medical service of a limited contingent of troops in the Democratic Republic of

Afghanistan and successfully led this service for 9 years as the chief specialist of the district. He became one of the organizers of the preparations for forwarding bodies of deceased soldiers from Afghanistan to home, what, by the way, was realized for the first time in the history of the former USSR. Personally, in combat conditions he performed the most complex forensic and criminalistic examinations for the authorities of inquiry, military prosecution and counterintelligence. He repeatedly testified before the courts of higher instances. He recommended himself as an erudite, experienced, principled forensic expert, talented organizer and leader.

Since 1994 after dismissal from the ranks of the Armed Forces I. M. Kozachenko works at the Department of Forensic Medical Examination of Kharkiv Academy of Postgraduate Education. In 2002 he defended his thesis on the theme "Forensic medical criteria for determining relative location of the victim and weapons when injured from AK-74 submachine gun". In 2004 he was awarded with the academic title "Docent". He is the author of more than 140 scientific papers, including 8 inventions, study guide, 2 methodical recommendations. In addition he submitted 13 rationalization proposals, prepared a master in medicine. He is a member of the editorial board of 8 collections of scientific works and reference publications. He is completing his doctoral thesis on the problem of pneumatic injuries, processed their new terminology, conceptual apparatus and classification, as well as the original classification of pneumatic weapons and bullets to them. In 2004 I. M. Kozachenko was elected as the chairman of Prof. M. M. Bokarius Kharkiv Society of Forensic Physicians and Criminalists. In 2006 on his initiative "Bokarius readings" were begun as an international scientific and practical conference of forensic physicians and criminalists with the publication of collections of scientific papers, for the two of which (2006 and 2008) he was a responsible editor.

Ihor Mykolaiiovych Kozachenko combines his pedagogical, scientific and social activities with practical expert work. He is a forensic medical expert of the highest qualification category, he participates in complex commission forensic medical examinations upon authorization of preliminary investigation bodies and courts.

I. M. Kozachenko was awarded with 16 medals, as well as merit badges of the President of Ukraine and "Excellent worker of the public health".

The Editorial Board of the collection of scientific papers "Theory and Practice of Forensic Examination and Criminalistics" congratulates **Ihor Mykolaiiovych** and wishes him good health, prosperity, creative inspiration, fruitful scientific work and further success in his work.

TETIANA YEVHENIVNA BALYNIAN



Leading researcher of the Laboratory of Physical, Chemical and Biological Studies of Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examination, Candidate of Biological Sciences, forensic expert of the higher classification class ***Tetiana Yevhenivna Balynian*** was born on April 17, 1946 in Irkutsk.

In 1969 she graduated H. S. Skovoroda Kharkiv State Pedagogical Institute.

In Kharkiv RIFE T. Ye. Balynian has been working since December 29, 1969 at first as a junior researcher, since 1976 – as a senior researcher, and more than 20 years (1977–1998) – at the position of the Head of the Laboratory of

Forensic Biological Studies. Since February 1998 – as the leading researcher at the Laboratory of Physical, Chemical and Biological Studies.

T. Ye. Balynian successfully carries out both expert and research work. She is the author of many scientific developments in the field of forensic biological examination, important theoretical problems of forensic biological examination were solved, techniques for expert research of various objects of plant origin were developed with her participation and under her supervision at Kharkiv RIFE. On the basis of practical experience of working as a specialist at the accident scenes, she developed a comprehensive technique for working directly at the accident scene. For several years with her direct participation, the formation of an information fund on objects of plant and animal origin was carried out. T. Ye. Balynian devoted many years to the scientific development of the technique of epidermal analysis of leaf particles. In 1989 she defended her thesis for the degree of the Candidate of Biological Sciences on the theme “Diagnostic value of the epidermis signs of leaves of tree plants of the middle belt of the European part of the USSR”. She has more than 45 published scientific works, among them there are “Forensic expert biological studies of the epidermis of leaves of trees and shrubs. Methodical Manual” (in Ukrainian, 2005), “Forensic Biological Examination of Microparticles of Flowers of Angiospermous Plants” (in Ukrainian, 2008), etc.

T. Ye. Balynian is an employee with a great experience of scientific and expert work, assists young scientific workers in selecting relevant directions of scientific activities, thesis themes work in various branches according to the profile of the laboratory work, helps in formation of tasks, plans, preparation of articles.

