

PHOTOGRAPHY AND ITS IMPORTANCE IN CRIMINALISTICS

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INTRODUCTION - PURPOSE

Criminalistics photography has ceased to be a matter of only a narrow circle of experts in police practice when solving individual criminal offenses, especially recently. The advent of digital automated recording and mobile phones in particular opens up some possibilities for wider use of photography in documentation and scientific research in criminalistics. Therefore, it is necessary for a wide range of police officers to understand its scientific and technical foundations, but the problem is also precisely defined its content, place and possibilities in criminalistics. Only mastered theoretical knowledge provides a prerequisite for effective use in practical criminalistics activity. Emphasis must therefore be placed on the readiness of the personnel substrate, state-of-the-art photographic technology, sensitive photographic materials and their effective use in forensic and security practice. In the past, forensic photography was carried out only in very difficult cases, which was mainly caused by the small number of photographic laboratories and the lack of professional photographers. Gradually, however, it became one of the most objective criminalistics methods of capturing the relevant event and information necessary for the next procedure in the examination room. Photography, as in a number of other scientific disciplines, has occupied a very important place in criminalistics for more than last 140 years. Even in the current era of advancing technical possibilities and work procedures, it is an important

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means of capturing and documenting criminalistics relevant events. It represents a source of relevant information and therefore has been irreplaceable in the actual documentation of the progress and results of tactical methods and investigative actions. Also, the created photographic images allow people who did not have the opportunity to personally participate in the inspection of the investigated objects to create a vivid idea of the given object or the place of the inspection in this way. All of this is important, above all for the further procedure in the investigation of a specific crime and possible identification of the perpetrator. It is also possible to detect facts or signs on the images that were not recorded or documented by a person performing a normal visual inspection. This concept of preference for the documentation role in criminalistics has long prevailed in criminalistics practice, but unfortunately also in Slovak and foreign theory (Porada, at al. 2007, Straus, at all., 2017, Krajník et al., 2006).

THE PURPOSE AND CONTENT OF CRIMINALISTICS PHOTOGRAPHY

Criminalistic photography is still, in its essence, a highly qualified branch of criminalistics, despite its huge expansion and seemingly simple operation thanks to the automation of many photographic activities, from starting, through setting parameters, to the realization and selection of a shot or its processing. Therefore, quite often we can also come across the claim that photography has ceased to be a matter of only a narrow circle of experts in police practice when solving individual criminal offences. Undeniably there is wide need for documentation in its image form in police practice, it is therefore necessary to master its basics by a wide range of members of the police force. Only theoretical knowledge mastered in this way gives us the prerequisite for the effective use of photography in the practical activities of practically every police officer. Emphasis must therefore be placed in practice not only on the most modern photographic technology, sensitive photographic sensors or other supporting materials, but also on their effective use in criminalistic and security practice. Photography, as in a number of other scientific disciplines connected with criminalistic and forensic sciences, occupied a very important place in the past. In the current era of the expansion of technical possibilities and work procedures, photography in its entirety is an important means of capturing and documenting criminalistics relevant events, their signs and traces (Porada, Straus, 2012, Straus, 2017). But also, dynamic processes that are related to criminal activity, have significance for her investigation. It represents a source of relevant information and therefore has been irreplaceable even in the actual documentation in the course and results of investigative actions, in addition to its preferred role in practice - securing evidence and its



value. The significant informative and interpretive value of the photograph lies in the fact that the photographic images taken allow persons who did not have the opportunity to personally participate in the inspection, search, or other criminalistic methods and procedures of the investigated objects, to create a visual image of the given object or place in this way. Also, in the inspection procedure, which is important above all for the further procedure in the investigation of a specific crime and possible tactics, not only in the identification of the perpetrator. It is also possible to detect facts or signs on the images that were not registered by a person performing a classic, usually visual crime scene investigation, inspection or other method or procedure, but are documented on the documentary material. This approach of ours goes beyond the historical classic perception of criminalistic photography, which at one time had its current meaning (Gross, 1914), but nowadays it can be quite clearly considered to be outdated. We claim this despite the fact that we highly respect the classics of criminalistics, who at the current time solved the appropriate conceptual apparatus of criminalistics photography at the current level of knowledge. As a classical approach, the concept focused on the purely documentary value of photography can be evaluated, primarily with a focus on investigation. This, of course, corresponds to the original concept of criminalistics, which is not focused on its essence - traces, but on a broader approach through investigation methods (nor methodology) and evidence as an object of criminalistics, not on a criminalistic trace (Laca, 2017).

