

DOI: <https://doi.org/10.32353/khrife.1.2019.044>

UDC: 343.98:05

I. Yatsenko,

Doctor of Veterinary Medicine, Leading Forensic Expert at the
KhRIFE

ORCID: <https://orcid.org/0000-0001-8903-2129>

E-mail: yacenko-1971@ukr.net

L. Derecha,

Academic Secretary at the KhRIFE, PhD in Biology, Senior
Researcher

ORCID: <https://orcid.org/0000-0002-6044-2068>

E-mail: derecha@hniise.gov.ua

POSSIBILITIES OF FORENSIC VETERINARY EXAMINATION AS A NEW TYPE OF FORENSIC SCIENCE

The article is devoted to a new type of forensic examination – forensic veterinary examination. Possibilities of forensic veterinary examination are substantiated. A description is given of the subject, objects, subject, tasks of the forensic veterinary examination, a list of questions that are put to the expert to solve them. It is shown that new and existing types of criminal acts contribute to the growth of tension in the world and cause the emergence of new objects and tasks of expert research, and, therefore, new special knowledge, the latest research methods and tools are needed. The need to open a new type of forensic examination in the system of forensic institutions of the Ministry of Justice of Ukraine, forensic veterinary examination, is due to the fact that violation of quarantine conditions, purchase and sale of animals, their improper use for breeding and other purposes, poaching, cruelty to animals, as well as a violation of the rules for the disposal of corpses leads to criminal proceedings and court cases, and, consequently, the need for a forensic examination. Forensic veterinary examination covers a wide range of knowledge and research relating to live animals, their corpses, livestock, medicines used in veterinary medicine, documentation. Opening of a new expert specialty – «Forensic Veterinary Expertise» in the system of the Ministry of Justice of Ukraine contributes to the solution of many issues that arise in law enforcement in investigating offenses related to objects of veterinary medicine and animal husbandry, enriches new opportunities for domestic forensic activities, creates relevant prospects for research in this field.

Keywords: forensic science activity, forensic veterinary, subject and objects of forensic veterinary examination; tasks of forensic veterinary.

Formulation of Research Problem. Discovery of new types of forensic expertise and expertise is dictated, above all, by the needs of the judiciary. New and existing types of criminal activity lead to the

emergence of new objects and tasks of expert research, and therefore require new specialized knowledge, new methods and means of investigation. It is only natural that society should respond to this situation with the introduction of more advanced and progressive methods and means of struggle, and one of such means is forensic examination, which on a scientific basis allows to help highly expose criminal acts, to be a component in proving a person's guilt in committing a crime.

Analysis of recent research and publications. Application issues of new methods of research have been the subject of consideration of a considerable number of domestic and foreign scientists, such as E. B. Simakova-Yefremian, L. M. Golovchenko, V. Yu. Shepitko, V. D. Yurchishin, A. P. Sheremet, R. S. Belkin, V. Ya. Koldin, E. P. Ishchenko, O. R. Rossinskaya, T. V. Averyanova, N. P. Mylis, E. I. Halashina, O. I. Usov, M. V. Saltevsky and others.¹

New types of forensic examination are conditioned by the specifics of the subject matter of the expert investigation, the situation, the conditions of the examination and the questions put to the expert's decision. A qualitatively new forensic assignment is understood to mean expert assignments that were not previously solved within the forensic expertise due to the specificity of the object (novelty, originality, previously unknown nature of the object) and (or) lack of methods for its resolution and application of techniques capable of obtaining a completely new information about the object.

In this regard, KhRIFE practices the development of new expert specialties, and at the scientific level the need to introduce new types of forensics is substantiated. For example, in 2019, at the initiative of KhRIFE, 10 new expert specialties were introduced: 5.4 *Research on circumstances and mechanism of anthropogenic explosions*; 8.10.1 *Investigation of the presence of pesticides in the environment*; 10.21 *Study of urban electric transport*; 10.22 *Investigation of the technical condition of elevators and conditions of their safe operation*; 17.1.1 *Gemstone Research*; 17.1.2 *Exploration of diamonds*; 17.1.3 *Investigation of Organic Origin Gems*; 17.1.4 *Semi-precious stones research*; 17.1.5 «*Research on ornamental stones*»; 18.1 *Veterinary Research*. In the system

¹ Дyv., напр.: Simakova-Yefremian E. B. Kompleksni sudovo-ekspertni doslidzhennia: teoriia ta praktyka [Complex forensic studies: theory and practice]: monohrafiia. Kharkiv : Pravo, 2016. 456 s.; Osnovy sudovoi ekspertyzy [Fundamentals of Forensics]: navch. posib. dlia fakhivtsiv, yaki maiut namir otrymaty abo pidtverdyty kvalifikatsiiu sudovoho eksperta / avt.-uklad.: L. M. Holovchenko, A. I. Lozovyi, E. B. Simakova-Yefremian ta in. Kharkiv : Pravo, 2016. 928 s.; Kryminalistyka [Forensics]/ za red. V. Yu. Shepitka. 2-he vyd., pererobl. i dopov. Kyiv : Kontsern «Vydavnychiy Dim «in Yure», 2004. 728 s.; Yurchyshyn V. D. Sudovi ekspertyzy (kurs lektsii) [Forensics (lecture course)]: navch. posib. dlia studentiv yurydychnykh spetsialnostei vyshchykh navchalnykh zakladiv. ivano-Frankivsk, 2013; Sheremet. A. P. Kryminalistyka [Forensics]. 2-he vydannia. Kyiv : Tsentr uchbovoi literatury. 2009. 471 s. [in Ukrainian].

of the Ministry of Justice of Ukraine, KhRIFE employees are the first to be qualified as forensic experts with the right to conduct forensic examinations in these specialties, and so far they remain the only specialists in this field among the Ukrainian forensic research institutions.

The **Article Purpose** is to substantiate possibilities veterinary forensic science as a new type of forensic science.

