Optimising fingermark development from evidence associated with commodity burials

There is currently no process for developing fingermarks on evidence from the burial environment. This research project aims to address this, focusing on commodity burials.

Key details

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Police region	South East
Level of research	PhD
Project start date	January 2021
Date due for completion	January 2027

Research context

Aim

The aim of this research is to identify optimal methods for the development of fingermarks on materials associated with commodity burials (cash, drugs and weapons). It will investigate the effect of the burial environment on material behaviour, and the impact that this has on the success rate of fingermark development.

Objectives

1. To determine whether burial is used by criminal entities to conceal commodities via literature search and practitioner experiences (survey data).

2. To identify common materials used in commodity burials and explore their behaviour in the burial environment (informed by outcomes of objective 1).
3. To examine the processes Chemical Treatment Units (CTUs) would utilise to develop fingermarks on material recovered from the burial environment – including any pre-treatment visualisation of latent marks, contamination removal processes, sequential processes of mark development, visualisation and image capturing methods (material choice informed by objective 2).
4. To identify common trends and differences in approaches between CTUs (informed by outcomes of objective 3).
5. To conduct an experimental study to identify the most suitable method for contamination (soil) removal.
6. To conduct an experimental phase identifying the optimum fingermark development process on the chosen substrates, investigating burial environment variables and a range of sequential processes (process informed by outcomes of objectives 4 and 5).

Research methodology

A mixed method approach will be undertaken across the various projects that make up the overall PhD.

The first project is a survey of practitioners (CSIs and Licenced Search Officers) to identify their experiences of commodity burials and the types of materials commonly encountered. Quantitative data will be extracted in terms of numbers of cases, and qualitative data with regards to participants' experiences of cases.

The CTU project requires practitioner participation in treating an exhibit and following this with an interview. These interviews will be examined for themes and analysis undertaken of these findings.

The experimental studies into contamination removal and fingermark enhancement will be quantitative studies exploring the success rates of various methodologies in fingermark enhancement to identify an optimal method.

Tags

- Forensics