BASIC TERMS - DESIGN/METHODS/APPROACH

Criminalistic photography (Pješćak 1976) – “represents a summary of various special methods of photography, used in investigative actions and in criminal investigation of evidence”. The term is formulated very broadly and includes, in the classical sense, all photography applied in criminalistics - i.e. photographic criminalistic-tactical documentation, as well as criminalistic-technical photographic investigation/search (from time to time known as forensic). From the point of view of the division of criminalistics as such, criminalistic photography as an investigation/search method is included among the methods of criminalistic technique. But practically all classical approaches do not present this concept and always concentrate on the documentary value of the photograph, thereby slipping into confusing the content, goals and methods of criminalistics technique with criminalistics tactics. Because the documentary value of photography belongs to tactics (Metenko, 2012). One of the comments, for example, prefers that “the essence of its usability lies in the creation of image a criminalistics trace with photographic snapshot (by which we mean images)” (Šimovček et al. 1999). We consider a criminalistics trace (Krajník et al., 2002) to be a material change that is



directly related to a given event and that can be examined by criminalistic methods. Criminalistic photography takes pictures of material (known by human senses) traces that are located at the scene of a criminalistics-relevant event (Fenyvesi, 2009). These are primarily traces of the external features of objects that are created by reflection in their surrounding material environment in such a way that their external features are transformed into the environment. These traces are captured by using individual methods of criminalistic technics (forensic technology). Legal rules have their significance in this process too (Bjelovuk et al., 2020). As a rule, criminalistic photographs are created at the scene of a criminalistically-relevant event primarily from traces such as footprints, scratches, depictions of objects and placement of objects, imprints of objects, etc. This approach does not take into account the technical value of criminalistics investigation/search at all and gives the photograph only a documentary value. In this spirit, the entire concept of photography continues logically in the classic understanding of criminalistics as a part and process of criminal investigation, while the authors talk about the goals of criminalistics photography: “the use of methods and means of criminalistics photography is a way to increase clarity, to draw some conclusions, to objectify and to provide higher informational value documentation. At the same time, it is a way of knowing such objects and phenomena the nature of which does not allow a person due to the limited possibilities of his perception”. Only the conclusion of the concept points to the possibility of criminalistics-technical search and investigation. Criminalistic photography allows us to get to know things and phenomena in a different way. Such is, for example, the way of quick knowledge, accurate, permanent, and economic capture of such information, which was initially not considered necessary to register, and whose significance will become apparent only after evaluating the records of the real environment through criminalistic photography. Criminalistic photography was created by the development of classical photographic methods, and it is specialized for the needs of criminal investigation and clarification in all their forms and applications (Ivančík, 2022). Criminalistic photography has expanded the documentation methods of classical photography, primarily with cognition and recognition methods, which allow not only documentation but also criminalistic investigation and identification (Šišulák, 1998). The subject of criminalistic photography is the informational value of an image taken at the scene of a criminalistics relevant event or on another object (Fenyvesi, 2008), regardless of whether it is of documentary or research value, it has the character of a permanent record of the course of the event, or important phases of criminalistic and forensic methods, investigations actions. For criminalistic purposes, in addition to the geometric shape of the objects, it is necessary to record the size, structure, and relief, which is possible only by using special methods of criminalistic photography - photograph with oblique lighting, photograph with attached scale. However, they do not require special material



equipment and are rather procedures given by the possibilities of ordinary photographic equipment (Metenko et al., 2013). As a rule, many scientific fields use only a narrowly defined area of documentary photography when creating images, on the other hand, criminalistic uses it in its entire breadth. From the photogram method through landscape photography, portrait, technical, reportage, reproduction, stereoscopic, aerial photography to special fields, such as photography in all types of invisible radiation, special types of lighting of the photographed object and phenomenon, through macro and micro photography and, last but not least, colour or a black and white photo. Individual photographic methods were gradually adopted and adapted for criminalistic needs. All this applies equally to static and dynamic records. The latter is popularly known as video recordings.

The scientific basis of criminalistic photography is the knowledge of physiology about the spectral sensitivity of the human eye, the knowledge of optics about the observation and discrimination abilities of the human eye, and the ability of optical systems to transmit and to the necessary extent transform the optical transformation of information into a form perceptible by human vision. In addition, there is knowledge of classic photography, whether black-and-white or color knowledge of the possibility of recording a projected image on a photographic sensitive layer, and knowledge of the basic and complementary colours of sunlight in the entire richness of the spectral range. Criminalistic photography has expanded the documentation methods of classic photography in criminalistics with cognitive methods.

One can fully agree with the concept of Šimovček and his colleagues that the criminalistic -cognitive significance of photography (1999) consists in the fact that:

- expands the observation capabilities of the human eye by increasing the viewing angle of images,
- expands the spectral sensitivity of the eye through photographs in the UV, IR and X-ray and gamma radiation regions, using appropriate transformation methods,
- adjusts the spectral sensitivity of the human eye, by adjusting the contrast, it allows to increase the distinguishing ability and increases contour sharpness with suitable filtering methods.

