

можуть бути використані комп'ютерні технології, зокрема, смартфон, персональний комп'ютер, сканер та ін. Таке дослідження може носити або самостійний дослідницький, або допоміжний характер, що поширює можливості інших методів вивчення об'єктів, прискорює та спрощує їх реалізацію.

3. Визначення відстані пострілу та кута нахилу ствола зброї відносно перешкоди необхідно виконувати за лінійними й кутовими показниками зон кіптю та поясків обтирання (здирання епідермісу) із застосуванням теоретичної формули та/або статистичних методів дослідження.

4. Вирішення питання щодо взаємного розташування постраждалого та зброї в момент заподіяння поранення із ствольної зброї необхідно здійснювати в певній послідовності із використанням запропонованого алгоритму дій експерта.

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INTEGRATED EXPERTISE IN FINGERPRINT SCANNING OF FAKE FINGERPRINTS

Dactyloscopic research, as many people know, can identify a person by the structure of human papillary patterns. Therefore, it has become one of the oldest and most effective forensic research. Human rights defenders especially appreciate fingerprint expertise for its high quality and accuracy.

At the end of the XIX century, scientists have succeeded in proving the fact that the papillary pattern on the phalanges of the fingers of the person's hands is a purely individual characteristic, stable and unchanging throughout human life. [4, p.148]. The probability of error in a fingerprinting study is actually reduced to zero. This helps fingerprint experts quickly identify the person who left her traces of papillary lines at the scene of the event and set up bodies of unidentified corpses. All this causes the interest of criminal elements to find a variety of ways to change, substitute and falsify fingerprints of human papillary patterns. In the course of constantly integrating scientific and technological progress in the world, a tendency towards such events that can overcome the postulate of the fingerprint examination – the truth of the last instance and the quality of accuracy of its proof.

In particular, consideration of this problem can be distinguished from two aspects related to the establishment of the species belonging to the study of a person's trace and its biological origin – is not given to study the object analogous to the papillary pattern of inanimate nature.

In the first place, one of the tasks is related to establishing the identity of the trace provided to the study of a person and his species affiliation. As for the solution of this issue, then, as a rule, when detecting traces of papillary patterns in place of the event it is established that they belong to a person. However, in a number of cases, the papillary pattern of a person may cause complications when differentiated.

The process of falsifying traces of human hands and how it was detected was studied by scientists from many countries. Since the falsification of fingerprints is often found in criminology at the present time, and specific recommendations aimed at solving the problem are not identified, there is a need for a more in-depth study of this issue.

Analyzing the practical aspect of forensic research, it is important to say that only if information on all possible methods and methods of falsifying fingerprints, materials and tools used for this purpose, their chemical composition and trace formation features is formed is sufficient information base for conducting a full-fledged study. If the forensic expert knows the possible ways of forgery, it will be easier for them to discover them. In view of this, it is advisable to outline and analyze the methods of falsifying fingerprints.

The main content of any of the above falsifications is the manufacture of gelatin or another basis, which reliably reflects the finger of the hand and its use to imprint certain objects at the scene of crime [2, p. 149]. Most often, criminals use photopolymeric and photopoligraphy, since they do not require high financial costs, are relatively simpler in implementation and provide the opportunity to copy and reproduce the fingerprint as accurately as possible.

In addressing this issue it is advisable to take into account the fact that reducing the skin elasticity and the appearance of many secondary folds – "white lines" in humans can be explained by the different nature of their origin. On one side, in the presence of a person, they can be fragments – in the footsteps of leather seals from lychee, calf or pork skin, which is characterized by the so-called "merry" pattern in the form of a system of small white lines. On the other hand, in the presence of a person with pronounced skin atrophy, as well as some diseases associated with violation of the process of pattern formation, for example, with various types of dysplasia, hypohidrotic exodermal dysplasia (Pain syndrome), aplasia, etc., papillary lines (comb) can have a simplified direction, typical for "white lines". In this case there is a lack of sweat glands, underdevelopment of sweat glands or their complete absence.

One of the first ways to falsify fingerprints was SS. Samishchenko, who among them includes: 1) forgery of fingerprints using a clichy ie artificially created track-creating object; 2) the production of powder and photocopies of traces and imprints and their adherence to a criminal case as traces of fingers discovered at the scene; 3) throwing real objects with the fingers of the hands left by the person during the actual track contact, as evidence to the place of the event or the direct attachment of such object to the materials of the criminal case; 4) the transfer of fingerprints from one object to another related to the crime, by direct or indirect contact [3, p.226].

Carrying out the classification of methods of falsification of papillary patterns, O.A. Sokolova distinguishes two of their groups:

- 1) deliberate change in the pattern of the papillary pattern directly on the human skin and its removal;
- 2) masking the papillary pattern (its replacement) [2, p.67].

A similar way to the classification of methods falsification of papillary patterns approach AS. Bashilova and N.V. Efremenko, which conditionally divides them into two groups:

- 1) change the pattern of the papillary pattern directly on the human skin;
- 2) the production of artificial papillary patterns in the form of bulky dummies or plane copies [1, p.177].