Main content presentation. The need to open a new type of forensic examination in the system of forensic institutions of the Ministry of Justice of Ukraine: forensic veterinary expertise, due to the fact that the violation of quarantine conditions, the sale of animals, their misuse for breeding and other purposes, poaching, animal abuse, as well as violation of the rules for the disposal of corpses leads to the emergence of criminal proceedings and court cases, and, therefore, the need for forensic veterinary examination. Forensic veterinary covers a wide range of knowledge and research regarding live animals, their corpses, livestock, medicines used in veterinary medicine, documentation, etc.¹.

It is urgent to solve such expert tasks as: establishment of species belonging to animal remains (under Article 28 of the Criminal Code of Ukraine), ill-treatment of animals (under Article 299 of the Criminal Code of Ukraine), illegal hunting (under Article 248 of the Criminal Code of Ukraine), violation of veterinary rules (for example, the occurrence and spread of epizootic of African swine fever) (under Article 251 of the Criminal Code of Ukraine), etc.

The objects of veterinary forensic science are:

- live animals (domestic, wild, hunting, zoo (exotic);
- animal corpses (anatomically-whole, fragmented, skeletalized);
- raw materials for the veterinary-biological industry (endocrine, enzymatic, special, intestinal, gastric);
- animal feeds, feed additives;
- physical evidence (litter, vomiting, etc.);
- documents (materials of pre-trial investigations and court cases (protocols of autopsy, acts of epizootic inspection of the holding, log of registration and treatment of sick animals, log of veterinary documents issuing, manufacturer's declaration, operating permit, etc.).

The main tasks of forensic veterinary examination are:

- estimation of severity of the caused damages, degree of disorder of health of live animals, loss of their productivity, estimation of timeliness and completeness of carrying out of medical-prophylactic, anti-epizootic, sanitary-hygienic, quarantine and other. events);

¹ *Yatsenko I. V., Zapara S. I., Zakhariev A. V.* Suchasnyi stan ta perspektyvy rozvytku sudovo-veterynarnoi ekspertyzy v Ukraini [The current state and prospects of forensic veterinary examination in Ukraine]. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky* : zb. nauk. prats. Kharkiv : «Pravo», 2018. Vyp. 18. S. 568–575 [in Ukrainian].

- establishment of violent death as a result of gunshot injuries, poisoning, physical and mechanical factors or other causes;
- assessment of timeliness and completeness of the measures provided for by the current veterinary legislation;
- comprehensive veterinary and animal studies of live animals;
- solving issues in the field of livestock technology and veterinary medicine;
- investigation of medical errors that occurred during the care, treatment, preventive measures and culling of animals (timeliness and adequacy of providing veterinary care to the animal; compliance with the actions of a veterinary medicine specialist during the conduct of diagnostic, therapeutic, preventive and quarantine measures);
- establishment of compliance of veterinary documents with the current legislation of Ukraine.

Indicative list of issues to be resolved:

- what is the cause of the animal's death?
- what is the severity of the damage caused to the animal?
- what is the mechanism of animal injury and what is the sequence and sequence of causation of the injury caused to animal?
- are the animals found in the corpse with bodily injury?
- are there any signs on the corpse of animals that can determine the nature and features of the weapon or other weapon causing the damage?
- what is the duration of damage to the animal?
- what are the injuries to the animal of which the corpse was examined, whether lifelong or posthumous?
- what is the cause and effect relationship between the injury and the cause of the disorder of the health of the live animal or the death of the animal that has been examined?
- what time could the animal whose body was examined be damaged after receiving the damage?
- was the animal whose body was examined able to move independently during the life of the trauma after being injured?
- what health complications arose from the effects of the injuries, or did they cause the animal suffering before death?
- is the cause of the animal's death its poisoning; from which poison did the animal's death come?
- how is the poison introduced into the animal's body (through the mouth, lungs, intact skin or injection) and in what form (powder or tablets, liquid, solution, gas)?
- in what way could the poison enter the animal's body (with feed, water, as a medicine or as an antidote)?
- what concentration of poison is found in the animal's body, is it lethal, could it cause an animal health disorder?
- how quickly did the animal's death come after the poison was introduced?

- if the poison is found in corpse material, did it get into the tissues lifelong or posthumously?
- is the cause of death of the animal related to the poisons detected?
- is a poison in the animal's body detected by a medicinal product and is the presence of the poison related to providing veterinary care to the animal?
- is the poisoning of the animal related to feed and water intake?
- does the nature of the injuries allow you to objectively state the effects of certain (physical, chemical, biological, etc.) environmental factors?
- what life-long illnesses or other factors could have contributed to the onset of death?
- did the animal physical pain, suffering, and torture cause death before death?

Other forensic questions may also be raised before the forensic examination if special knowledge is required to address these tasks.

Forensic veterinary covers a wide range of knowledge and research relating to live animals, dead bodies, and livestock raw materials, medicines used in veterinary medicine, documentation, practical activity of veterinary medicine specialists, etc. So, in the first textbook on forensic veterinary examination, published in Kharkov in 1907, associate professor F. T. Popov wrote: «There is no such amount of counterfeiting, fraud and fraud in any branch of agriculture as in animal husbandry»¹. In the early stages of social development during hunting for wild animals, and then their domestication, during the emergence and development of livestock, the use of domesticated cattle as labor, especially with the emergence of private property, exchange and trade between owners of animals, there were disputes who needed a solution. To this end, the more civilized peoples of the world at various times have legislated resolutions on these issues.

The first mention of such ordinances is found in the books of the Old Testament. Yes, Jewish farmers have long had certain laws regarding the injury of slaves and domestic animals: «If someone steals an ox or a sheep, or kills them or sells meat, then they must return the owner of these animals 5 oxen per ox., or 4 sheep per sheep (Art. 1, para. 22).» In Art. 14 states that «if one borrows from his neighbor an animal and is injured or killed, the one who has lent that animal must pay back twice the value of the animal».