For a better understanding of the entire issue of criminalistic photography as a separate method, a proper explanation of the term method and what its goal and task are is necessary.

When trying to define the method, we will start from Pješčak's classic interpretation: criminalistic method (1976) is a system of theoretical instructions, principles, laws (scientific regulations) that characterize the investigated/searched



object and the process of its knowledge. The very determination and selection of a suitable method depends on the set goal, that is, what we want to achieve or verify by using the given method. Every method used in criminalistics must meet demanding criteria:

- it must not contradict the legal norm - it is the main prerequisite for the usability of the obtained evidence in the investigative process and before the court,
- it is based on a scientific basis - it uses the most modern knowledge of scientific, technical and social progress; individual knowledge is first put into practice in the implementation of special methods of criminalistic photography,
- it is verified by criminalistic practice - it represents a kind of insurance in the validity of the criminalistic method, i.e. in the longterm of its scientific verification, it is recognized by criminalistic practice,
- it is closely related to the verification of the method of criminalistic practice, while not only the influence of theory is taken into account, but also the applicability of the given method in criminological practice.

In principle, one can agree with Pješčak's concept (1976) in the part where the research process is discussed, but in our opinion, the object of research is not a part of the method, although it determines the choice of method, and the resulting procedure. However, it is not possible to mix the method as a cognitive process and the object of the cognitive process, that is, in our case, a criminalistic trace. Similar concepts oriented only to the documentation role are preferred by Mancini and Sidorjak too (Mancini & Sidoriak, 2018).

Criminalistic photography as an independent method of criminalistics investigation/search, it is not only an auxiliary field for the documentation of a certain current but at the time of processing an already passive state or event as part of the criminalistics-tactical method of documentation, but very often it is also a part of physical events and processes that are the object of investigation/search and therefore also determine its goal and the resulting appropriate methods in the criminalistic-technical method of criminalistic photography (Meteňko & Meteňková, 2021), which also includes the examination of all image records outside of topography. On the other hand, in the implementation of individual practical criminalistics-expert processes (other branches of criminalistics-technical investigation) (Alamoreanu, 2000), photographic methods are often the only way of capturing the investigated phenomenon and often the result of the investigation in terms of documentation value (Bjelovuket al., 2020)



FINDINGS - METHODS

Based on this knowledge, we can divide the methods and technologies (some authors still use the term techniques) used in the field of criminalistic documentation, but also for the direct examination of a photographic object, into:

- common criminalistic-technical photographic methods used primarily for the documentation of traces, the location of a criminalistic relevant event, but also the course and results of a criminalistic investigation/search; Krajník et al. (2002) use the simplified and imprecise term photograph with a dimension scale, photograph using a suitable angle of illumination of the photographed object (Krajník et al., 2002), by which they mean the documentation method of criminalistic photography.

- special “forensic” - technical photographic methods used primarily in criminalistics search/investigation. This mainly includes macro photography and micro photography, infrared photography, photography in ultraviolet radiation, X-ray or gamma radiation photography, methods of photographic colour discrimination, photography in special lighting methods, photographic method of oblique relief lighting, in transmitted light, photographic colour discrimination, increasing contrast by repeating method, other special methods and methods such as super projection method, method of projectile shell investigation, contact diffusion sensitization method, fast diffusion method, spectrozonal photography, colour photography with a selection filter, holography, and other types of scientific photography by methods of detail filtering, holocopy, method equidensimetry and many others (Hupka, 1997).

The methods of special forensic photography enable a faster and richer transfer and recording of information about the course and results of an expert investigation than any other methods such as: descriptions, drawings, records of special measuring techniques and the like, help to objectify the course and results of expertise and make them available to a wide range of people. They are an important prerequisite for the objective assessment of expert opinion conclusions in the sense of the principle of free evaluation of evidence by the court and other law enforcement authorities. But in principle, they are used for the actual examination of the photographic record, whether original or realized for documentation purposes. The term “special criminalistics photography” as understood by Porada (1981) refers to the field of criminalistics photography for the needs of criminalistics techniques, which deals with the scientific development of new photographic methods, but also the practical application of already known photographic methods, exclusively for the needs of various criminalistics or forensic technical and expert examinations, while using a whole range of appropriate procedures and means that document the course and result of the expert activity, stationary fix



adequate optical phenomena, or are an indivisible functional component of the expert examination process.

In this context, it is possible to classify the methods used into those that:

1. serve exclusively for documenting the results of the investigation, which were determined in a way other than photographic, that is, as a part of the criminalistics-tactical method - possibly also the tactical branch of documentation, and
2. they are an indivisible part of expert investigation, that is, the results cannot be arrived at when choosing such a method without the application of photography, and they are therefore a part of the criminalistics-technical branch of criminalistics photography.

