



## Physical Anthropology Section – 2008

### H121 Renewed Search, Recovery, and Identification Efforts Related to the September 11, 2001 Attacks of the World Trade Center

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This presentation will highlight several of the projects associated with the renewed search and recovery efforts occurring at Ground Zero and the surrounding area.

This presentation will impact the forensic science community by demonstrating the role of anthropology in this type of work will be stressed. In addition, the unique challenges posed by operating under hazmat conditions will be discussed.

Two thousand seven hundred-fifty people died in New York City from the World Trade Center attacks on September 11, 2001. As a result of two airplane crashes and the collapse of two sky-scrapers, the search and recovery efforts were extremely challenging and on a scale that was previously unmatched. Due to the magnitude of the incident and the forces involved, fragmentation of bodies was extensive. Initial recovery efforts were largely handled by the emergency service agencies in New York City. By the time the recovery ceased, nearly 20,000 human remains ranging in size from small bone fragments to nearly complete bodies had been recovered. These remains were sent to the Office of Chief Medical Examiner (OCME) in New York City for identification.

In April 2006, OCME initiated an on-site presence at the Deutsche Bank, a 40-story building at the southern edge of the World Trade Center site. The building was slated for deconstruction due to damage associated with the attacks. The OCME's role in this deconstruction project was triggered by an increased frequency in the number of small bone fragments encountered on the roof by laborers. Since the project site was considered to be contaminated (primarily with asbestos and heavy metals), the search and recovery operation had to be conducted under hazmat conditions utilizing appropriate personal protective equipment. Work was eventually completed on the rooftop and the interior, resulting in the recovery of several hundred small (generally < 1/8 inch) bone fragments from the rooftop alone.

In October 2006, human remains were again discovered. This time the remains were found at the World Trade Center site in an abandoned manhole by utility workers. These remains were immediately confirmed to be related to World Trade Center victims. This triggered an obvious interest in the likelihood that additional human remains could be encountered in other areas at and around Ground Zero. The Mayor's Office quickly called for the resumption of search and recovery activities and designated the Office of Chief Medical Examiner as the lead agency. Following an extensive review process involving numerous agencies, additional areas of concern were identified. These areas included other subterranean structures (e.g., sewers and manholes), additional building rooftops, and roadways.

The renewed efforts have resulted in the completed search of several building rooftops and hundreds of subterranean structures. Large-scale excavations have also been conducted, resulting in the removal of thousands of cubic yards of material that requires hand-screening. In order to handle this large amount of material, an elaborate screening facility was constructed specially for this project. By the end of this project it is anticipated that the budget will exceed \$30 million.

The skills of forensic anthropology and archaeology are essential components for ensuring that the most comprehensive and accurate job possible is achieved during this recovery project. Archaeologists direct the excavations at and around the WTC site. Although heavy equipment is used to excavate, archaeologists direct the progress and implement the appropriate techniques to ensure that excavation depths are sufficient and appropriately documented. Understanding site formation processes and interpreting soil stratigraphy is crucial for undertaking this large-scale endeavor. Forensic anthropologists have the expertise in human osteology and are able to recognize even the smallest of bone fragments and to distinguish them from the non-human remains that are frequently encountered. OCME's Forensic Anthropology Unit carries the responsibility of ensuring the forensic integrity of the fieldwork, in addition to performing analyses of the potential human remains recovered during the project. Due in large part to this specialized work, the OCME as an agency recognized the critical role of anthropology and, as a result, the full-time anthropology staff has grown in size to eight people. During the height of the project, a crew of approximately 25 temporary, contract anthropologists also participated in various aspects of the daily operations, especially the hand-sifting work.

Through this renewed WTC recovery work, hundreds of additional human remains have been recovered. Most of these remains are small fragments, usually ranging in size from < 1/8 inch to several inches in size. Every fragment is submitted for DNA testing for identification purposes. Many of the remains have been linked to previously identified individuals, while others have resulted in the association of remains to individuals who were previously unidentified.

#### **World Trade Center, Mass Disaster, Forensic Anthropology**