The old Roman laws also have rulings (court laws) called the Edicts on the trade in livestock. These laws were under the control of lower-level special officials – edicts who, in addition to overseeing the sale of animals, acted as police or market judges. The status of the edicts

¹ *Aubakirov M. Zh. Sudebnaja veterinarija [Forensic veterinary medicine]: uchebno-metod. posob. dlja studentov special'nosti 5V120100 — «Veterinarnaja medicina». Kustanaj, 2014. 138 s. [in Russian].*

later entered civil law. Emperor Justinian collected all the decrees written at different times and printed them under the name *Roman Civil Law* (Corpus Iuris Civilis Instiniani). *Civil Law* included all Roman edicts, which were later borrowed from other states of the world.

When veterinary medicine and veterinary doctors did not yet exist, all these laws and regulations were at the disposal of the judges to resolve conflicting cases. In most cases, however, the judges' decisions were incorrect and incorrect because, in addition to knowledge of the laws, theoretical and practical knowledge of veterinary medicine that was not possessed by judges was required. Therefore, butchers, grooms, shepherds, shepherds, blacksmiths, blacksmiths and other professionals were invited to resolve controversial issues related to animal husbandry.

In those days, the practice of resolving disputes and claims was empirical, that is, not scientific. The main evidence was the confession of the guilty person. Guilt was subjectively imposed, which was often the reason for wrong decisions and accusations.

From the time of its birth in the ancient period until the time of Peter, humane and veterinary medicine developed as the only science. For the first time, forensic medicine, as an independent section of medical science, was identified by Johann Bonn in his 1690 monograph: *Specimen medicine forensis* published in Leipzig.

Since the XVI century. and until the middle of the sixteenth century, forensic medicine and the closely related forensic veterinary science were only born. In Russia and in other countries of the world, relevant legislation has been issued to combat diseases of humans and animals, prevent the death of horses and other domestic animals, and the liability of those involved. The necessity of observance of sanitary rules as a means of prevention of general contagious diseases among animals and humans is mentioned in the pre-Peter's period of development of forensic veterinary medicine, during the reign of Tsar Alexei.

The statute of forensic medicine. It systematizes the existing legislation on forensic medicine, which also regulated the veterinary case. Thus, the punishment for non-compliance with the prescription, the order for the use of the means of warning against the introduction of contamination of domestic animals was provided for. The medical statute required veterinary experts to report every case of animal disease in the area they were subordinate to. This responsibility was also assigned to the owners of these animals.

Scientific forensic veterinary science dates to 1864, since the reform of the judiciary and the introduction of a public court and the adoption of a judicial statute. Since that time, judicial functions have been separated from administrative functions. The issue of providing veterinary surgeons with the duties of forensic experts was discussed in the circular of the Medical Department of the Interior (which also included the Veterinary Committee) of August 17, 1875 under № 1784. Veterinary doctors were involved in the medical examination.

In the «*The Investigator's Desktop Book* in the section»*Veterinary and zootechnical examination*» the place of application of veterinary medicine is determined as follows: «Veterinary examination gives conclusions about the cause of death or disease of animals, the nature of the disease, the correct mode of isolation, use and maintenance of patients and suspected animals for diseases as well as the suitability for food or use of raw material of animal origin.»

With the emergence of higher education institutions, forensic medicine in them was one of the main special disciplines, which was taught at all faculties of veterinary institutes. The teaching of this discipline was entrusted to outstanding scientists. Thus, lectures on forensic veterinary medicine at the veterinary department of the St. Petersburg Imperial Military Medical Academy have been commissioned since 1871 by II Ravych, and at the Kharkov Veterinary Institute by Professor MI Petropavlovsky.

The first independent textbook on forensic medicine was published by Professor F. Popov, professor of Kharkiv Veterinary Institute, in 1895, and in 1907 he published *Short Course in Forensic Veterinary for Students and Doctors*. A significant contribution to the development of domestic forensic veterinary medicine was made by Professor M. I. Marie, who published *The Meat Inspection Guide for Doctors and Students* (St. Petersburg, 1912). This guide addresses the issues of determining the species of meat of different animal species, which is of great relevance today.

In 1951 the Leningrad Veterinary Institute published for the first time in the USSR a textbook of veterinary pathologists: Professors V. Z. Chernyak, M. A. Dobin, P. I. Kokurichev *Fundamentals of Forensic Veterinary* «, a new edition of which was again published in 1977 under the authorship of PI Kokurichev and MA Dobin. In the same year, the second edition of the book by Associate Professor F. Ya. Sizonenko *Forensic Veterinary Obstetrics* and in 1986 – for the second time published a book by Associate Professor of the Kharkiv Zoological Veterinary Institute V. P. Obratsov *Forensic Veterinary*. In the same year, the Kazan Veterinary Institute published a guide for professors V. V. Vlasenko and V. P. Frolov on forensic veterinary examination of wild animal meat.

Since 1981, several veterinary departments of the Soviet Union, according to a typical curriculum, taught an independent course in forensic veterinary examination (Alma-Ata: Prof. M. F. Shuklin, Vitebsk: Prof. M. S. Zharov, Moscow: prof. K. I. Vertinsky, Professor V. P. Shishkov, Stavropol: Professor A. M. Smirnov, Kharkiv: Associate Professor V. P. Obratsov and others). Independent sections, which were included in the *Veterinary Doctor's Handbook* and were published in 1990 and 1996, devoted to the issues of forensic veterinary examination, were written by associate professors V. P. Obratsov and A. A. Kunakov. Since 1990, he has not been teaching as an independent course *Forensic Veterinary* at

higher educational establishments of the faculties of veterinary medicine of Ukraine.

To study this discipline, there is a textbook *Forensic Veterinary Science* (by AV Zharov, 2001), «*Fundamentals of Forensic Veterinary Medicine* (authors: M. V. Skrypka, I. V. Yatsenko, N. B. Kolich), *Practice of Forensic Veterinary Examination* (authors: I. V. Yatsenko and A. M. Trush)¹, *Forensic veterinary examination in cases of asphyxia* (authors: Ya. K. Serdyukov, I. V. Yatsenko, N. M. Bogatko), *Forensic veterinary examination of injuries resulting from the action on the organism of animals of pathogenic physical factors* (authors: Y. K. Serdyukov, I. V. Yatsenko, N. M. Bogatko)², «Forensic veterinary examination of injuries resulting from the action on the organism of animals of pathogenic physical factors» (authors: Ya. K. Serdyukov, I. V. Yatsenko, N. M. Bogatko)³.