However, in many cases, a situation can arise when the obtained photographic images are of poor quality, are not drawn enough, have little contrast, etc. This may not always be the fault of the current negative shooting conditions, but it may also be related to low-quality technical equipment, for example the quality of the photographic device on today's popular smartphones, the materials used from lighting, sensors, and optics, or an unprofessional and inappropriate way and choice of methods of realization criminalistics photography in the everyday routine activities of members of basic units. But it also happens quite often to criminalistics technicians. These are primarily errors in the quality of documentation of tactical methods, the procedure and content of investigative actions, especially reviews, where deficiencies are often the reason for returning the case for completion. Many times, however, these errors cannot be removed, because they are images whose creation was a unique act.

In criminalistics and security practice, the widest field of application of photography is represented by photographic images taken for the purpose of documenting the progress and results of patrols and investigative and operational search actions and procedures, extraordinary events and other events related to criminalistics relevant events. We often find that all information is comprehensively displayed on the listings of images taken at the scene of a criminalistics-relevant event. However, the disadvantage is that when they are processed and presented as evidence in an investigation, this criminalistics-relevant information partially or completely disappears due to the effect of light, contrast or shadow, or even the range of the set sensitivity, ISO value and the like (Meteňko & Meteňková, 2021). A typical case is a walking path - footprints impressed into the snow, which is irradiated by the sun's rays. In such cases, even the forensic technician is faced with the problem of how to display this information in a suitable way in the shot, because it is suppressed by the intense reflection of light rays and high-contrast shadows. With each attempt, the quality of the image as a carrier of criminalistics information decreases. A suitable use known from the past was the control of contrast, which

could be achieved by a suitable procedure of working with the negative for the desired result. It was implemented using the following procedures:

- reducing the contrast using soft contrast light settings, etc.,
- increasing contrast by appropriate choice of settings and materials, use,
- photographing a situation with a high range of contrasts twice, or three times (while each picture must be taken under different lighting: first maximum brightness, second medium brightness, third minimum brightness).

Based on the facts mentioned above, we can include the following modern methods among the necessary photographic methods of a criminalistics-relevant event, intended for extracting information from images (Hupka, 1997):

- contrast control with increased contrast in details – “FD method”. It is used primarily in situations where, for various objective reasons, the captured object could not be evenly illuminated or repeated photography was not possible, because the object was damaged, destroyed, lost, etc.
- reproduction of large ranges of brightness intensity
- with this method, it is possible to obtain all adequate information even for heavily covered areas. The intensity of UV radiation is mainly used.
- transformation of the photographic record in homogeneous parts of the image – “Equidenzometry”
- transformation of the photographic record in contrasting parts of the record – “Large-area photometry”
- contrast control without increasing the contrast in details, etc.

Some of the procedures and methods are suitable and usable even in contemporary digital photography and allow controlled contrast and image improvement by digital processes. Unfortunately, they are often not managed by the implementers themselves and are often recognized in terms of legal certainty. It must be said that they are not justified, because they do not change the informational value of the recording, they only improve its readability in a controlled manner, especially if we use photographic standards such as HDR. The individual methods do not require any special costs for equipment or materials, only the relevant software, although they cannot do without a high-quality digital SLR camera. Despite this, the results achieved in practice are surprisingly weak, therefore these results can be used in criminalistics and security practice both in the field and in the laboratory, for the needs of evidence in investigations, but also for the fixation of operational or evidentiary information that “was” apparently lost.



THE STRUCTURE OF CRIMINALISTICS PHOTOGRAPHY

Criminalistics photography is characterized above all by its wide range of applicability in police practice. While the applicability of criminalistics technical methods and branches - for example dactyloscopy, trasology, defectoscopy, mechanoscopy and the like is limited only to a narrow circle of investigation of defined traces, or only to a specific part of documenting a relevant event within the tactical method of documentation, with the aim of obtaining and preserving informational value traces, criminalistics photography is characterized by its wide applicability (Meteňko et al., 2019). The very use of criminalistics photography must be understood primarily in connection with the crime scene investigation, inspection of the scene of a crime, possibly a search and for the purposes of its subsequent documentation, identification and registration of living persons and corpses. The methods, processes and means of scientific photography applied for expert work in the framework of criminalistics are a completely separate field. In addition to these areas, knowledge, methods and means of general and scientific photography are used in all areas of police and security practice.

From the point of view of the frequent use of criminalistics photography in police practice, these are primarily photographic images made for the purpose of documenting the progress and results of inspection of the crime scene and other tactical methods (Staggs, 2014), but they are applicable in investigative and operational-search actions, extraordinary events and other criminalistics relevant processes.