This problem, undoubtedly, raises issues related to the integration of knowledge of fingerprinting and dermatology in part of the complex examination.

Falsified hand prints can be defined as traces of hands, completely altered as a result of deliberate removal of the papillary pattern, masking or creating an artificial papillary pattern and partially altered as a result of deliberate change in the papillary pattern. Classification of false impressions of hands is carried out according to different classification criteria, the main of which is the method of falsification of fingerprints. Other classification criteria that are offered in forensic science, by their nature, are criminal-legal (the nature of the intention (goals) of the falsification of traces, the subject who created the falsified traces) or logically incomplete (the time for which the pattern of papillary patterns changes), in the name With what they can not be based on forensic classification of fake handprints, or complement their classification by the method of falsification (the volume of changes in papillary patterns, the object of change in papillary patterns, the place of falsification tracks), and therefore play a secondary importance in the implementation of the classification of counterfeit forensic traces hands.

When conducting a fingerprint study on the fact of forgery of fingerprints of human hands may indicate the following features:

- 1) uneven increase in the width of the papillary lines due to the formation of bloating and clots;
- 2) distortion of the reflection of individual elements of the structure of the papillary pattern;
- 3) non-characteristic microprint for the papillary lines;
- 4) the presence or absence of connecting antennae between the papillary lines;
- 5) unreasonable gaps in the places of drowning of papillary lines;
- 6) the absence of pores in the papillary lines.

In the case of falsifying traces of hands, the establishment of the place of its implementation plays a significant role, since it is at this place that a considerable amount of information on the methods of falsification and persons who have committed it can be obtained.

The issue of forensic research on the subject of detecting false fingerprints of a person is mainly due to the fact that in the list of issues that can be posed during the fingerprint study there are no questions about identifying signs of possible falsification of traces. The imperfection of the regulatory framework is due to the fact that the risk of falsification of fingerprints is not taken into account

during a fingerprint investigation, does not develop and is not perfected to the extent that modern criminology needs it.

After analyzing the content of the fingerprint survey and its individual issues, it must be said that overcoming certain difficulties is possible provided the normative and practical improvement of the method of fingerprinting research is possible. First of all, it is necessary to include in the list of issues of fingerprint examination the question of possible falsification of prints. Another important aspect is the development of a method of conducting a complex dactyloscopic study, taking into account possible falsification of imprints, which is extremely necessary for the productive work of criminological experts.

The second part of the questions is related to the establishment of the biological origin of the object or it is analogous to the papillary pattern of inanimate nature, that is, the falsified object.

Based on the meaning of the term "falsification" (Latin *falsificatio*, *falsifico* – fake), it can be defined as: 1) malicious, deliberate distortion of data, deliberately misinterpretation of something. 2) change with the mercenary purpose of the appearance or properties of objects; fake. It should be noted that the origin of traces can be presented from two perspectives: natural biological origin (true) and artificial origin or counterfeit – false traces.

Traces of natural biological origin (true) traces of hands are usually the result of the life of any person and their origin does not cause doubt, including when they are detected on the site of the event. The second group of tracks – traces of artificial origin or fake – fake traces. Therefore, let's dwell on issues that are directly related to the improvement of the method of producing fingerprint examinations in connection with the possible falsification of papillary patterns.

The solution of this issue primarily requires the establishment of a cataract substance in the studied trace. In this case, the material of the following copying surface is important, on which the papillary patterns are duplicated; dactyloscopic film or tape-copying tape of the type "Scotch". In the latter case, the stinging substance of the trace is not subject to investigation.

By means of express analysis it is possible to carry out a test of a tensile test substance for combustion, which is accompanied by a characteristic specific odor of organic matter. And in case of detecting a copy of the papillary pattern from a synthetic substance, a similar odor is absent, as well as the smell is absent, and the burning process is changed to its melting. The biological origin of the trace can also be confirmed by the discovery of various groups of bacteria in it.

With artificial receipt of a copy of the natural papillary pattern, you may have difficulty diagnosing. Therefore, in this situation, the decision of this issue should be carried out as part of a complex examination. Experts from two categories, namely, dactyloscopists and biologists, should take part in this expert examination. In our time, this type of examination is not actually conducted.

Therefore, the question of establishing the presence of stomach substance in the trace of papillary lines or its absence, the question of establishing the biological nature of the trace should first be solved by conducting forensic examination.

Thus, it should be concluded that the absence of stomach contents in the trace of the trace of papillary lines may be one of the diagnostic features of their possible falsification. In the study of traces of hands in diagnostic issues, namely, the presence of falsification, it is necessary to develop methods and techniques for studying the traces of hands in a complex of specialists of two categories, namely, dactyloscopists and biologists. In a comprehensive knowledge of the laws that are the basis for diagnostic research aimed at establishing the fact of falsification of fingerprints, as well as the formation of a basis of knowledge based on it, which corresponds to the current development of diagnostic fingerprinting.

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