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REFLECTION OF LATENT PAPILLAE PATTERN PRINTS ON THE SKIN OF A DECEASED PERSON

Abstract. The author studied and analyzed the reflection of ridge patterns deposited during a series of experiments on the skin of a deceased person. The reflection of the papillae pattern prints deposited on the skin of a deceased person could be divided as follows: the prints in which the ridge pattern was visible; prints in which the ridge pattern was partially visible and the part of finger or palm could be partially seen; prints in which only the part of the finger or palm could be seen, but no ridge pattern was reflected.

Keywords: skin, papillae pattern print, reflection.

Анотація. Автор вивчила та проаналізувала відображення папілярних візерунків, залишених під час серії експериментів на шкірі померлої людини. Відображення слідів папілярних візерунків, залишених на шкірі померлої людини, можна поділити на: відбитки, у яких видно папілярний візерунок; відбитки, на яких папілярний візерунок і частини пальця та долоні видно частково; відбитки, у яких можна було побачити тільки частину пальця або долоні, а папілярний візерунок не відображається.

Ключові слова: шкіра людини, слід папілярного візерунка, відбиток.

Аннотация. Автор изучила и проанализировала отображение папиллярных узоров, которые в ходе серии экспериментов были оставлены на коже умершего человека. Отражение следов папиллярных узоров, оставленных на коже умершего человека, можно было разделить на: отпечатки, в которых виден папиллярный узор; отпечатки, в которых папиллярный узор и часть пальца и ладони видны частично; отпечатки, в которых можно видеть только часть пальца или ладони, но папиллярный узор не отражается.

Ключевые слова: кожа человека, след папиллярного узора, отражение.

In order to find out the possibility of formation of latent papillae pattern prints on the skin of a deceased person and their reflection, the possibility of their visualization and recovery, as well as to identify combinations of adhesion agents and recovery agents and their possibilities, the author in cooperation with the Forensic Service Department of the State Police and the State Center for Forensic Medical Examination conducted an experimental series.

In the framework of an experimental series 1419 latent papillae pattern prints were deposited onto the skin of 43 deceased persons. 33 of them were men aged from 25 to 81 years and 10 women aged from 37 to 95 years. Experimental papillae pattern prints were deposited between 24 to 96 hours after death onto such parts of the body: neck, shoulders, upper arm and forearm, thigh and shin, ankles, chest, abdomen and hips. Taking into consideration the results of previous studies the prints were not deposited on

the hairy parts of the body as much as possible, because hair is like an intermediate layer between the trace-bearing object (skin) and the trace-forming object (papillary lines). Prints were deposited by simulating the mechanism of formation of grip and pressure prints. The length of the contact was from 10 to 180 seconds. Depositing them the variable crushing force was used. Papillae pattern prints were deposited on the skin of a deceased person in a natural condition, as it was when a deceased person was delivered to the State Center for Forensic Medical Examination. During the experiment prints of ridge pattern were deposited with natural sweat and grease substance. The skin was in its natural condition (it was not cleaned and washed). Prints were deposited on parts of a deceased person's body with a donor's natural sweat and grease substance, without artificially supplementing it with sweat and grease substance from other parts of a donor's body, such as the forehead and neck. Thus, the formation of papillae pattern prints was likened to the natural conditions of trace formation. Similarly, the ridge pattern of a donor (a depositor of prints) on the palms and fingers were not artificially cleaned during the whole experiment, they were subjected to the natural friction process, as well as other effects, such as household chemicals. This means that both the condition of the skin of a deceased person and the condition of the donor's hands (papillary lines) were maximally equated to natural conditions [1, p. 13].

At the beginning of the experiment the condition of the skin of a deceased person was first assessed and parts of the body were selected on which the papillae pattern prints would be deposited, simulating the mechanism of the formation of grip or pressure prints. Before depositing prints a self-adhesive measure tape ruler was stuck to selected parts of the body. When depositing prints they were also deposited on the part of the ruler in order to assess the sufficiency of the natural sweat and grease substance on the donor's hands at the moment of depositing prints, because during the experiment it was found that the prints deposited on the part of the ruler were visualised, but they were not reflected on the skin. During the experiment it was also stated that there were cases when the skin of a deceased person was covered with condensate as a result of temperature change. Then, before depositing prints the skin was dried with a paper towel, gently bringing the towel closer to the skin and not pressing hard, in order to preserve as much as possible the sweat and grease substance on the skin of a deceased person. Visualized papillae pattern prints were photographed [1, p. 14].