T. Ye. Balynian was awarded with the medal “For Labor Distinctions”, was repeatedly awarded with diplomas of honor and thanked officially for her careful attitude to the fulfillment of duties, for considerable personal contribution into the development of the forensic examination.

The Editorial Board of the collection of scientific papers “Theory and Practice of Forensic Examination and Criminalistics” congratulates ***Tetiana Yevhenivna Balyanian*** with anniversary and wishes good health, family happiness, prosperity, every success, creative inspiration, inexhaustible energy.

OLEKSANDR OLEKSANDROVYCH PROKOPENKO

Leading researcher of the Laboratory of Physical, Chemical and Biological Studies of Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations, Candidate of Biological Sciences, forensic expert of the higher classification class ***Oleksandr Oleksandrovych Prokopenko*** was born on March 21, 1956 in Kharkiv.



In 1978 he graduated the Faculty of Biology of O. M. Horkyi Kharkiv State University.

At Kharkiv RIFE O. O. Prokopenko works since 1977 at first as a laboratory assistant, since 1978 – as a junior researcher, since 1985 – at the position of a senior researcher, since 1989 – at the position of a leading researcher. In March 1998 he became the Head of the Laboratory of Forensic Biological Studies, and since October 2000 he became the Head of the Laboratory of Forensic Physical, Chemical and Biological Studies. Since

August 1, 2016 he has been working as a leading researcher in this very laboratory.

During his period of work at Kharkiv RIFE O. O. Prokopenko has mastered almost all research techniques in specialties which are used by of the laboratory experts, and carried out more than 2700 examinations, the specific weight of which is creative. On the basis of the results of his achievements, 37 scientific papers have been published, among which there were “On the biology of the surface-inhabiting species of springtail of the Ukrainian forest-steppe. Ecology of microarthropods of forest soils” (in Russian, 1988), “Entomological method for establishing prescription of death coming” (in Russian, 2003), “Investigation of insect pests complexes in forensic biological examination of grain and grain products” (in Ukrainian, 2007), etc.

Along with the expert work O. O. Prokopenko successfully performs a large amount of research work. Since 1979 he is developing a new direction of forensic biological examination – forensic entomological research (in forensic soil science examination, grain and grain products, wood-breaking insects, determination of the time of coming death).

In 1988 after graduating post-graduate education O. O. Prokopenko successfully defended his thesis for the degree of candidate of biological sciences on the theme “Collectibles of the Left-bank Ukraine”. Now he is the only one specialist in the system of forensic expert institutions of the Ministry

of Justice of Ukraine who performs researches on necrotic insects in order to establish the time of coming death. He is also distinguished in teaching young experts. O. O. Prokopenko was repeatedly awarded with diplomas of honor, thanked officially for the careful attitude to the duties. In 2008 he was awarded with a badge of distinction of the expert service under the Ministry of Internal Affairs of Ukraine "For impeccable service", and in 2009 – with the departmental encouraging distinction of the Ministry of Justice of Ukraine – breastplate "For merits in the development of forensic expertise".

The Editorial Board of the collection of scientific papers "Theory and Practice of Forensic Examination and Criminalistics" congratulates ***Oleksandr Oleksandrovych Prokopenko*** with his birthday and wishes him good health, happiness, prosperity, every success and creative inspiration.

VOLODYMYR TYMOFIIOVYCH CHUPRUN



In the light of today's events, a very indispensable specialist who united almost 30 years of experience of a military man with the position of the expert on the researches in the field of labor protection, life safety and military researches is colonel in reserve ***Volodymyr Tymofiiiovych Chuprun***.

V. T. Chuprun was born on June 7, 1956 in the city of Ananiv of Odessa province.

After graduating Kyiv Suvorov Military Specialized School, he entered Uliianivsk Guards Higher Tank Command School which he graduated with honors in 1977.

Since September 1977 till August 1988 he served in the Armed Forces in Germany and in the Far East in various command-staff positions. During the service he received an extensive practical experience in the management of subdivisions and in the organization of combat training. In 1988 he entered the command faculty of the Military Academy of Armored Forces. During his studies at the Academy he participated in studies related with the improvement of the combat training system for tank officers. In 1991 after graduating Academy with honors, he was transferred to Kharkiv Guards Higher Tank Command School, where, being an adjunct of the Department of Tactics, he worked with the issues on formation of the tactical thinking of tank officers. Since March, 1997 he was enlisted to serve in the Military Institute of the National Guard of Ukraine where he held positions of senior lecturer, deputy chief, chief of the Department of tactics. He is the author of the manual on the military use of artillery units in combat. In 2004, after getting free in reserve V. T. Chuprun worked in the system of labor protection and traffic safety at enterprises and institutions in the city of Kharkiv.

