E28 Identification of Desiccated Remains 64 Years Postmortem

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After attending this presentation, attendees will better understand techniques employed to rehydrate desiccated human remains from a 1952 United States Air Force Douglas C-124 Globemaster II plane that crashed into an Alaskan glacier. Fifty-two service members were on board when the plane crashed into the side of Mt. Gannett and, based on the location and weather conditions, only minimal parts of the wreckage can be retrieved each year as the glacier moves and melts. Different methods of obtaining fingerprints from the remains along with the identification of the two service members impacted will be shown and discussed.

This presentation will impact the forensic science community by offering real-life examples of processing difficult and unique decedents' hands for postmortem fingerprints. Techniques and results will be explained and discussed.

Postmortem processing of fingerprints often has challenges related to the conditions of the decedents' hands. In standard cases, decedents can be printed with ink and paper or powder and an adhesive for identification purposes. In the case of badly damaged, desiccated, or decomposed hands, other methods must be employed. These methods will be outlined and the effects demonstrated.

Desiccated remains offer a unique difficulty in processing for postmortem prints. There are commercial products and tissue softeners available to assist in this procedure, but these techniques often take time and can damage the remains as they soften. By using the boiling technique, thereby obtaining high-quality friction ridge impressions and identifying two military members not previously accounted for through other forensic means, was possible. This technique required only hours, instead of days or months, making it a viable alternative to other commercially available means. This technique requires only water and a heat source, making it deployable to the field without the need for chemical transport or hazardous waste.

Presented here is a case study in processing desiccated remains that describes the successes of obtaining prints from badly damaged and aged hands. Difficulties encountered with antemortem record collection will also be discussed, as it pertains to many cold case studies. Unlike DNA in which references can be obtained from surviving family matters, fingerprints rely on antemortem records. These antemortem records can become compromised, leaving even the best-obtained postmortem prints unidentified forever.

The boiling technique is a viable method of rehydrating desiccated remains for postmortem printing. It shortens the time spent working on the body and provides a usable result. There are limitations in what the boiling technique can do. The hands typically revert back to their dehydrated state within a minimal amount of time (minutes, or even seconds), but it eliminates the need for any chemicals or detergents. Sodium hydroxide baths, conditioners, embalming materials, and detergents can all assist in processing desiccated remains, but this method was found to be easy, quick, efficient, and safe.

Desiccated, Boiling Technique, Fingerprints

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