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ID-6-O-1879 The Original or the Fake? The Use of Microscopy and Spectroscopy Methods in the Forensic Criminology Science in Determining the Authenticity of Artworks

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The proposed contribution deals with the use of microscopic and spectroscopic forensic methods that were used in the inter-institutional cooperation of the Institute of Criminalistics Prague and the National Gallery in Prague in the detection of art forgeries. In the forensic practice, there are different types of traces and samples from the crime scene.

Legal classification of criminal offences includes a wide range of violations of law ranging from unauthorized export of artworks, determining ownership rights (copyrights), theft of artwork, to the fraudulent counterfeiting of prominent authors and their sale. We frequently encounter fakes of prominent Czech artists of the 20th century in Bohemia, such as Jan Zrzavy, Emil Filla, Josef Capek, Václav Spála and Pravoslav Kotik.

Two paintings – artworks of Pravoslav Kotik with a similar theme that sparked controversy over the authenticity of both artworks (Fig. 1) appeared on the Czech market. In 2007 and subsequently the whole counterfeiting and its associated practices – trafficking were revealed. Works of art such as forensic traces are usually put to a detailed analysis and assessment. Particularly in the detection of forgeries, optical documentation techniques are widely used (Fig. 2) and microscopic analysis by methods of optical microscopy in a polarizing microscope (Fig. 3), scanning electron microscopy and x-ray microanalysis (Fig. 4), x-ray diffraction and fluorescence analysis, infrared microspectroscopy with Fourier transformation and Raman microscopy are frequently employed.

It is possible to accumulate significant arguments to the comparative analysis of the materials thanks to the combination of microscopic and spectral techniques, we can consider the morphological and structural characteristics of the pigments, identify organic binders and assess the painting technique execution.

Besides corpora delicti, these methods are utilized as well as for the survey of original paintings from the National Gallery, which are used to create databases as reference materials and components specifically for the assessment of works of art. Variations of materials and techniques used are very specific to each artist and based on these parameters, we can follow the author's practice.

The results obtained from the analysis are then also a significant argument for determining the authenticity from a perspective of an restorer and art historian.

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Fig. 1: Both paintings: a) fake, Hair style, private collection b) original, Pravoslav Kotík, Toilet, private collection. Photo© Institute of Criminalistics Prague 2014.

Fig. 2: Signatures: a) fake, b) original. Photo© Institute of Criminalistics Prague 2014.

Fig. 3: Cross-section of the green paint: a) fake, b) original. Photo© National gallery in Prague 2014.

Fig. 4: BSE image of the cross-section of the sample of fake painting. Photo© Institute of Criminalistics Prague 2014.