In Kharkiv RIFE V. T. Chuprun has been working since November, 2010 as a labor safety engineer, and since June, 2016 – as a senior research

ches. Taking into account the great practical experience in the field of labor protection and life safety, V. T. Chuprun performs expert studies, more than 80% of which belongs to the complex category, at a high professional level with a deep scientific justification and study of the research task.

Nowadays, V. T. Chuprun is working on the problems of creating a technique on forensic expert study of the work of commanders (staffs) and military formations in the preparation and execution of combat (service-combat) tasks. He is the author of 4 scientific publications on modeling information confrontation and forensic expert researches in the military sphere.

The Editorial Board of the collection of scientific papers "Theory and Practice of Forensic Examination and Criminalistics" congratulates **Volodymyr Tymofiiovych Chuprun** with his 60-th birthday and wishes happiness and family warmth, so that as and at service: pride, valor and honor would always be valuable for him!

VIKTOR VENIAMINOVYCH SOMOV



A foster-child of one of the leading military educational institutions and scientific centers for training highly qualified engineering personnel of various specialties for the air force – Kyiv Higher Military Aviation Engineering Specialized School **Viktor Veniaminovich Somov** was born in 1956.

After graduation from the secondary school in 1973, he entered the Kyiv Higher Military Aviation Engineering Specialized School, which he graduated in 1978. After that, he served in various positions related with the operation of aviation armaments. Taking into account the achievements of the young specialist, the leadership makes a decision about forwarding V. V. Somov for tuition at the Prof. M. Ye. Zhukovskiy Air Force Engineering Academy, which he graduated in 1985. His need to deliver to people the best, that, what has been accumulated and worked out, he realized by means of working at the position of a senior lecturer at Kharkiv Higher Military Aviation Engineering Specialized School, where he worked until 1996.

After finishing military service, V. V. Somov decided to relate his activity with the work at Kharkiv RIFE, where he began to work in March 1996 as a junior researcher. Successful combination of life experience with the newly elected specialty of the expert reflected on his career growth – after two years of work at the institute he was transferred to the position of senior researcher. V. V. Somov mastered such expert specialties: 2.1 "Researches of requisites of documents", 2.3 "Researches of printed forms and other means of document production", 3.1 "Ballistic researches of firearms and ammunition to them", 3.2 "Ballistic researches of weapons traces, shot traces and situational circumstances of the shot", 3.3 "Researches of cold arms", 4.2 "Researches of

tools, aggregates, instruments and traces left by them, identification of the whole by parts”, 5.2 “Researches of explosive devices, traces and circumstances of explosion”.

The researches carried out by V. V. Somov are distinguished by the depth of elaboration, the consistency of the exposition and the validity of the conclusions. During his work at the Institute, he performed more than 2600 expert investigations, and he does not have repeated unconfirmed conclusions of the examinations. V. V. Somov widely uses the experience of expert practice, new methods and scientific developments in his work. He constantly raises his professional level, independently replenishing special knowledge, actively participates in methodical and research work. V. V. Somov has 18 published scientific works. He is one of the developers of “Dictionary of terms of forensic examination”, “Methods for the comprehensive study of explosive devices, explosives and traces of explosions”, Manual for experts “Cartridges for small arms”. He actively participates in the work of the section Scientific advisory and methodological council on problems of forensic examination on the issues of trace evidence, ballistic, explosive-technical research.

The Editorial Board of the collection of scientific papers “Theory and Practice of Forensic Examination and Criminalistics” congratulates **Victor Veniaminovich Somov** and wishes him happiness, creative inspiration and success.

GALYNA VASYLIVNA LOSHMANOVA



Graduate of one of the oldest pedagogical universities in Ukraine – the H. S. Skovoroda Kharkiv National University – **Galyna Vasylivna Loshmanova** was recruited as a junior research to the Laboratory of forensic physical and chemical research of Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations in 1989.

In 1990, she was given the forensic expert qualification on specialty 8.3 “Investigation of fibrous materials and products made of them”. Since 1994 she worked as a researcher, and in 1998, having mastered a new line of research, she carries out examinations on technical research of documents. In 2011, she is qualified to conduct research on specialty 6.2 “Identification of personality by signs of appearance with material images” (portrait examination).

