

Dr Joel Zivot published in the Jurist March 9, 2025

On February 26th, 2025, actor Gene Hackman and his wife Betsy Arakawa were found dead. Along with the bodies of Hackman and Arakawa, one of the couple's dogs, a 12-year-old reddish Australian Kelpie named Zinna, was also found dead. How they died matters, as in all cases of unexplained death. When death appears to be criminal, forensic analysis is utilized. Forensics is the application of scientific methods and techniques to solve crimes.

The deaths of Hackman, Arakawa, and their dog do not appear to be the consequence of a criminal act. In the case of Arakawa, further analysis points to death as a possible consequence of an infection from Hantavirus. Though very rare in the US, so-called Sin Nombre Hantavirus infections can sometimes rapidly cause death in 24-48 hours. It appears Hackman may have been dead for nine days before the bodies were found, authorities said, citing data from the actor's pacemaker. His death occurred after his wife and Hackman's seeming inability to call for help may have been the tragic result of Alzheimer's disease.

Sometimes the tools of forensic medicine are called on in extraordinary circumstances such as mass casualty events. Sometimes these events result from environmental disasters such as tsunamis in the Indian Ocean in 2004, the coast of Chile in 2010, and Tohoku, Japan in 2011. Other times, these events are the consequence of crimes like the 9/11 attacks on the Twin Towers in New York and the Pentagon in Washington, D.C., or the devastating attack by Hamas terrorists on Southern Israel on October 7, 2023. The attack by Hamas resulted in 1200 casualties on a single day. The terrorist act of 9/11 killed 3000 people. If 9/11 had the same casualty rate of Israel on October 7th as a percentage of population, 9/11 would have killed 40,000 people.

In the aftermath of the October 7th attack, many major personal identification issues arose because of the complex and myriad mechanisms of death. Bodies and remains, collected under fire, were placed in temporary refrigerator trucks until they could be identified. Identification could not however take place by simply viewing the body in the morgue. The traditional use of fingerprints, dental data, X-rays, and medical databases was insufficient to identify all 1200 casualties positively. In Israel, forensics experts assembled a rapidly deployed team to assist in this horrific task. Other methods were needed, including bio-anthropology, digital photography, and CT scans of human remains.

Often, it was impossible to use visual identification or DNA extraction because bodies were burnt beyond recognition. Sometimes, only body parts could be found, and different individuals' body parts were erroneously combined within the same body bag. In other cases, the body parts of a single individual were initially included in several body bags. Reassembling the body required meticulous analysis and comingled remains could not be easily separated in the field. DNA profiles were collected and

developed swiftly to aid in further identification. Scars, implants, and tattoos were carefully documented when they could be observed.

In one striking example, a 25-year-old woman was determined to be at the Nova music festival according to a review of digital photography of the event. Nova was an open-air music gathering where 364 people were murdered. The last identified image of her placed her at a first aid station at the festival. As part of the massacre, Hamas terrorists raped both women and men and took many hostages. After the attack, emergency response personnel found naked women with injuries and their genitals mutilated. Others were bound and naked below the waist. Many bodies were burned beyond recognition. In the case of the 25-year-old woman, her body could not be found, and it was assumed she had been taken hostage.

Though her body was originally not found, her necklace was found at the funeral home handling the remains of victims. A review of the original digital image showed a scar on her bare leg and white nail polish on her fingernails. Searching through photos taken by phones in the area, a photo was found of human remains in an ambulance. In one image, a leg with the same scar and a hand with the white nail polish was seen. Based on these findings, the possibility was raised that she had been buried along with another person. She and the person next to her had been burned so badly that the two bodies fused. The comingled bodies were exhumed, and a leg was found that demonstrated the same scar as was seen in the photograph. A CT scan was performed on the remains and found the presence of two skulls, proving that two separate people were buried in the same grave.

On October 7th, Hamas took hostages into Gaza. Some have returned alive, and others were murdered. Of the murdered bodies, some have recently been handed back to Israel. Forensic evaluation can be used on bodies long dead and poorly preserved. Hamas appears to have used no single method of body preservation as some bodies were returned in plastic burial bags, others had been buried in the ground with their clothes, and still others had been wrapped in different material. All the returned bodies were severely decomposed or skeletonized, confirming death was not recent.

Whether intentional or by accident, Hamas returned the body of a person they claimed was the well-known hostage Shiri Bibas. A rapid evaluation of this body, based on DNA and dental records, confirmed that it was not Shiri Bibas. The identity of this body remains unknown. Forensic experts in Israel had previously identified the bodies of the two small children of Shiri Bibas. Separated in life, the bodies of Shiri Bibas and her children were returned to Israel and reunited. The three were all buried together in the same coffin.

Our need to identify and bury our dead reaches far back into antiquity. Sometimes the task concerns one or a few individuals, like Hackman and Arakawa. Those deaths were first shrouded in mystery until forensic science provided an answer. Sometimes we are confronted with hundreds or thousands of deaths all at once and must add to our grief and horror that criminal actions have taken from us those we loved. In the case of

October 7th, forensic experts were ultimately able to identify 100% of the 1200 missing persons believed to have been present during the killing, an unprecedented act in an extraordinary circumstance. In the case of 9/11, 40% of the remains are unidentified.

In all cases, timely identification of bodies is a necessary part of bereavement for survivors, but the sting of grief endures. Burial and mourning are critical in many cultures and faiths. In Judaism, tending to the dead is a “*chessed shel emet*” – an act of loving kindness, because it can never be repaid. In Judaism, tradition requires the dead to be buried without delay. But the war made that impossible. When death is the consequence of crime and the last body is finally buried, justice will demand an accounting.