



## Physical Anthropology Section – 2006

### H52 Anthropological Aspect of Mass Disasters

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After attending this presentation, attendees will learn the usefulness of forensic anthropology in the context of a mass disaster. The role of anthropologists varies from one mass disaster to another. Three examples will illustrate the subject.

This presentation will impact the forensic community and/or humanity by facilitating the discussion of the anthropological aspects of three examples which confronts the experiences of other specialists in the field.

Forensic anthropology can make a vast difference in providing important information for describing the biological profile of victims by determining age, sex, ancestry, and height. Nevertheless, the usefulness of this discipline depends on the kind of disaster. An accident concerning a well known group of non-decomposed airplane passengers requires a different approach with respect to a traffic accident with no list of victims. The authors therefore illustrate three concrete and very different mass disaster situations: the tsunami incident of December 2004 (Phuket, Thailand), a tunnel traffic accident (Mont-Blanc, France, 1999), and an airplane crash (Linate, Italy, 2001).

During the tsunami event of December 2004 in south-east Asia, about 270 000 people were killed. Approximately 5400 people died in Thailand with an equal number of Thai and foreign victims. Within a few days, all of the countries who had citizens listed as possible victims sent disaster victim identification (DVI) teams. Recovery of the bodies and separation between presumed Thai and foreigner bodies was organized by the Thai authorities. Each body was put in a separate container (containers for foreigners and containers for Thai people). This selection was possible and relevant for the first two or three days, but soon became almost impossible because of decomposition, even though body recovery went on for days. Thus, it was clear that containers marked "foreigners" contained Thai people, and containers marked "Thai" contained foreigners. During the first month no global protocols were used by all the teams in the field (fingerprint, pathology, anthropology, odontology, DNA sampling). After the opening of Site 2, a global approach was applied with standardised protocols inspired by Interpol procedures. The first two months, the DVI teams were supposed to collect postmortem data on foreigners only, so Thai authorities allowed access only to the containers marked "foreigners". In this context, the quality control team decided not to estimate the anthropological features, though the Interpol protocol entails it, in order to avoid wrongly excluding individuals. Two other reasons were the small number of skeletonized bodies and the lack of forensic anthropologists on the site. Most of the bodies were decomposed but not skeletonized, so anthropological features could not be used without sampling, which brings up questions of conservation, preparation, and restitution of the samples. Positive identification was to be performed with DNA, odontological data or fingerprints.

In the case of the Linate mass disaster, with 118 victims, it was clear from the ante-mortem data available that most carbonized victims would be identified by odontological or genetic methods. However the applied protocol took into account the possible application of anthropological methods. Therefore sampling of pubic symphysis, fourth ribs, and monoradicular teeth was performed. Aging turned out to be useful in quick exclusion of possible decedents and in creating possible ante-mortem and postmortem matches to be confirmed by dental and DNA methods.

In the case of the Mont-Blanc mass disaster, 39 victims died in the tunnel. Because of the effects of the intense heat, DNA analysis could not be performed. In this context, anthropological methods had an essential importance in the identification procedure.

#### **Mass Disaster, Anthropology, Identification**