Topic of forensic veterinary examination is factual data (facts, circumstances) that establish based on specialized knowledge in the field of veterinary medicine. For example, forensic veterinary examination concludes the cause of death or disease that is often a consequence of violations of zoo-hygienic conditions of keeping animals, in particular: drafts, increased humidity as a result of disturbance of temperature regimes, increased concentration of ammonia in the air in animal husbandry, etc.), use and maintenance of sick and suspected animals, as well as the suitability for use in food or for the use of animal raw materials in animal health.

Due to the loss of products for various reasons, the farms suffer economic loss. Such court cases arise because of the death or disease of the animals, in the case of the slaughtered animals and the loss of meat productivity. Forensic examination must necessarily take place in the consideration of cases related to the death of pets, with forced slaughter caused by violations of the veterinary rules for their maintenance, feeding, operation and other violations.

The subject of forensic veterinary examination is a specialist who has a higher veterinary education (educational level: not lower than a specialist), a certificate of qualification of a forensic expert in the specialty

¹ Yatsenko I. V., Trush A. M. *Praktyka sudovo-veterynarnoi ekspertyzy* [Practice of forensic veterinary examination]: Khrestomatiia. Kharkiv : Styl-Yzdat, 2014. 314 s. [in Ukrainian].

² Serdiukov Ya. K., Yatsenko I. V., Bohatko N. M. *Sudovo-veterynarna ekspertyza u vypadkakh asfiksii* [Forensic veterinary examination in cases of asphyxia]. Kyiv : «TsR «Komprynt», 2016. 42 s. [in Ukrainian].

³ Serdiukov Ya. K., Yatsenko I. V., Bohatko N. M. *Sudovo-veterynarna ekspertyza poshkodzhenn, shcho vynykaliut vnaslidok dii na orhanizm tvaryn patohennykh fizychnykh chynnykiv* [Forensic veterinary examination of injuries resulting from the action of pathogenic physical factors on animals]: metod. vkazivky. Kyiv : TsP «Komprynt», 2015. 51 s. [in Ukrainian].

18.1 *Veterinary Research* (type: *Forensic Veterinary*) and entered in the State Register of Certified Forensic Experts. The main source of the formation of new methodologies is the scientific developments caused by the need to solve topical expert tasks, which are reflected in the thematic plans of the research institutions of judicial expertise of the Ministry of Justice of Ukraine and the internal plans of the R&D of research institutions of judicial expertise of the Ministry of Justice.

Quality of a qualified and objective examination depends to a large extent on the expertise and experience of the expert. When conducting veterinary research, a forensic expert must have a thorough knowledge of the various fields of veterinary medicine and animal husbandry.

Forensic examination makes extensive use of instruments, optical devices, photographic apparatus, x-ray equipment, chemical analytical instruments, computer and diagnostic equipment and other advanced equipment. This was made possible by the achievements of physics, chemistry, biology, forensics and other sciences, which greatly expands the range of issues that can be addressed in the while this examination.

During the research of objects of forensic veterinary examination, they are described in detail, identify morphological features, establish species identity, sex, breed, fatness, size, presence of pathological changes. In some cases, biological material is removed from the object under study. Only by having informative research material can one proceed to the selection of appropriate and reliable research methods for a comprehensive and objective justification of the results.

Nowadays, veterinary expertise is being actively developed as a field of veterinary medicine, the field of law, independent science and educational discipline in higher agricultural educational institutions of Ukraine: I. V. Yatsenko Professor (Kharkiv State Veterinary Academy), G. I. Kotsyumbas, Professor (Lviv National University of Veterinary Medicine and Biotechnology named after S. Z. Gzhytsky), M.V. Violin, Professor (Poltava State Agrarian Academy); G. A. ZonProfessor (Sumy NAU), B. V. Borisevich, Professor and Ya.K. Serdyukov, Docent (National University of Life and Environmental Sciences of Ukraine (Kyiv) and others.

The Department of Veterinary and Sanitary Expertise and Forensic Veterinary Medicine was established in Kharkiv State Zoological Veterinary Academy in 2010, and in 2014 the Bureau of Forensic Veterinary Research was established in Ukraine for the first time (Professor I. V. Yatsenko, Head of the Department). At the Lviv National University of Veterinary Medicine and Biotechnology. The Department of

Normal and Pathological Morphology and Forensic Veterinary Medicine (headed by Professor G. I. Kotsyumbas) was organized.

Specialists who have worked and worked at KhRIFE have passed Kharkiv school of prominent figures of veterinary and sanitary and forensic veterinary expertise, have experience in the field of forensic veterinary expertise in criminal, civil, economic cases were appointed by law enforcement agencies since the XIX century¹.

Currently, the following measures have been taken:

- separate methods of forensic veterinary research have been developed, algorithms of forensic veterinary examination have been developed²;

- declaration patents for utility model of Ukraine were obtained³;

- Software have been developed: *Discriminant*, *Osteo*, *Manus Vacca*, *Pes Vaccae*, *Skull Cattle*, which automate the expert review process and are now actively used in forensic practice;

- monographs, manuals, scientific and practical recommendations on forensic veterinary medicine have been prepared⁴;

¹ Yatsenko I. V., Dehtiarov M. O., Bondarevskiy M. M., Trush A. M. Kharkivska shkola vydatnykh diiachiv veterynarno-sanitarnoi ta sudovo-veterynarnoi ekspertyzy [Kharkiv school of prominent figures of veterinary and sanitary and forensic veterinary expertise]. Problemy zooinzhenerii ta veterynarnoi medytsyny : zb. nauk.prats KhDZVA. Kharkiv, 2014. Vyp. 28, ch. 2. S. 20–28 [in Ukrainian].

