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**METHODOLOGICAL BASIS OF THE FORENSIC PROVIDING
ON THE IDENTIFICATION AND THE PRE-TRIAL INVESTIGATION
OF CRIMES AT CRITICAL INFRASTRUCTURE FACILITIES**

The author reviews scientific opinions of leading scholars, lawyers and criminologists on problematic issues of methodological basis of the forensic providing the investigation of crimes in general in the provisions of scientific article and forms own scientific view on methodological basis of research of the forensic providing on the identification and the pre-trial investigation of crimes at critical infrastructure facilities on this basis. Essential in the research of the problems of the forensic providing activity on the identification and the pre-trial investigation of crimes at critical infrastructure facilities, in particular, the investigations of crimes have such formal and logical techniques of thinking as analysis, synthesis, induction, deduction, abstraction, analogy, etc. They provide new forensic knowledge, are an integral part of dialectical logic, and are part of the universal method of cognition of objective reality. For example, the task of analysis was to consider the forensic providing activity on the pre-trial investigation in various connections with the provision of other types of law enforcement activity and the disclosure and analysis of the nature of criminal manifestations at critical infrastructure facilities made it possible to identify opportunities to counteract such illegal activities by forces and means of the forensic science. A method of systems analysis that allows studying integral system phenomena acquires special significance in studying of needs of providing activity by criminological developments that is directed on revealing, disclosure and pre-trial investigation of crimes at critical infrastructure facilities, of prosecutors, investigators, and operational staff. After all, the activity of employees of various services and law enforcement agencies units, if it is aimed at the detection and investigation of a specific crime or group of crimes, consists of interrelated actions that constitute the essence of both their professional activity and concerted or joint activity to identify, terminate, detection and pre-trial investigation of a specific crime or group of crimes, which encroach on the security of critical infrastructure facilities.

Key words: crime, forensic science, methods, providing, facilities, critical infrastructure.

Батюк О. В. Методологічні основи криміналістичного забезпечення з виявлення та досудового розслідування злочинів на об'єктах критичної інфраструктури

У статті автор здійснює огляд наукових думок провідних учених – юристів і криміналістів на проблемні питання методологічних основ криміналістичного



забезпечення розслідування злочинів загалом і на цій основі формулює власний науковий погляд на методологічні основи дослідження криміналістичного забезпечення з виявлення та досудового розслідування злочинів на об'єктах критичної інфраструктури. Істотне значення для дослідження проблем криміналістичного забезпечення діяльності з виявлення та досудового розслідування злочинів на об'єктах критичної інфраструктури, зокрема розслідування злочинів, мають такі формально-логічні прийоми мислення, як аналіз, синтез, індукція, дедукція, абстрагування, аналогія тощо. Вони забезпечують отримання нового криміналістичного знання і є складовою частиною діалектичної логіки та входять до всезагального методу пізнання об'єктивної дійсності. Так, наприклад, задача аналізу полягала в тому, щоб розглянути криміналістичне забезпечення діяльності з досудового розслідування у різноманітних зв'язках із забезпеченням інших видів правоохоронної діяльності, а розкриття й аналіз сутності злочинних проявів на об'єктах критичної інфраструктури дало змогу виявити можливості протидії такій протиправній діяльності силами та засобами криміналістики. Особливого значення у вивченні потреб забезпечення криміналістичними розробками діяльності прокурорів, слідчих, оперативних співробітників, спрямованої на виявлення, розкриття й досудове розслідування злочинів на об'єктах критичної інфраструктури, набуває метод системного аналізу, який надає змогу досліджувати цілісні системні явища, адже діяльність співробітників різних служб і підрозділів правоохоронних органів, якщо вона має на меті розкриття й розслідування конкретного злочину чи групи злочинів, складається зі взаємопов'язаних дій, котрі складають сутність як їхньої професійної діяльності, так і узгодженої чи спільної діяльності з виявлення, припинення, розкриття та досудового розслідування окремого злочину або групи злочинів, які посягають на безпеку об'єктів критичної інфраструктури.

Ключові слова: злочин, криміналістика, методи, забезпечення, об'єкти, критична інфраструктура.