Performing a large volume of expert research, G. V. Loshmanova actively participates in the research work of the Institute. Within the period 2007–2012 she was the Head of three research works. At present, G. V. Loshmanova takes part in the implementation of two scientific topics: “Methodology for examining the impressions of seals and stamps manufactured by new technolo-

gies in order to determine the period of their application” and “The procedure for establishing the sequence of strokes formed by electrophotographic method and by pastes for ball pens, if there are no areas of their mutual intersection”. According to the results of her scientific activity, 8 scientific papers have been published. For the period of work in the Institute, she executed more than 1700 examinations in these specialties, the quality of which corresponds to the high level of modern requirements.

The Editorial Board of the collection of scientific papers “Theory and Practice of Forensic Examination and Criminalistics” congratulates **Galyna Vasylivna Loshmanova** on her 50th birthday and wishes her warmth of relatives and work colleagues, prosperity and creative success.

GENNADII BORYSOVYCH BASHKIROV



Forensic expert in the field of construction and technical examination, who devoted all his fruitful life to work in Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations **Gennadii Borysovych Bashkirov** was born on November 1, 1966 in Kharkiv.

His work path in the Institute he began in the sector of forensic merchandising and forensic construction and technical examinations in December 1988, when he was still attending the 4th year of the Kharkiv Institute of Engineering and Construction, which he graduated in 1990. In 1992 he was appointed to the post of junior researcher, and performed forensic examinations in the specialties, which were profiled at that time.

Without stopping at the achieved, G. B. Bashkirov decided to supplement his knowledge in jurisprudence. He got the second higher education by studying at the Yaroslav Mydnyi National Law Academy of Ukraine, which he graduated in 1998 to be transferred to the position of senior research.

G. B. Bashkirov was given the qualification of a forensic expert in the following specialties: 10.6. “Investigation of real estate properties, construction materials, structures and relevant documents”, 10.7 “Determination of the procedure for using land plots”, 10.10 “Determination of the estimated value for construction objects and facilities”, 10.14 “Assessment of land plots”.

In September 2016 he became a forensic expert of the first qualification class. G. B. Bashkirov also has Certificates of the State Property Fund of Ukraine for the right to carry out the independent expert assessment of property, property rights and business in the territory of Ukraine, the Certificate of the State Committee of Ukraine on land resources for the right to carry out the independent monetary assessment of land in Ukraine.

While working at the institute, G. B. Bashkirov approved himself as a com-

petent specialist, conscientious and disciplined employee. He regularly raises his professional level, actively participates in research work, has printed scientific works. Studies conducted by him, are notable for their depth, consistency, quality design. In his activity, G. B. Bashkirov widely uses the special literature, as well as the best practices of specialists from the Kharkiv RIFE and other research institutions.

For the period of work in the laboratory, G. B. Bashkirov executed more than 1000 forensic construction and technical examinations characterized by a high professional level and by use of modern expert methods. He repeatedly participated in the development of research topics including his participation as a research leader.

The Editorial Board of the collection of scientific papers "Theory and Practice of Forensic Examination and Criminalistics" congratulates **Gennadii Borysovykh Bashkirov** on his 50th jubilee and wishes him happiness, creative success, conquests of peaks, vivid impressions and prosperity.

SVITLANA ANATOLIIVNA KYRYLENKO



Graduate of the Kharkiv Engineering and Construction Institute, qualified building engineer **Svitlana Anatoliivna Kyrylenko** devoted all her professional life to Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations. She began her work at the Institute as a junior researcher on February 5, 1990. In November this year, she was given the qualification of a forensic expert on specialty 10.6 "Investigation of real estate properties, construction materials, structures and relevant documents".

As an obligatory, persevering and executive young employee, she became a researcher in 1994. In 2000, she was given the right to conduct expert research on specialty 10.7 "Distribution of land and definition of the procedure for using land plots", and since 2002 – on specialty 10.10 "Determination of the estimated value of construction objects and facilities". For the all period of her working in the institute, along with the execution of examinations, she was actively engaged in scientific activities, participated in the implementation of research topics aimed at developing the methods and methodological recommendations on problematic issues of forensic construction and technical, land and technical, appraisal and construction, appraisal and land examinations. In 2011, S. A. Kyrylenko was transferred to the position of senior forensic expert at the laboratory of construction and technical researches. In this position she still works until today. In 2015, she was awarded the first qualification class of a forensic expert.