² Yatsenko I. V., Bondarevskiy M. M., Kamianskyi V. V. Diagnostychna informatyvni osteoskopichnykh ta osteometrychnykh parametriv kistok stupni velykoi rohatoi khudoby u sudovo-veterynarnii ekspertyzi [Diagnostic informative content of osteoscopic and osteometric parameters of bones of bones of a foot of cattle in forensic veterinary examination]. Problemy zooinzhenerii ta veterynarnoi medytsyny : zb. nauk. prats KhDZVA. Kharkiv : RVV KhDZVA, 2010. Vyp. 21, ch. 2, t. 2. S. 334–340 [in Ukrainian].

³ Deklaratsiyni patent Ukrainy na korysnu model № 99469 Sposib vyznachennia viku ta stati velykoi rohatoi khudoby za osteometrychnymy parametramy nosomozkovoho viddilu cherepa [Declaration patent of Ukraine for utility model № 99469 A method for determining the age and sex of cattle by the osteometric parameters of the cerebellar]/ Karem R. S. Abuznaid, i. V. Yatsenko, O. M. Hetmanets; zaiavleno 24.11.2014 r.; opublikovano 10.06.2015 r., Biul. № 11. 4 s. [in Ukrainian].

⁴ Dyv.: Yatsenko I. V., Bondarevskiy M. M. Strukturni osoblyvosti kistok plesna i tazovoi kintsivky velykoi rohatoi khudoby molochnoho napriamu produktyvnosti v aspekti sudovoi veterynarnoi ekspertyzy [Structural features of the bones of the metatarsal and pelvic limbs of dairy direction of productivity in the aspect of forensic veterinary examination]; monohrafiia. Kharkiv : Styl-Yzdat, 2012; Yatsenko I. V., Kamianskyi V. V., Bondarevskiy M. M. Sudovo-veterynarne znachennia parametriv kistok piastka ta paltsiv hrudnykh kintsivok dlia vyznachennia viku velykoi rohatoi khudoby molochnoho napriamu produktyvnosti [Forensic veterinary value of parameters of the bones of the metacarpus and

– опубліковано численні наукові статті у фахових виданнях¹;

The need for forensic veterinary examinations on the grounds of the crime under Art. 251 of the Criminal Code of Ukraine: violations of veterinary rules, in particular, the emergence and spread of epizootic of African swine fever (in particular, in the Dergachiv district of Kharkiv region and in the Novorossiysk district of Mykolaiv region), as well as abuse².

fingers of the thoracic limbs for determining the age of cattle of dairy direction of productivity]: monohrafiia. Kharkiv : Styl-Yzdat, 2013; *Yatsenko I. V., Tkachuk S.A., Bilyk R. I., Kamianskyi V. V.* Strukturni osoblyvosti kistok velykoi rohatoi khudoby molochnoho napriamu produktyvnosti v aspekti sudovo-veterynarnoi ekspertyzy [Structural features of bones of dairy cattle productivity in the aspect of forensic veterinary examination]: monohrafiia. Kyiv : Bioprom, 2013; *Tkachuk S.A., Yatsenko i. V., Havrylin P. M.* Sudovo-veterynarnie znachennia strukturnykh parametriv skeleta dlia vyznachennia vydovoi nalezhnosti biolohichnoho materialu [Forensic and veterinary significance of the skeletal structural parameters for determining the species belonging to biological material]: monohrafiia. Kyiv : TsP «Kompyrnt», 2015. 329 s.; *Yatsenko I. V., Abuznaid Karem R. S., Averianova L. O., Hetmanets O. M.* Sudovo-veterynarni kryterii vyznachennia viku i stati velykoi rohatoi khudoby molochnoho napriamu produktyvnosti za morfolohichnymy osoblyvostiamy nosomozkovoho viddilu cherepa [Forensic veterinary criteria for determining the age and sex of dairy cattle productivity by morphological features of the cerebellar section of the skull]: monohrafiia. Kharkiv : FOP Brovin, 2017. 218 s.; *Abuznaid Karem R. S., Yatsenko i. V.* Vyznachennia viku i stati velykoi rohatoi khudoby molochnoho napriamu produktyvnosti za kospleksom kraniolohichnykh parametriv [Determination of age and sex of cattle of milk direction of productivity by a complex of craniological parameters]: nauk.-metod. Rekomend. RVV KhDZVA, 2015. 141 s. [in Ukrainian].

¹ Dyv.: *Yatsenko I. V., Holovko N. P., Kyrychenko V. M., Balynian T. Ye., Bohatko N. M., Bukalova N. V., Serdiukov Ya.K.* Ekspertnyi vypadok doslidzhennia frahmentiv tila losia yevropeiskoho (*Alces alcess L.*) za materialamy dosudovoho rozsliduvannia kryminalnogo provadzhennia shchodo brakonierstva [Expert Case Study of European Moose Body Fragments Based on Pre-Criminal investigation in Poaching]. *Problemy zooinzhenerii ta veterynarnoi medytsyny* : zb. nauk.prats KhDZVA. X. 2017. Vypusk 35, t.1, ch. 2. S. 115–126; *Kamianskyi V. V., Yatsenko I. V., Bondarevskyi M. M., Hetmanets O. M.* Osteonna orhanizatsiia kompaktoi rechovyny diafiza kistok plesna velykoi rohatoi khudoby molochnoho napriamu produktyvnosti dlia vyrishennia diahnostychnykh zavdan u sudovo-veterynarnii ekspertyzi [Osteon organization of compact substance of diaphysis of the bones of the dairy cattle productivity to solve diagnostic problems in forensic examination]. *Problemy zooinzhenerii ta veterynarnoi medytsyny* : zb. nauk.prats KhDZVA. Kharkiv, 2015. Vyp. 30, ch. 2. S. 346–353 [in Ukrainian].