The documentary value of the photography (Krajník at all, 2002) mainly consists in the fact that it supplements and provides information that can be used to complete the report on the inspection of the scene of the crime, irrespective of the criminalistics-relevant event (in the following text also KRU) (Lofler & Kočan, 2012), replaces the descriptive parts of the minutes, simplifies the description, objectifies the overview and improves the imagination of the place of the event, as well as enables additional clarification of the situation (Hejda, et al, 2003). Based on the facts mentioned above, we can characterize policing/documentation criminalistics photography as a means of objectively capturing the information we obtain during documentation activities:

- during the inspection of the crime scene,
- during the criminal investigation in general,
- to capture information about the results of a criminalistics search and criminal investigation.

If the criminalistics documentation is to be carried out correctly, it must meet the following basic conditions (Metenko et al., 2013):



- faithfully and plastically depict the actual material situation of a criminalistics-relevant event, both overall and individual characteristic parts or features of the event,
- enable a visual representation of all the documented circumstances of the entities that will continue to monitor the documentation,
- enable the restoration and ensure the conformity of restored situations with the original situation, if it is necessary to restore this situation,
- to provide an image of the progress and results of the performed actions and activities in time, space, or other specific conditions,
- the documentation must also fix the processes, methods, and means of the performed actions and work procedures.

However, in order to ensure the correct procedure and achieve an effective result, it is also necessary to remember the basic principles of the processing of the documentary work (Polák& Kubala, 2010), because it is the observance of individual principles that contributes to increasing the informational value and usability of criminalistics photography in further police activities. Basic principles include (Metenko, 2012):

- timeliness and durability of information storage as well as their irreplaceability,
- objectivity of documentation processing,
- the effectiveness of the documentation methods used,
- completeness and complexity of the processed documentation.

Criminalistics has developed various methods and ways of fixing traces and documenting the situations of investigative sites of criminalistics processes and criminal events, also taking into account the types of investigated objects (Stieranka, 2006). Various technical means are used to secure information, based on knowledge it is possible to determine some forms of fixation as a documentary expression of all the facts found in the process of detection, investigation and prevention of criminal activity. These include the following different forms of records mentioned by Meteňko, we select from them (2012):

- minutes,
- written record,
- opinion,
- photographic still recording,
- photographic dynamic (video) recording,

- topographic sketch,
- special methods of 3D optical recording (Spheron, 3D laser scanning,),
- audio recording,
- or other documentation based on the principle of electromagnetic sensing,
- special methods of fixation, many of which are under intensive development.

Even at the present time, it is possible to adopt a suitable characteristic of the complex of criminalistics photography from the authors Hupka and Hlava, as “a scientifically developed system of special methods of photography, which are applied in photographic activity and investigation/search of criminalistics relevant objects and phenomena” (Hupka & Hlava, 1981).

The place occupied by criminalistics photography in the current criminalistics technical and tactical activities of the police can be divided into several areas for photographic documentation (Meteňko et al., 2019):

a. according to crime scene investigation and inspection of objects providing criminalistics information:

- photo of the crime scene,
- photo of individual traces and corpses,
- photograph of living persons and their body parts,
- photograph of skeletal findings,
- a photo of things related to criminal activity.

It represents a significant specific criminalistics-informational value. This is primarily about taking photographs of stationary, static objects captured as they were discovered after the arrival of the investigation exit group at the scene of the crime, but they also respond to changes left as a result of the first intervention, the provision of first aid, the arrest of the offender on the spot, etc. and they can also have the character of a dynamic recording - a video recording that continuously documents the situation and details on the spot.

b. according to the documentation of tactical methods and investigative actions:

- a photo of the interrogation, investigation attempt, verification of the statement of the accused, witness at the scene of the crime,
- photo of recognition, reconstruction, reconnaissance,
- photo of home search, personal search, etc.

Due to the observance of the objective truth principle, as well as for tactical reasons, it is necessary to document the course and results of the procedures of tactical methods and investigative actions, while it is necessary to observe all the conditions, i.e. those that are the most favourable of all possible for the perpetrator. Therefore, in the case of repeated events, documentation of all circumstances is necessary based on the requirements and proposals of the prosecutor, the defence attorney and the accused himself. Only in this way can criminalistics photo documentation become an important piece of evidence in the further process of clarifying the crime. In this case, it is more appropriate to use a dynamic recording - video, and still images will complement the details of the documentation.

c. according to the documentation of criminalistics-relevant events:

- a photo of a violation of public order,
- photo of the progress of extraordinary events,
- operative and intelligence purposes of creating images, for example from publicly or domestically realized records, surveillance records, and other operational and intelligence actions.