Introduction. The relevance of the chosen theme is determined by the fact that taking into account the needs of national security and the need to introduce a systematic approach to solving the problem at the state level, the creation of a protection system of critical infrastructure is one of the priorities in reforming defense sector and security of Ukraine. Namely, the global trends to increase threats of natural and manufactured nature, increasing the level of terrorist threats, increasing the number and complexity of cyber-attacks, as well as damage to facilities of infrastructure in the east and south regions of Ukraine as a result of armed aggression by the Russian Federation, led to the actualization of the issue of protection of systems, facilities and resources that are critical to the functioning of society, social economic development of the state and providing the national security [1, p. 2].

Purposeful and detailed study of issues of the forensic providing on the identification and the pre-trial investigation of crimes at critical infrastructure facilities is due to the need to research of the factors that affect the effective use of prosecutors, investigators, law enforcement unit officers of the full range of forensic tools to combat crime, that are based on the laws of origin, existence and use of information about crimes, which are contained in their personal and material media. The importance of forensic developments lies in their ability to create conditions for employees of practical units to apply in practice forensic tools and other developments in order to solve the tasks of combating crime, taking into account the specific situations that occur in the activity of pre-trial investigation in specific criminal proceedings. So according to official data of law enforcement agencies.

Analysis of recent research and publications. Many works by such scholars as A.F. Volobuyev, V.I. Halahan, V.H. Honcharenko, I.V. Hor, V.A. Zhuravel, I.O. Iyerusalimov, A.V. Ishchenko, M.V. Kapustina, I.I. Kohutyach, V.A. Kolesnykov, Ye.D. Lukiyanchykov,



V.V. Matviyenko, T.O. Mudryak, K.Ye. Podzharenko, O.V. Taran, Zh.V. Udovenko, Yu.M. Chornous, O.I. Chuchukalo, O.V. Shapoval, V.Yu. Shepitko etc. were devoted to scientific research of forensic providing investigation of crimes. It is worth noting that, in fact, there is no scientific research devoted to the problem of forensic providing on the identification and pre-trial investigation of crimes at critical infrastructure facilities. This is what caused the need to prepare this scientific work for detection the methodological basis of the research of forensic providing on the identification and pre-trial investigation of crimes at critical infrastructure facilities.

Setting objectives. The aim of the provisions of this scientific research is to apply the review of scientific opinions of leading scholars, lawyers and criminologists on problematic issues of the methodological basis of the forensic providing investigation of crimes in general and on this basis to form own scientific view on the methodological basis of the research of forensic providing on the identification and pre-trial investigation of crimes at critical infrastructure facilities.

Results of the research. The methodology helps to comprehensively and objectively research and solve a certain scientific problem, determine its place and role in a particular scientific field, develop a theoretical model, for which a scientific search should be carried out. The methodology is sometimes defined as the doctrine about the methods of human activity that are aimed at effectively achieving the goal, from the standpoint of the activity approach. However, the identification of methodology with the system of scientific methods of cognition means a simplified, purely pragmatic approach to the disclosure of this concept. At the same time, the concept of methodology as a science cannot be reduced only to the doctrine of methods, because such a doctrine is only a part of the methodology of science. The methodology of a particular research process as a whole can not be imagined in isolation from the theoretical system of knowledge, in the field of which the scientific search is conducted, it is a system of certain theories that serve as a guiding principle, a tool of scientific analysis and a means of realization the requirements of this analysis. It can be argued that the methodology is a system of methods that are used for cognition of the subject of scientific research and organization of practical activity. According to the figurative expression of Karl Jaspers, the real science is the knowledge, which, among other things, includes information about the methods and limits of cognition. If, however, they believe in the results of science, which they know only as such, and not in connection with the method by which they are attained, then this superstition in the imaginary sense becomes a surrogate of the true faith. The confidence in the fictional strength of scientific advances is created [2, p. 372]. The methodological basis of any research should be based on general philosophical and scientific provisions. The generalization of their results will make it possible to formulate the basic methodological premises of a special scientific knowledge, which is a rather complex and systemic social legal phenomenon. The completeness, depth and reliability of a scientific knowledge, the validity of the made conclusions and recommendations can be sufficient only if the application for the research of a particular field of knowledge or its individual theoretical provisions of the correctly chosen methodology. Each scientific research is characterized by such a set of methods that emphasizes the individual nature of the work, independent received results. The list of the used methods should be determined by the aim of scientific research and the use of each of them to explain the ability of the applicant to think logically and scientifically.

