H80 Forensic Archaeological Recovery of the Victims of the Continental Connection Flight 3407 Crash in Clarence Center, New York

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After attending this presentation, attendees will learn how forensic archaeological methods were used to rapidly document the location and context of human remains within the crash wreckage. The benefits to minimizing further damage to human tissue during recovery and eventual victim identification will be discussed.

This presentation will impact the forensic science community by describing in detail how a complex outdoor scene involving large numbers of fragmented and burned human remains can be processed efficiently and effectively by utilizing standard forensic archaeological scene recovery methods.

On February 12, 2009 at 10:10 p.m., Continental Connection Flight 3407 crashed on approach to Buffalo (NY) International Airport into a two-story house in the Buffalo suburb of Clarence Center, resulting in 50 total fatalities (49 plane passengers and crew, and one house inhabitant). As one of the primary agencies responding to the incident, the Erie County Medical Examiner's Office (ECME), Buffalo, NY, was presented with two primary responsibilities: (1) recovering the remains of the victims from the scene in a timely manner; and, (2) channeling them into the morgue for documentation and identification of the deceased. With respect to victim identification, existing morgue facilities were utilized and supplemented with professional forensic personnel and equipment

supplied by the federal government's Disaster Mortuary Operational Response Team (described in detail elsewhere).

Most medical examiner's offices are not prepared to handle disaster scene recoveries of this magnitude involving large numbers of victims. The ECME office solicited the assistance of forensic anthropologists from Mercyhurst College, Erie, PA. This presentation will focus on the evidence and victim recovery protocols employed at the Clarence Center crash site and benefits related to victim identification issues derived from the forensic archaeological methods used at this scene.

In mass fatality situations, there is great pressure to quickly provide positive identification of the victims and return their remains to their families. Two options are available for a recovery in these situations. The first option is the immediate removal of the human remains and surrounding debris primarily by the first responders (i.e., firefighters and law enforcement officials), without further documentation of victim location and position, even if that involves mechanical means, such as backhoes. The benefit to this approach is that the remains can be removed from the scene very quickly, generally in 1-2 days, even when a large number of victims are involved. However, for the agency responsible for victim identification, this type of recovery comes at a high cost in terms of: (1) further destruction of human remains during recovery: (2) increased likelihood of missing tissue: and, (3) loss of contextual information that may aid in victim identification. Lost or missing information such as the proximity of potentially conjoining elements, and association of personal effects, or even key plane parts can potentially adversely affect or delay victim identification. In other words: days saved at the scene can easily result in days or even weeks, lost at the morgue.

The second option is to employ forensic archaeological protocols. Detailed contextual data is recorded during victim recovery and the process includes professionals trained in the recognition and identification of fragmented and burned human remains. The result is an efficient and effective recovery that is conducted at a rapid and systematic pace. Further damage to human tissue is minimized. Key contextual and spatial information is recorded and preserved that may eventually aid in the identification effort. This latter approach was used during the recovery of the victims of the crash of Flight 3407.

The forensic archaeological methodologies employed at the Clarence Center crash site are similar to those utilized on all outdoor crime scene recoveries conducted by the authors (described elsewhere). A "collapsing circle" excavation strategy was employed at this crash scene. Material was removed from the outer edges of the fuselage by hand, working inward in a more or less vertical (cake-cutting) orientation until human remains were encountered. Individual victims were carefully and fully exposed, their position noted via an electronic total station, photographed, placed in an individual body bag, and then removed from the scene. The recovery progressed at a rapid pace without compromising either the National Transportation Safety Board investigation or the condition of the remains. Several excavation teams worked concurrently and the entire recovery process was completed in four days. In addition to the *in situ* exposure and removal of all human remains, all of the fuselage debris was collected and screened through ¼ in mesh screens. The combination of excavation methodologies employed, screening efforts and the relatively small and confined debris field of this particular incident, suggests that nearly 100 percent of the recoverable human remains from this scene was recovered in an efficient and effective forensic archaeological recovery.

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Forensic Archaeology, Plane Crash, Excavation Protocols

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