Among the criminalistics-relevant events, we can include mass violations of public order as well as extraordinary events such as explosions, fires, air disasters, or other accidents. Such photo documentation serves the police not only to document perpetrators, witnesses, organizers, and last but not least for the study and analytical activities of the police when evaluating the intervention.

d. photographic documentation of living persons for registration and identification purposes:

- a three-part photo and full figure,
- photographing during events and actions for identification purposes (e.g. the above-mentioned news photo documentation).

It is intended for quick and complete capture of the form of living persons in order to determine the true identity of the person, even in cases where natural or intentional changes in the form of a living person occur. Photos can serve as an aid in the search for persons or as evidence of perpetrators of known crimes (Kloknerová & Metěňko, 2008)

e. photographing corpses for the purposes of their identification

In cases where it is necessary to find out or verify the identity of the corpse, documentation recording the position of the dead body, damage to the dead body, etc. is also prepared. For the purposes of identifying the corpse, it is necessary to take pictures of not only the face but also body marks, post-operative scars, tattoos,

congenital or acquired defects, limb amputations, which can be of great importance for the needs of correct and quick identification.

f. photographic documentation of expertise.

Individual knowledge of general as well as scientific photography within criminalistics-technical activity is used in addition to criminalistics documentary photography in the area of criminalistics relevant events by all fields of criminalistics-technical expertise, even the one that examines directly the results of photographic activity and which was established in the last century under the name "Forensic photographic expertise" (Hupka & Hlava, 1981) All fields of criminalistics-technical expertise deal with the examination of their own objects - a specific type of criminalistics traces. However, they also very often use the examination of documentary photos, photographic and cinematographic (video) images and their copies and the means by which they were made, as long as they are significant for clarifying criminal cases. As part of this research, photography helps individual expertise to expand the possibilities of how to detect, secure and investigate traces of all kinds, as well as to expand the observational and cognitive abilities of human senses.

PHOTOGRAPHIC EXPERT EXAMINATION

Above all, the knowledge of scientific photography, but also the knowledge of general photography applied outside of criminalistics knowledge as well as within criminalistics activities, is used in addition to documentary criminalistics photography by the field of photographic criminalistics-technical expertise. It was established in the last decades of the last century under the name "Criminal photographic expertise". It deals with the examination of photographs - objects on paper, synthetic, analogue and digitized media, photographic video and cinematographic records, including negatives and film copies as well as the means/carriers by which they were made, complete technical and technological equipment, as long as they are significant for the clarification of criminal cases (Viktorová et al., 2011). As part of this expertise, it is also possible to find out the place from where a specific picture was taken. Above all, the technical and spatial parameters of the recordings, the alternatives of the used technical classifications - apparatuses/cameras, the parameters - optical and light conditions of the shots and many other required values are examined. In the last decade, the importance of evaluating static and dynamic images for the purposes of biometric identification and authentication of persons, as well as marked technical devices, has grown significantly. This trend is already going beyond the original framework of photographic expert investigation.



Considering the number of requirements resulting from the fact that a huge number of records that can be used in this way are created in a person's living space, the result of our research is the statement that a new field of forensic-technical expertise is emerging in the framework of photographic expert examination – "Identification of objects on the basis of their external and dynamic signs recorded on technical devices" (Ivanović et al., 2012) In the area of interest, today we can include various sources of images from amateur photographers, through recordings of private or city cameras, images from car cameras, up to satellite images. Everywhere there, it is possible to identify persons and things with the necessary degree of accuracy and usability in criminal investigation and identification (Žarković et al., 2010)

USABILITY OF CRIMINALISTICS PHOTOGRAPHY THEORY IN POLICE PRACTICE

Criminalistics photography must give us a clear idea of the location of the photography location in the field and the overall surrounding situation. Therefore, it is required that all the necessary details and their layout are captured. The photos must also give us an idea of the sizes or dimensions of objects and traces. When photographing, it is necessary to realize it as far as possible in its original state, while eliminating persons and objects that are not related to the scene of the crime (Žarković & Ivanović, 2014)

However, it is often not possible to carry out criminalistics photography of the scene in its original state, because if there are injured persons on the scene, it is necessary to provide them with medical treatment first. In such cases, the given places are marked with a criminalistics mark, while it is also necessary to distinguish between traces related to criminal activity and traces left by persons providing the first aid. The creation of criminalistics photography must therefore be carried out not in an arbitrary order, but in a precisely determined order and succession of shots so that the minimum number of shots provides us with the maximum informational value. We can therefore divide our own photography into two phases (Kurilovský, 2018).

In the first phase, an overall survey of the crime scene will be carried out, as well as of those places where it is assumed that they will be manipulated during the inspection of the place.