As we know and what we paid attention to earlier, the methodology of legal science reflects the system of approaches, methods and ways of a scientific research, the theoretical basis of their use in the study of state and legal phenomena. At the same time, methodology is defined as the science of methods of researching of phenomena, as a branch of knowledge that studies the means, prerequisites and principles of organization of theoretical-cognitive and practical-transformative activity. Methodology is also a separate science that studies general issues of the cognition and the scientific activity as such. Its development is one of the aspects of improving scientific cognition in general [3, p. 13].

Methodology, the subject of which are forms and methods of theoretical thinking, techniques and means of cognition, which we used in this research of the problems of forensic providing a particular direction of combating of crime, historically developed within the framework of philoso-



phy. Namely, a philosophy, which is developed on the basis of a rational definition of the world and human as a form of worldview, is the methodological basis of the legal science of forensic science. Philosophical science studies the most general laws of development of the objective world, human society and thinking, allows to penetrate the external appearance of the phenomena of social life, to see their connections and relationships, and to learn their essence, the laws that govern them. Philosophy, revealing the meaning of human life, outlines the value parameters of political, legal, moral, aesthetic and scientific attitude of man to the world, to his existence. Any legal science and forensic, also, must creatively use the categories of philosophy, taking into account the specifics of its subject, developing their own special techniques and ways of cognition. The most general laws of the development of nature, society, and thinking are discovered by the method of dialectical materialism, which is the universal method of cognition. On its basis, the methods of the next level are formed, which are used in the cognition of the patterns of all branches of sciences and which also have universal nature. Observation, measurement, comparison, experiment. are general scientific methods of cognition. At the next level (according to the theory of cognition) is a group of the most numerous and diverse methods of individual branches of science - special (individual), which have a narrower sphere of application, but are just as important for the development of science. It is traditionally believed that the methodological basis of forensic is the theory of cognition. I.V. Hora and V.A. Kolesnyk speak about this general philosophical category as the basis of cognition, when researching forensic issues of cognition in the criminal process and operational and investigative activity, emphasizing the heterogeneity and complexity of such a cognitive process. The particular importance has the direction of cognition, which is basically divided into perspective and retrospective cognition, for the characteristic of the latter. The latter, according to scientists, becomes especially important in the case of the research of events and their consequences, which have or may have a criminal legal nature. We agree with these scientists in the fact that the cognition of the situation and circumstances of the crime committing and the activity of crime combating has a philosophical basis [4, p. 326].

In our opinion, it should be noted that an important role in the research is played by philosophical provisions about the unity of theory and practice, relationships and conditionality, the ability of matter to reflect, to study of phenomena in development, the relevance and the invariance, the contradictions and others. They are characterized by such categories as form and content, essence and phenomenon, necessity and chance, possibility and reality, cause and effect, system, structure and element, concrete and abstract, general and individual, etc. [5, p. 302].

We believe that the characteristics of the science of forensic and its tasks is a necessary prerequisite for the research of theoretical and methodological problems of forensic providing on the identification and the pre-trial investigation of crimes at critical infrastructure facilities. Such a characteristic contains a substantiation of the independence of the object of science, an idea of the forms of reflection that are inherent in this science, the principles of organization of the theoretical system and of the level of knowledge about the objective reality. A number of specific features characterizes the object of forensic as a separate legal and social science.

First, one of the elements of the composition of such features are the actions of people.

Second, all other factors that are part of the object of cognition are directly related to activity of human.

Third, the patterns of an independent object can be discovered only as part of the composition of a social whole as a special manifestation of the universal. Society, social practice, including crime as a negative social political phenomenon, is a complex object, which is researched by different sciences, each of which finds its object in it, cognition of which is resulted from the needs of social historical practice, in our case – of the practice of combating crime, depends on them.

In the process of scientific activity, which has a creative, constructive nature, theoretical models of the object of cognition are created, which reveal the patterns of functioning and development of a certain set of phenomena and processes, describe and explain these processes and phenomena, which are aimed at the progressive transformation of nature, social relations and human himself. Having emerged at a sufficiently high level of scientific cognition, the theory of certain



phenomena of objective reality is the result of their comprehensive and deep study. It does not simply describe the object, but explains it by the way of detection its inner essence, which is reflected in the system of objective patterns. The theory is created to identify and explain facts on the basis of fundamental ideas, principles, laws and reduces their totality into a single system. Systemic is the one of the main characteristics of a holistic scientific theory. The scientific theory is an internally closed, logically consistent system of statements from the formal point of view [6, p. 53]. The empirical basis and the set of phenomena, facts and their dependencies, which belongs to the relevant sphere of objective reality is at the basis of any scientific theory.