² *Yatsenko I. V., Zapara S. i., Zakhariev A. V., Skrypka M. V., Serdiukov Ya. K.* Sudovo-ekspertni vypadky doslidzhennia trupiv tvaryn z oznakamy nasylnytskoi smerti vid zhorstokoho povodzhennia [Forensic expert cases of animal carcasses with signs of violent death from ill-treatment]. *Problemy zooinzhenerii ta veterynarnoi medytsyny* : zb. nauk.prats KhDZVA. X., 2018. Vypusk 36, ch. 2. S. 130–138 [in Ukrainian].

Protection of animals from suffering and death as a result of ill-treatment of them, protection of their natural rights and strengthening of morality and humanity of the society is provided by the Law of Ukraine: *On the Protection of Animals from Brutal Treatment*.¹ Unfortunately, animal abuse, killing and killing are still rare. Here are some terrifying examples. Thus, it is known from the results of the forensic veterinary examination that an unidentified person entered the territory of Kharkiv's private homeownership and struck, presumably with a stick, a dog called *Amur*, as a result of which the latter died. During inspection of a scene the corpse of a dog without signs of life was found. A forensic veterinary examination is used to determine objectively the causes of the animal's death.

On the basis of a forensic veterinary study of the dog's corpse by the name «Amur», the panel of forensic experts registers: life-long significant blood loss: cardiac dumping syndrome, poor vein filling, low volume and poorly expressed hypostasis and cadaveric spots; closed traumatic brain injury caused by a blunt solid object; polytrauma of the head with loss of individual teeth, fractures of the skull bones, tears of the soft tissues of the head with hemorrhages into these tissues, damage to the eyeball (Fig. 1-3), open fracture of the 2nd and 3rd metacarpal bones of the right hand and corresponding proximal the phalanges of the right hand with the destruction of the metacarpophalangeal joints of the 2nd and 3rd fingers (Fig. 4).



Fig. 1. The absence of incisors of the lower dental arcade, fracture of the crown of the canine tooth



Fig. 2. Wounds of the cheek and temporal area of the head

¹ Pro zakhyst tvaryn vid zhorstokoho povodzhennia [On the Protection of Animals from Cruelty]: Zakon Ukrainy. Vidomosti Verkhovnoi Rady Ukrainy, 2006, № 27. St. 230. <https://zakon.rada.gov.ua/laws/show/3447-15> (data zvernennia 21.04.2019) [in Ukrainian].



Fig. 3. Hemorrhage under the fascia of the head, rupture of the temporalis muscle (shown by a scalpel)



Fig. 4. Right hand wound, fracture of the 2nd and 3rd bones of the metacarpus

The injuries found on the corpse of the dog *Amur* during the forensic veterinary examination are of a lifelong nature. The death of the dog «Amur» occurred within 30 minutes to 1-2 hours, depending on the speed of development of the state of shock from the moment of their application from acute traumatic-pain shock and blood loss. The nature of the fatal injuries caused to the dog, their location (head, right thoracic limb) and their pathomorphological characteristics indicate that they are not compatible with life without the provision of emergency veterinary care, and damage to the dog *Amur* is inflicted repeatedly in a vital area of the body – head, as well as in the brush of the right thorax. The death of the dog *Amur* was violent, premature from the pain of shock, gradual blood loss and cardiac arrest, because of political trauma caused by a blunt solid object, which could have been: a stick, a stick from a shovel, a metal rod, etc.

Between bodily injuries (polytrauma) revealed in the body of a dog by the nickname *Cupid* and a life-threatening condition of an animal that developed in the clinical course of injuries (wounds, hemorrhages, skull bones fractures in the frontal region, maxillary maxillary, maxillary, maxillary lower jaw and traumatic damage to the eyeball; open fracture of the 2nd and 3rd metacarpal bones of the right hand and upper phalanges of the 2nd and 3rd fingers of the right hand with destruction of the metacarpophalangeal joints of the 2nd and 3rd n The experts have established a direct cause and effect relationship.

The materials of another forensic veterinary examination indicate that a police officer in the Odessa region received a message from «102» that on August 26, 2018, on the territory of the suburban town, a citizen caused her abusive dog by the nickname *Zenya* death.

During a forensic veterinary examination of the corpse of the dog *Zenya* the following injuries were revealed:

- penetrating damage in the dorsal part of the chest on the left side of the animal's body revealed on the external examination of the corpse at the level of 3-4 ribs; the wound found had a rounded shape, up to 5 mm in diameter; the wound canal in the subcutaneous adipose tissue is angled (up to 75°) in the caudal direction, the edges of the wound soaked in blood;

- opening of the wound canal of oval-rounded shape, with a diameter of 6–7 mm in the area of the lateral chest wall, in the dorsal section of the costal pleura and in the intercostal muscles at the level of 6–7 intercostal spaces (photo 2);

- rupture of the wall of the thoracic aorta;

- hemothorax (hemorrhage into the pleural cavity);

- mechanical damage to the wall of the caudal vena cava (Figs. 3, 4);

- subendocardial ecchymosis;

- ischemia (weak blood supply) of brain tissue, lungs, liver;

- damage to the soft tissues of the head of the suborbital area to the left.

The above pathomorphological changes occurred due to a ball-blind penetrating chest injury and a bullet injury to the head. These injuries could have been caused by a shotgun from a rifle.

The injuries identified in the corpse of the dog by the nickname *Zenya* are serious bodily injuries because they are expressed in the wound of the chest with penetration into the pleural cavity with the damage of large blood vessels and at the time of causing the injury caused life-threatening and non-life-threatening injuries. their usual course, ended with the death of the animal; led to the loss of organs and their functions (aorta, caudal venae cavae, hemorrhage).

The mechanism of death of the dog by the nickname *Zenya* is acute blood loss due to internal bleeding. Damage found in the corpse of the dog by the nickname *Zenya* was caused two days before the forensic opening of the corpse. Damage found on the dog's corpse is life-long. The death of the dog by the nickname *Zenya* is violent. There is a direct cause and effect relationship between the injuries and the cause of death of the dog. After the injuries, the dog, nicknamed *Zenya*, could live for 1-2 minutes. Damage to the body of the dog *Zenya* was painful in nature and caused the animals suffering before death (Figs. 5-8).