In the second phase, the shots are taken after a detailed inspection. These are images of those parts on which criminal traces were found, or important objects were found for the further progress of the investigators. Each trace must be

marked with a criminalistics mark - a traces mark with the serial number of the documented trace, which must be visible in the photo - even before the image is taken. If it is not possible to capture all marked traces in one shot, it is necessary to take multiple shots from different locations. The marking of the crime trace must match the marking of this trace in the minutes of the inspection of the crime scene or in the topographical plan of the place. Criminalistics photography, which records facts usually seen with the naked eye at the scene of a criminalistics-relevant event, must meet the following basic requirements (Hupka & Hlava, 1981) similar (Meteňko & Meteňková, 2021):

- to give a clear idea of the situation of the site of the crime-relevant event in the field and of the overall situation,
- record the situation with all the necessary details, including their location,
- provide an idea of the dimensions of discovered objects and traces,
- to document the situation at the place of the criminalistics-relevant event, as far as possible in the original state to eliminate the participation of persons and things that do not belong there.

In police work, the activity of experts in the field of photographic imaging represents a lengthy process of documenting knowledge, which, however, is characterized by a high information value. It is primarily about the documentation of the scene of the crime, where we can divide criminalistics photography according to the captured object into (Metenko, 2012):

- indicative photo of the crime scene,
- overall situational / transparent / crime scene photo,
- a detailed photo of the crime scene,
- a semi-detailed photo of the crime scene.

Orientation photograph (Pješćak, 1976) informs about the relationship of the location of the criminalistics-relevant event to the surroundings, its integration into the space and describes its character. Such an image would ideally be an aerial image or from an elevated position. Basically, it is about documenting a place from a kind of perspective. The goal is to capture not only the place of the criminalistics-relevant event itself, but also the access roads, places of possible hiding in the immediate vicinity, and the like. For this purpose, it is possible to use not only natural conditions, but also artificially created elevated sites, for example, the roof of a family house, the roof of a bus, the body of a truck, a bridge, a mast, and the like. In the case of closed spaces, it is necessary to take a picture from the point of entry to the space where the crime was committed. If the subject of documentation is a traffic accident, orientation photos are taken from the place

from where the individual participants of the traffic accident could watch the entire process. In this way, it is possible to capture the visibility of the participants, traffic signs and the like. However, it is often necessary to document the location of a criminalistics-relevant event under reduced light conditions - at night, in fog, rain, etc. As a source of light, you can use a hand-held reflector, lighting the place with a motor vehicle, using a flash or moonlight. However, photos made in this way do not always provide us with sufficient informational value. Therefore, it is necessary to frequently return to the scene of a criminalistics -relevant event in daylight and additionally take a criminalistics photograph of the scene. A normal or wide-angle lens can be used to take an orientation shot.

General situational photographic images of the crime scene informs us about the situation at the scene of the criminalistics-relevant event. If possible, it is necessary to capture the entire place in such a way that it is possible to assess the relative position of individual traces and other inspection objects. Only in this way is it possible to achieve that the observer at the place of the criminalistics-relevant event knows how to orientate himself and find out the location of all objects as they could be observed after arriving at the place of the Criminalistics-relevant event before the inspection itself. And under no circumstances should persons and objects appear in the picture that were not originally there (official motor vehicles, witnesses, spectators, stretchers, etc.).

If possible, the photo should be taken before the on-site intervention itself. If it is not possible to capture the situation at the site of the criminalistics-relevant event, the unevenness of the terrain, the building, in one shot, it is necessary to take several situational images in such a way that the spatial relationships between them can be assessed in the complex. If we take overall situational shots of the place from different sides, it is necessary to always capture one of the most important motifs in the images and then the others in relation to it, or place the images in the photo documentation so that each subsequent image contains at least one of the motifs of the previous image. It is also possible to use point-of-view photography, where lenses with a longer focal length are used. Their use is especially useful when photographing places with a risk of explosion, places with radioactive radiation, during a fire, etc.

A semi-detailed photograph from the scene of the crime is the most frequently used type of footage when inspecting the scene of a criminalistics-relevant event, and its task is to show objects of investigation and inspection, sets of individual objects and significant parts of the place. However, attention must be paid to the relationship to other important objects so that it is possible to assess the exact position of these objects, to find out the spatial relationships or their size. Examples include a photograph of the entire corpse on a bed, the extent of damage to the vehicle due to a traffic accident, a photograph of a corpse in a vehicle after



a traffic accident. Semi-detailed photographs are taken before a detailed inspection of individual objects, because their spatial relations with other objects and the environment are disturbed by inspecting them, which can lead to undesirable changes.