The scientific laws are the central element of any theoretical system, because objective patterns of the studied reality are fixed in them in the speech form of judgments. You can most accurately explain the researched phenomena, processes and understand their essential nature with the help of laws. The theory is true if it adequately describes and explains the real object and thus creates a reliable basis for predicting its future states in the process of development and functioning [7, p. 16].

We believe that the methodology of scientific research is not reduced to the sum of certain methods, ways and techniques of cognition, but is a holistic, internally agreed “apparatus” of cognition of the researched phenomena. Like any science, the forensic science has a methodological load, which becomes greater and more effective, if its theoretical level is the higher. Methodology is not only the logic of cognition of processes and phenomena, but also a set of certain methods of practical activity of the researcher. Practice provides the reliability of the method of science. The method must be understood not only as a way to achieve the goal, but also as an orderly activity. We share the opinion of V.Yu. Shepitko about the fact that the doctrine of methods of forensic science is an essential element of its methodological basis, a section of the general theory of forensic science [5, p. 302].

Such formal and logical methods of thinking as analysis, synthesis, induction, deduction, abstraction, analogy, etc. are essential in the research of problems of the forensic providing activity on the identification and the pre-trial investigation of crimes at critical infrastructure facilities, in particular, the investigation of crimes. They provide the receiving of a new forensic knowledge, are an integral part of dialectical logic, and are part of the universal method of cognition of objective reality. For example, the task of the analysis was to consider the forensic providing the pre-trial investigation of activity in various connections with the providing of other types of law enforcement activity, and the disclosure and analysis of the nature of criminal manifestations at critical infrastructure facilities made it possible to identify opportunities to counteract such unlawful activity by forces and means of forensic science.

The forensics classify the methods of observation, measurement, description, comparison, experiment and others to general scientific. The peculiarity is taken into account that in dissertation research in legal disciplines, as a rule, the comparison is carried out at the normative-legal level, i.e. several legal provisions are compared, and therefore the comparative-legal method is already used.

The general methods include forensic methods and special methods of other sciences that are used by forensics. The difference between them is seen only in the sphere of application. General scientific methods are applied in all sciences and scientific research of various spheres of human activity, however, provided that the main content in each field of a scientific knowledge is preserved, they acquire certain features that reflect the objects and subject of research, purpose and objectives etc. For example, observation in forensic science is a deliberate and purposeful perception of any object, fact, process, phenomenon that is associated with the identification, detection and pre-trial investigation of crimes. The importance and special content of surveillance as a way of activity of employees of pre-trial investigation bodies is indicated in forensic tactical recommendations for the holding interrogations, identification, inspections, searches, detention of suspects, etc. The subjects of observations in forensic science are both law enforcement officials and the persons who are engaged in theoretical development of problems of this science, carry out scientific researches of separate questions of forensic providing. In the case of the research of certain forensic problems,



such a subject is the researcher. He can be both a practical specialist – a prosecutor, investigator, operative, judge, lawyer, and a theorist, whose field of interest and practical activity is the theory of science. In addition, such observation can be carried out both by the researcher of the problem directly, and he can use the results of observation, which are committed by other persons and information about which is contained in scientific sources, methodical recommendations, analytical references, generalizations of practice of identification and detection and pre-trial investigation of crimes based on the results of studying of criminal proceedings, materials of domestic and foreign judicial investigative practice, etc.

Scientific method of description is to indicate certain or other features of the object, being applied for fixation information about objects, processes, phenomena. The description can record either all – significant and insignificant – features of the object, or some that are most important for this study and the conclusions that are made by the researcher. Description as a method and element of the process of cognition, takes place at both its levels – empirical and theoretical. In addition, the use of description mainly at the empirical level of cognition does not mean that it is possible without activating thinking, without the use of certain theoretical provisions. Ignoring this method or reducing the description exclusively to an empirical procedure will entail a reduction of its methodological significance and an excessive simplification of understanding its essence. That is why, researching the problems of forensic providing counteraction to crime committing at critical infrastructure facilities and using for this description as a method of cognition, it is necessary to provide theoretical justification, reveal theoretical understanding of the described in research processes, phenomena, results of application of forensic recommendations for identification, fixation, evaluation of evidence and evidentiary information and providing the process of pre-trial investigation of crimes and evidence in criminal proceedings. The description reflects not only the results of solving certain tasks of scientific research or the scientific or empirical basis of science as the basis of its theory. It serves as a starting of scientific material for the development and formulation of the forensic recommendations. It is obvious that the description in this research plays a role not only as a method of knowing the essence of the forensic providing as a separate scientific category, but also is one of the important functions of forensic science.