In the course of the experiment it was found that the reflection of papillary pattern prints may be different. There were prints in which the ridge pattern could be seen very well (Photo 1, Photo 2).

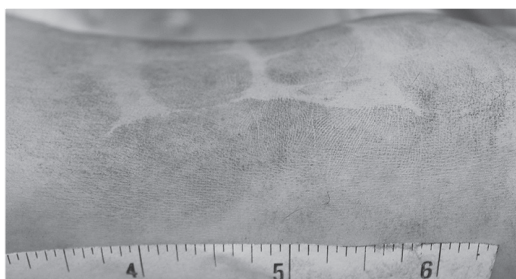


Photo 1: Papillae pattern print deposited on the ankle part

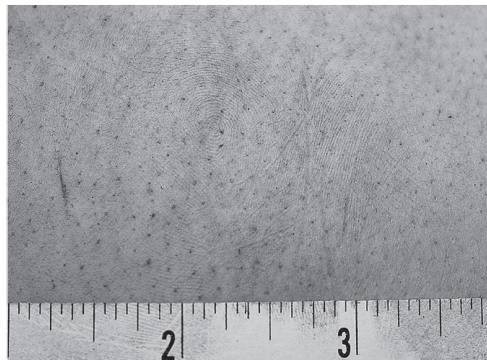


Photo 2: Papillae pattern print deposited on the chest part

There were prints, where a part of a finger was reflected, but in the area under fingers ridge pattern was clearly visible (Photo 3).

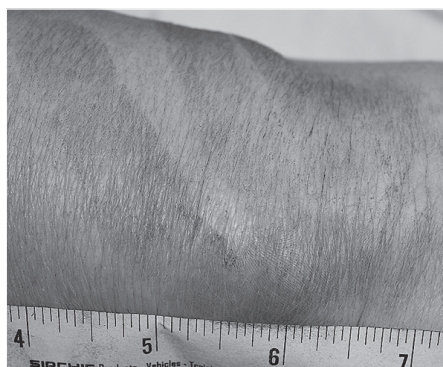


Photo 3: The print deposited on the outer part of the knee, in which a part of a finger and ridge pattern are partly reflected

There were also situations, when there was a reflection of a part of the fingers, but the ridge pattern was not reflected (Photo 4, Photo 5).



Photo 4: The print deposited on the forearm, the shape and placement of the fingers are visible

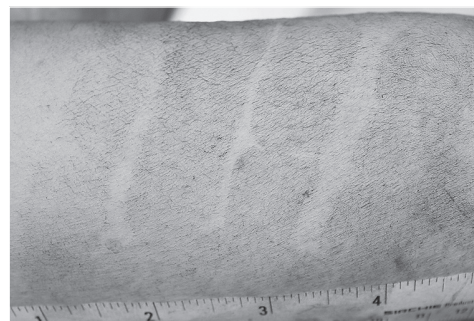


Photo 5: The print deposited on the forearm, the shape and placement of the fingers are visible

From a total of 1419 latent papillae pattern prints deposited during the experiment after being processed with adhesion agents and copied to a recovery agent it was stated and prints were evaluated according to four categories: identification, 37 papillae pattern prints were found to be valid for personal identification because they contained sufficient number of special features of the ridge patterns, which in turn form the individual set of these features; delimitation/ elimination, the ridge pattern was reflected in 66 papillae pattern prints, but the special features of the ridge pattern were not reflected in sufficient quantities to recognize the print as valid for personal identification; an indication of a touch, the shape of the phalanx of the fingers and palm was reflected in 202 prints, but the ridge pattern was not reflected; no prints, 1114 experimentally deposited prints were not visible [1, p. 19].

References

1. Zīle A. Possibilities of recovery and visualization of latent papillae pattern prints from the skin of a dead person. Results of a series of experiments. Administratīvā un kriminālā justīcija. 2017. 3 (80), p. 12—23.

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OPEN EDUCATIONAL RESOURCE AND FORENSIC SCIENCE: CHALLENGES AND FUTURE PERSPECTIVES FOR THE HIGHER EDUCATION

Abstract. This paper is dedicated to the challenges from the higher education perspective in the field of open educational resources in specific area as forensic science. Forensic scientists often help criminal justice professionals investigate and solve different crimes by gathering,

documenting, as well as analysing criminal evidence. More often in Europe are provided modern specializations as cybercrime and digital forensics etc., which prepare students for careers solving computer-related crimes, such as identity theft and fraud. But, there are still possible to improve the