Fig. 5. Third-party object, like a round ball, firmly fixed to adjacent tissues in the left orbital region



Fig. 6. General view of the wound surface of the skin in the dorsal part of the chest on the left side of the body

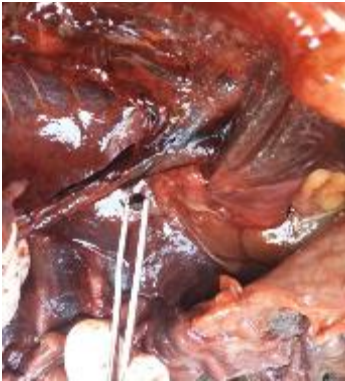


Fig. 7. Damage area of caudal venae cavae with a ball-like object (study conducted in the chest cavity while removing an object from the wall of a blood vessel)



Fig. 8. Fragment of a caudal vena cava with a site of damage to a ball-like object.

Conclusions. Thus, the opening of a new Area of specialization: *Forensic Veterinary Science* in the system of the Ministry of Justice of Ukraine helps to resolve many issues that arise in law enforcement agencies in the investigation of offenses related to the objects of veterinary medicine and animal husbandry, enriches new ones. opportunities of domestic forensic activity, creates actual prospects for scientific activity in this field.

References

Abuznaid Karem, R. S., Yatsenko, I. V. (2015). *Vyznachennia viku i stati velykoi rohatoi khudoby molochnoho napriamu produktyvnosti za kospleksom*

- kraniolohichnykh parametriv* : Naukovo-metodychni rekomendatsii. Kharkiv: RVV KhDZVA [in Ukrainian].
- Aubakytov, M. Zh. (2014). *Sudebnaia veterynariia* : uchebno-metod. posob. dlia studentov spetsyalnosti 5V120100 – «Veterynarnaia medytsyna». Kustanai, [in Russian].
- Iatsenko, I. V. (2008). Metodolohiia stvorennia ta vykorystannia osteolohichnykh kompiuternykh tekhnolohii pry doslidzhenni biolohichnoho materialu v sudovo-veterynarnii ekspertyzi. *Visnyk Derzhavnoho. ahroekolohichnoho universytetu*. № 1 (21), t. 2. 211–219 [in Ukrainian].
- Iatsenko, I.V., Abuznaid Karem, R. S., Averianova, L.O., Hetmanets, O. M. (2017). *Sudovo-veterynarni kryterii vyznachennia viku i stati velykoi rohatoi khudoby molochnoho napriamu produktyvnosti za morfolohichnymi osoblyvostiamy nosomozkovoho viddilu cherepa*: monohrafiia. Kharkiv: FOP Brovin [in Ukrainian].
- Iatsenko, I.V., Bondarevskiy, M. M. (2012). *Strukturni osoblyvosti kistok plesna i tazovoi kintsivky velykoi rohatoi khudoby molochnoho napriamu produktyvnosti v aspekti sudovoi veterynarnoi ekspertyzy*: monohrafiia. Kharkiv: Styl-Yzdat [in Ukrainian].
- Iatsenko, I.V., Bondarevskiy, M. M., Kamianskyi, V. V. (2010). Diahnostychna informatyvni osteoskopichnykh ta osteometrychnykh parametriv kistok stupni velykoi rohatoi khudoby u sudovo-veterynarnii ekspertyzi. *Problemy zooinzhenerii ta veterynarnoi medytsyny* : Zb. nauk. prats KhDZVA. Kharkiv : RVV KhDZVA, Vyp. 21, ch. 2, t. 2. 334–340 [in Ukrainian].
- Iatsenko, I.V., Bondarevskiy, M. M., Senenko, Ye. O. (2012). Sudova veterynarna medytsyna: istoria, suchasnyi stan problemy, perspektyvy. *Visnyk Zhytomirskoho derzhavnoho ahroekolohichnoho universytetu*. Zhytomyr. № 1 (32), t. 3, ch. 2. 415–423 [in Ukrainian].
- Iatsenko, I. V., Dehtiarov, M. O., Bondarevskiy, M. M., Trush, A. M. (2014). Kharkivska shkola vydatnykh diiachiv veterynarno-sanitarnoi ta sudovo-veterynarnoi ekspertyzy. *Problemy zooinzhenerii ta veterynarnoi medytsyny* : *Zbirnyk naukovykh prats KhDZVA*. Kharkiv. Vyp. 28, ch. 2. 20–28 [in Ukrainian].
- Iatsenko, I. V., Holovko, N. P., Kyrychenko, V. M., Balyan, T. Ie, Bohatko, N. M., Bukalova, N. V., Serdiukov, Ya. K. (2017). Ekspertnyi vypadok doslidzhennia frahmentiv tila losia yevropeiskoho (*Alces alces* L.) za materialamy dosudovoho rozsliduvannia kryminalnoho provadzhennia shchodo brakonierstva. *Problemy zooinzhenerii ta veterynarnoi medytsyny*: *Zbirnyk naukovykh prats KhDZVA*. Kharkiv. Vyp. 35, t.1, ch. 2. 115–126 [in Ukrainian].
- Iatsenko, I. V., Kamianskyi, V. V., Bondarevskiy, M. M. (2013). *Sudovo-veterynarne znachennia parametriv kistok piastka ta paltsiv hrudnykh kintsivok dlia vyznachennia viku velykoi rohatoi khudoby molochnoho napriamu produktyvnosti*: monohrafiia. Kharkiv: Styl-Yzdat [in Ukrainian].
- Iatsenko, I. V., Tkachuk, S. A., Bilyk, R. I., Kamianskyi, V. V. (2013). *Strukturni osoblyvosti kistok velykoi rohatoi khudoby molochnoho napriamu*