S. A. Kyrylenko teaches and consults specialists of these specialties – employees of the Kharkiv Research Institute of Forensic Examinations and specialists who are not employees of state specialized institutions.

For the period of her working in the laboratory, S. A. Kyrylenko showed herself as a competent, demanding specialist who constantly disseminates her knowledge in the field of forensic construction and technical examination.

The Editorial Board of the collection of scientific papers “Theory and Practice of Forensic Examination and Criminalistics” congratulates ***Svitlana Anatoliivna Kyrylenko*** on her jubilee and wishes her happiness and goodness, inspiration in her work, infinite spiritual warmth, all the very best!

VICTOR OLEKSHOVYCH LABINTSEV



Forensic expert of Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations ***Victor Olekshiovych Labintsev*** was born on October 25, 1946 in Balakleya city, Kharkiv region.

V. O. Labintsev devoted a considerable part of his life to his work in the institute, where he was employed as a qualified specialist-electrician of urban electric transport in September 1976.

Owing to his high professional level and hard work, in December 1976 he was given the qualification of a forensic expert with the right to carry out the forensic autotechnical examinations in specialty 10.1 “Investigation of the circumstances of a traffic accident”. V. O. Labintsev improved his professional skills by the fact that in 1986 he acquired the right to carry out examinations on specialty 10.4 “Transport and trace evidence research”. In October 1995 he was awarded the first qualification class of a forensic expert. In 1997 V. O. Labintsev expanded his capabilities of the expert-autoengineer and acquired the specialty 10.2 “Research of technical condition of transport vehicles”.

Since 2012 he has been working as a senior researcher in the laboratory of engineering and transport research. He is diligently engaged in creative scientific work and transfers his experience to a new generation of forensic expert-autoengineers. For the period of work in the Kharkiv Research Institute of Forensic Examinations, V. O. Labintsev carried out a considerable number of forensic engineering and transport examinations. He takes an active part in scientific work, provides practical and methodical assistance to the staff of the laboratory, departments of the Institute. V. O. Labintsev – one of those who conducts research in Ukraine on cases concerning traffic accidents involving transport (trams and trolleybuses).

The Editorial Board of the collection of scientific papers “Theory and Practice of Forensic Examination and Criminalistics” congratulates ***Victor Olekshiovych Labintsev*** on his 70th jubilee and wishes him unswerving optimism and good health, family happiness and prosperity.

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2. *Салтевський М. В.* Криміналістика (у сучасному викладі): підручник. Київ: Кондор, 2005. С. 496.
3. Криміналістика (криміналістична техніка): курс лекцій/П. Д. Біленчук та ін. Київ: МАУП, 2001. 216 с.
4. Методичні рекомендації з криміналістичного дослідження легких фракцій газових конденсатів: звіт про НДР (закл.)/ХНДІСЕ; кер. А. Ф. Клімчук; викон. В. І. Кривошеєв [та ін.]. № ДР 0109U001197. Харків, 2010. 54 с.
5. *Бунова И. И.* Участие переводчика в уголовном судопроизводстве: дис. ... канд. юрид. наук: спец. 12.00.09. М., 2013. URL: <http://www.dissercat.com/content/> (date of addressing: 21.08.2015).
6. *Журавель В. А.* Допрос потерпевшего и использование его показаний для построения методик расследования отдельных видов преступлений: автореф. дис. ... канд. юрид. наук: спец. 12.00.09 «Уголовный процесс; судоустройство; прокурорский надзор; криминалистика». Харьков, 1983. 17 с.

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2. *Салтєвський М. В.* Криміналістика (у сучасному викладі): підручник. Київ: Кондор, 2005. С. 496.

3. Криміналістика (криміналістична техніка): курс лекцій / П. Д. Біленчук та ін. Київ: МАУП, 2001. 216 с.

4. Методичні рекомендації з криміналістичного дослідження легких фракцій газових конденсатів: звіт про НДР (закл.) / ХНДІСЕ; кер. А. Ф. Клімчук; викон. В. І. Кривошеєв [та ін.]. № ДР 0109U001197. Харків, 2010. 54 с.

5. Бунова И. И. Участие переводчика в уголовном судопроизводстве: дис. ... канд. юрид. наук: спец. 12.00.09. М., 2013. URL: <http://www.dissercat.com/content/> (дата звернення: 21.08.2015).