A detailed photograph from the scene of the crime (Pješčak, 1976) shows individual traces, details, signs of objects of interest, individual small objects with high information value, isolated from their surroundings. The essence of this shot is to faithfully capture the shape, size, dimensions, the most typical properties of the object, the structure of the object and so on. Taking such a shot in some cases is the only way to document a certain object. These are cases when, due to its dimensions, solid connection with other objects, or due to other specific physical properties, it is not possible to secure it as a whole *in natura* - for example, an imprint in an asphalt surface, a footprint of human shoes in melting snow, etc. We also include images of the control elements of various mechanisms that could have had an impact on the course of the accident or act - weapons, motor vehicles, switches, images of traces and parts that must be handled during the first intervention - damage to hinges, locks, seals, etc. It is specific to taking a close-up shot that the dimensions of many objects cannot be assessed from the close-up shot, and therefore it is necessary to take a close-up photo with an attached scale, which is placed longitudinally in the image field in the same plane as the part of interest of the photographed object, and which is simultaneous with the sensing plane.

Especially in the last decade, there has been a significant deviation from the classic securing of traces in nature, towards ensuring the display of external signs, but also dynamic and functional signs, precisely with the help of visual - especially photographic records. The approach to securing *in natura* remains intact with traces of the internal structure of objects, even there but it is at the beginning and securing and researching in the course of photographic recording. We want to point out that in our image we understand forensic photography in the same way as a static as well as a dynamic record, regardless of the type of carrier, of the captured information (Metenko, 2012).

In addition to the above-mentioned images of the site of the criminalistics-related event, other types of images that are important for crime-related activities are also taken during the inspection. These are mainly the following two types of shots:

- overall clear photo,
- reportage photography.

Those means include static or dynamic shots (known usually as photo and video), both are photographic forms for the photographic method of documentation (Metenko, 2012).

Overall overview photo serves to capture the condition after the inspection, supplementing the information that can be obtained from the overall situational photo taken before the inspection. Such a photo is taken from the same place as when taking a situational photo, from the same position, while the individual inspected objects are already marked with tables and a number. Currently, tables of 4x6 cm, 10x14 cm and 13x21 cm sizes respectively are preferred. The individual plates are recorded on a photographic device and the numbers indicating the individual traces must correspond to the fact with the number of the same object in the report on the inspection of the site of the criminalistics-relevant event.

Reportage photo provides information about objects that were in motion before the start of the crime scene investigation, inspection, and others tactical and investigation methods or during the processes. The images show us the initial actions at the scene of a forensically-relevant event, such as extrication of the wounded, other rescue work with the aim of eliminating damage and the consequences of an undesirable situation, the use of modern mechanisms, explosives, fire extinguishers and foams, defrosting units, etc. In police practice, it is often possible to prevent an incorrect assessment of the situation at the scene of a criminalistics-relevant event precisely by using the method of producing a reportage photograph. These images are important primarily for the further need for experts, for the court's decision-making and last but not least for the correct calculation of the damage caused. A police officer taking a reportage photograph must be able to quickly orient himself in the field, correctly choose a suitable place to capture the scene of a criminalistics and crime-relevant event, choose a suitable photographic device, lenses and sensor sensitivity settings (Kloknerová & Meteňko, 2008).

CONCLUSION - ORIGINALITY/VALUE

Even more than other branches and methods of criminalistics, contemporary criminalistics photography suffers from the lack of clarity of the concept and, in practice, often insufficient stratification of content and concepts. Mixing goals and content and methods lead to confusion of forensic/criminalistics-technical value and methods at criminalistics-tactical level, i.e. its documentation value. Photography itself and its development have long since overcome this problem, but it has still not been sufficiently reflected in criminalistics theory and practice. Therefore, in the presented study, the authors attempt to analyse some of the basic attributes that have influenced the current state and development of criminalistic photography. They present for discussion some contexts of the state and development of the methods of criminalistics photography, but also photography as one of the methods of investigation and, consequently, separate criminalistics



branches. They also indicate the applicability of knowledge of criminalistics photography, but also the basic concepts, purpose and content of criminalistics photography. Currently, this concept of criminalistics photography as a method of criminalistics investigation and its content is often presented very broadly and confused with the documentary value and meaning of photography (Meteňko et al., 2019) For this reason, it is necessary in the future to distinguish between the documentary and scientific criminalistics nature of photography - that is, a separate branch of criminalistics-technical investigation/search. In the last decade, the importance of evaluating static and dynamic images for the purposes of biometric identification and authentication of persons, but also of marked technical devices, has grown significantly even more. This trend is already going beyond the original framework of photographic expert investigation. Considering the number of requirements resulting from the fact that a huge number of records that can be used in this way are created in a person's living space, the result of our research is the statement that a new field of criminalistics/forensic-technical expertise is emerging in the framework of photographic expert examination - identification of objects on the basis of their external and dynamic signs recorded on technical devices.

This study is based on the long-term research task "9/2008 - Methods and procedures of work at the crime scene".

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