The method of system analysis, which makes it possible to study holistic system phenomena, is of particular importance in studying the needs of providing the forensic activity of prosecutors, investigators, operatives, which is aimed at identification, detecting and pre-trial investigation of crimes at the critical infrastructure facilities. After all, the activity of employees of various services and law enforcement units, if it is aimed at detecting and investigating a particular crime or group of crimes, consists of interrelated actions, which constitute the essence of both their professional activity and the coherent or joint activity of detecting, terminating, disclosing and pre-trial investigation of a particular crime or group of crimes that encroach on the security of critical infrastructure facilities.

It is unlikely the thesis to be denied that scientific thought today is increasingly turning to the study of objects and phenomena of the external world from the standpoint of systemic submissions. In addition, the forensic providing of identification, detection and investigation of crimes should be considered as a separate organizational and functional system, the task of which is the formation and maintain at the appropriate level the constant readiness of prosecutors, staff of operational and investigative units for the systematic use in practice of forensic tools and recommendations regarding combating crime, and the realization of this readiness in each case of identification and pre-trial investigation of crimes, taking into account specific investigative situations.

Systems analysis is usually understood as a set of techniques and methods that are applied for studying complex objects - the systems that are a complex set of elements that interact with each other. Direct and backward connections characterize the interaction of system elements. The essence of systems analysis is to identify these connections in the course of research and to establish their influence on the behavior of the system as a whole. System analysis consists of four stages. The first stage contains the statement of the task. The object, purpose, task of the study, as well as the criteria for studying and managing the object are studied in it. The



boundaries of the system under study are outlined and its structure is determined in the second stage. The third, most important stage of systems analysis is the creation of a model of the system being researched. An important stage of system analysis is the fourth. The created model is analyzed, extreme conditions are determined and conclusions are formed in this stage [8, p. 84–86]. The category of “activity” includes the unity of all forms of manifestations of human activity, because the term “activity” means work, the actions of people in any field [9, p. 306] and, therefore, a systematic approach is necessary to study the activity of employees of pre-trial investigation bodies and operational units on the identification and pre-trial investigation of crimes. When studying such activity, it is necessary to pay attention to the analysis of the influence of various factors on its structure, essence, tasks and characteristics. Each element of the system is a structurally independent part that has a specific purpose. However, not all elements can be combined into a system. Only those who, as a part of a separate system, contribute to the solution of a common task for the whole system can form a system. Such a general task for the activity of prosecutors, investigators and operatives will be the identification, detection and pre-trial investigation of crimes and therefore their activity can be considered as a systemic phenomenon, and on this basis it can be concluded that such a system needs the development of appropriate forensic tools of the providing its functioning as a whole and the functioning of each of the elements of the system separately and in combination with others.

Conclusions. The following conclusions should be summarized after conducting a research of methodological basis of the forensic providing on the identification and the pre-trial investigation of crimes at critical infrastructure facilities.

First, the methods of studying the activity on crime combating as such and the commission of certain types of crimes are fundamentally consistent with the general psychological and play an important role in its analysis. Such activity of the prosecutor, investigator, and operative is connected with the functioning of a large detachment of civil servants, who have legal, organizational, tactical relations both among themselves and with other persons that are involved in the sphere of procedural and operational search activity. The complex of such legal, organizational and tactical relations that arise in the sphere of activity of services and units of law enforcement agencies, in psychological terms can be represented as a rather complex system of interaction of mental processes, properties and states of individuals and social groups.

Second, the activity on the identification and pre-trial investigation of crimes has its own specifics, which is caused by the circumstances of the crime committing, conditions and factors, which determine the formation and preservation of its traces, by the events, which are associated with their detection and fixation, and by the specific conditions of holding the investigation actions after the start of criminal proceedings. It is important in this case both the object of such infrastructure and the nature of the criminal manifestation on it, the manner, consequences and participants in the committing of the crime, for crimes at critical infrastructure. The effectiveness of activity of law enforcement agencies directly depends on the level and quality of its providing with the forensic scientific developments, modern tools, methods and their complexes, which provide flexibility and selectivity of forensic tools during the holding of investigative actions and operational and investigative measures.

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