6. Журавель В. А. Допрос потерпевшего и использование его показаний для построения методик расследования отдельных видов преступлений: автореф. дис. ... канд. юрид. наук: спец. 12.00.09 «Уголовный процесс; судостроительство; прокурорский надзор; криминалистика». Харьков, 1983. 17 с.

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2. Статьи, объемом от 8 до 12 страниц, должны быть напечатаны на бумаге формата А4 шрифтом Times New Roman (Symbol, Wingdings) кеглем № 14 через 1,5 междустрочных интервала, оставляя поля: слева – 2,5 см, справа – 1,5 см, сверху – 2 см, снизу – 2 см. Аннотация – до 5 строк, кегль № 12 через 1 междустрочный интервал, курсив. Такие же кегль и интервал нужно применять при оформлении таблиц, подписей под рисунками. Использование других шрифтов не допускается.

3. На отдельном листе даются сведения об авторе (соавторах): фамилия, имя, отчество, должность по месту работы, ученая степень, ученое звание, служебный и домашний адреса, контактные телефоны, E-mail.

4. Материалы присылаются напечатанными в 2-х экземплярах и записанными на диске (название файла – латинскими буквами – по фамилии первого автора; весь материал статьи должен помещаться в одном файле, иллюстративный – дублируется отдельным файлом на каждую иллюстрацию соответствующего формата (см. п. 9–11).

5. Материалы располагаются таким образом: слева – УДК, справа – инициалы и фамилия автора (соавторов), должность по месту работы, ученая степень, ученое звание; далее посередине – название статьи прописными буквами; затем по ширине текста статьи – аннотация и ключевые слова; текст статьи с рисунками, диаграммами, схемами, таблицами и т. п., после текста – два резюме (с ключевыми словами), дата, подпись (и) автора (соавторов).

6. Примечания по тексту должны иметь сквозную нумерацию и оформляться с помощью средств Microsoft Word меню «Вставка» => («Ссылка» =>) «Сноска».

7. Математические формулы в тексте выполняются с помощью встроенного в Microsoft Word редактора математических формул (Microsoft Equation).

Буквы греческого алфавита по тексту должны быть только стандартными символами встроенного шрифта Symbol. Использование для этой цели объектов Microsoft Equation не допускается.

8. Блок-схемы выполняются с помощью встроенного в Microsoft Word редактора диаграмм Microsoft Graph.

9. Химические формулы по тексту выполняются с помощью редактора химических формул ChemDraw, что входит в комплект Cambridge ChemOffice.

10. Диаграммы и графики выполняются с помощью Microsoft Excel. При этом кроме файла с текстом статьи, где есть соответствующая диаграмма (график), обязательно предоставляется файл Microsoft Excel.

11. Растровые иллюстрации (отсканированные рисунки, фотографии и т. д.), имеющиеся в тексте статьи, также надо предоставлять отдельно в формате TIFF или BMP (не использовать для этого формат JPEG). При этом не допускается вставлять указанные иллюстрации в отдельный файл Microsoft Word. В случае непредоставления иллюстраций в виде отдельных файлов соответствующего формата или неудовлетворительного их качества редакционная коллегия оставляет за собой право не включать их в текст статьи. В иллюстративном материале (схемах, диаграммах, графиках) допускается использование только указанных в п. 2 шрифтов.

12. Объекты, указанные в п. 7–11, должны размещаться в статьях без обтекания текстом. Не использовать вставки объектов в отдельную рамку или поверх текста.

13. При оформлении иллюстративных материалов авторам следует учитывать, что сборник публикуется в черно-белом варианте формата А5. Поэтому упоминаний в текстах статей о цветных обозначениях на рисунках или диаграммах следует избегать.

14. Подчеркивание в текстах статей нежелательно, следует пользоваться курсивом или отделять части текста с помощью длинных тире (—), цифр. Правильно использовать короткие тире (–) и дефис (-), только типографские кавычки («...»), закрывающий апостроф (').

15. Присланные материалы не возвращаются. Все материалы, которые существенно не соответствуют этим требованиям, не рассматриваются.

16. Допускается внесение редакционных поправок без участия авторов, если они дают на это согласие при передаче материалов.

17. Ссылки на библиографические источники оформляются в соответствии с ДСТУ 8302:2015 «Бібліографічне посилання».

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