- produktyvnosti v aspekti sudovo-veterynarnoi ekspertyzy*: monohrafiia. Kyiv: Bioprom [in Ukrainian].
- Iatsenko, I. V., Trush, A. M. (2014). *Praktyka sudovo-veterynarnoi ekspertyzy*: Khrestomatiia. Kharkiv: Styl-Yzdat [in Ukrainian].
- Iatsenko, I. V., Zapara, S. I., Zakhariev, A. V. (2018). Suchasnyi stan ta perspektyvy rozvytku sudovo-veterynarnoi ekspertyzy v Ukraini. *Teoriia ta praktyka sudovoi ekspertyzy i kryminalistyky* : Zbirnyk naukovykh prats. Kharkiv: «Pravo», Vyp. 18. 568–575 [in Ukrainian].
- Iatsenko, I. V., Zapara, S. I., Zakhariev, A. V., Skrypka, M. V., Serdiukov, Ya. K. (2018). Sudovo-ekspertni vypadky doslidzhennia trupiv tvaryn z oznakamy naslynyskoi smerti vid zhorstokoho povodzhennia. *Problemy zoonzhenerii ta veterynarnoi medytsyny*: Zbirnyk naukovykh prats KhDZVA. Kharkiv. Vypusk 36, ch. 2. 130–138 [in Ukrainian].
- Iurchyshyn, V. D. (2013). *Sudovi ekspertyzy (kurs leksii)* : Navch. posib. dlia studentiv yurydychnykh spetsialnostei vyshchykh navchalnykh zakladiv. Ivano-Frankivsk [in Ukrainian].
- Kamianskyi, V. V., Yatsenko, I. V., Bondarevskyi, M. M., Hetmanets, O. M. (2015). Osteonna orhanizatsiia kompaktnoi rechovyny diafiza kistok plesna velykoi rohatoi khudoby molochnoho napriamu produktyvnosti dlia vyrishtennia diahnostychnykh zavdan u sudovo-veterynarnii ekspertyzi. *Problemy zoonzhenerii ta veterynarnoi medytsyny* : Zbirnyk naukovykh prats KhDZVA. Kharkiv. Vyp. 30, ch. 2. S. 346–353 [in Ukrainian].
- Kryminalistyka* / za red. V. Yu. Shepitka. 2-he vyd., pererobl. i dopov. K.: Kontsern «Vydavnychi Dim «In Yure», 2004 [in Ukrainian].
- Osnovy sudovoi ekspertyzy: navch. posib. dlia fakhivtsiv, yaki maiut namir otrymaty abo pidtverdyty kvalifikatsiiu sudovoho eksperta* / avt.-uklad.: L. M. Holovchenko, A. I. Lozovyi, E. B. Simakova-Yefremian ta in. Kharkiv: Pravo, 2016 [in Ukrainian].
- Pro zakhyst tvaryn vid zhorstokoho povodzhennia*: Zakon Ukrainy. Vidomosti Verkhovnoi Rady Ukrainy, 2006, № 27. St. 230. <https://zakon.rada.gov.ua/laws/show/3447-15> [in Ukrainian].
- Serdiukov, Ya.K., Yatsenko, I.V., Bohatko, N. M. (2015). *Sudovo-veterynarna ekspertyza poshkodzen, shcho vynykaiut vnaslidok dii na orhanizm tvaryn patohennykh fizychnykh chynnykiv*: Metodychni vkazivky. Kyiv: TsP «Kompynt» [in Ukrainian].
- Serdiukov, Ya.K., Yatsenko, I.V., Bohatko, N. M. (2016). *Sudovo-veterynarna ekspertyza u vypadkakh asfiksii*. Kyiv: «TsR «Kompynt» [in Ukrainian].
- Sheremet, A. P. (2009). *Kryminalistyka*. 2-he vydannia. Kyiv: Tsentrl uchbovoi literatury [in Ukrainian].
- Simakova-Yefremian, E. B. (2016). *Kompleksni sudovo-ekspertni doslidzhennia: teoriia ta praktyka* : monohrafiia. Kharkiv: Pravo [in Ukrainian].
- Sposib vyznachennia viku ta stati velykoi rohatoi khudoby za osteometrychnymi parametramy nosomozkovoho viddilu cherepa* / Karem R. S. Abuznaid, I. V. Yatsenko, O. M. Hetmanets; zaavleno 24.11.2014 r.; opublikovano 10.06.2015 r., Biul. № 11 [in Ukrainian].
- Tkachuk, S.A., Yatsenko, I.V., Havrylin, P. M. (2015). *Sudovo-veterynarne znachennia strukturnykh parametriv skeleta dlia vyznachennia vydovoi nalezhnosti biolohichnoho materialu*: monohrafiia. Kyiv: TsP «Kompynt» [in Ukrainian].

І. В. Яценко, Л. М. Дереча

**МОЖЛИВОСТІ СУДОВО-ВЕТЕРИНАРНОЇ ЕКСПЕРТИЗИ
ЯК НОВОГО ВИДУ СУДОВИХ ЕКСПЕРТИЗ**

Стаття присвячена новому виду судових експертиз – судово-ветеринарній експертизі. Обґрунтовано можливості судово-ветеринарної експертизи. Зазначено предмет, об'єкт, суб'єкт, завдання судово-ветеринарної експертизи, перелік питань, які ставляться експерту для їх вирішення. Відкриття нової експертної спеціальності – «Судово-ветеринарна експертиза» у системі Міністерства юстиції України сприяє розв'язанню багатьох питань, які виникають у правоохоронних органів під час розслідування правопорушень, пов'язаних з об'єктами ветеринарної медицини і тваринництва, збагачує новими можливостями вітчизняну судово-експертну діяльність, створює актуальні перспективи для наукової діяльності в цій сфері.

Ключові слова: судово-експертна діяльність, судово-ветеринарна експертиза, предмет та об'єкти судово-ветеринарної експертизи; завдання судово-ветеринарної експертизи.

Received by the Editorial Board: 12.06.2019