

## IN SEARCH OF AMERICA'S MIAs: FORENSIC ANTHROPOLOGY IN ACTION

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[Editors' Note: At Arlington National Cemetery, the famous Tomb of the Unknown Soldier holds the remains of unidentified soldiers from each of our major wars—in honor of all the United States soldiers either missing in action or whose remains are still unidentified. On February 5, 1998, the *Washington Post* reported the possible future exhumation of a coffin from the Tomb of the Unknown Soldier for a mitochondrial DNA test, a relatively new test that can establish identification through genetic markers in the maternal line (Chip Crews. "A Name for the Unknown." *Style Section B* pp. 1&4). Jean Blassie, whose blood would be used for the testing, hopes to finally establish the answer she has sought for 26 years: what happened to the remains of her son after his A-37 attack plane went down on May 11, 1972 near An Lōc, 60 miles north of Saigon. What is known is that the following October South Vietnamese troops found six bones—four ribs, a pelvis, and a humerus—and 2 ID cards belonging to 24 year old Air Force 1st Lt. Michael J. Blassie. The bones were shipped from Saigon to the Central Identification Laboratory (CIL) in Hawaii, and from there eventually to the Tomb of the Unknown Soldier. The case has a bit of the "unsolved" mystery to it and reminds us once again of the importance of forensic science in the everyday lives of ordinary citizens of this country. In the article that follows, one of the forensic physical anthropologists from the CIL-Hawaii describes the important work that goes on year in and year out in this largely unknown facility, as teams of specialists work to recover, repatriate, and establish definite identifications for American service members (POWs/MIAs) lost in all past wars.]

### **Introduction**

What do Jeffrey Dahmer, the Branch-Davidian Standoff, the crash of Korean Airlines Flight 801, War of 1812, Operation Desert Storm, and thousands of American soldiers listed as missing in action (MIA) share in common?

Few people are aware that forensic anthropologists assisted with each of these cases and continue to serve in many emergency response and mass disaster teams as well as acting as consultants to a variety of medical and legal agencies in the U.S. and abroad. Forensic anthropologists apply their skills to some unusual and difficult cases, including the finding,

recovering, and identifying American POWs/MIAs by the only laboratory of its kind—the U.S. Army Central Identification Laboratory, Hawaii (CILHI).

The role of forensic anthropology historically has been to assist medicolegal agencies—medical examiners, police, and the FBI—in the identification of recent homicides. From an examination of skeletonized remains, forensic anthropologists first distinguish whether they are animal or human. If the latter, they then ascertain biological age at death, time elapsed since death, sex, race, stature, and method of death (e.g., shooting). Forensic anthropologists must have specialized training in radiology, anatomy, dentistry, and forensic pathology in order to complete their objectives. The awareness of unique skeletal and dental features also helps them establish a positive personal identification.

### **Background**

Although most forensic anthropologists are affiliated either with a university or research facility (e.g., Smithsonian Institution), fifteen are employed by the Department of the Army at the CILHI. Located adjacent to Pearl Harbor on Hickam Air Force Base, Oahu, the laboratory has, in addition to its anthropologists, two forensic dentists, and more than 150 soldiers and civilian support staff. The CILHI grew out of the Vietnam War and CIL-THAI (Thailand); it moved to its present location in Hawaii in 1991. This world class laboratory has the largest staff of forensic anthropologists in the United States and is responsible for the worldwide recovery, repatriation, and identification of American service members (POWs/MIAs) from all past wars. At present there are nearly 80,000 American MIAs from World War II, 8,100 from the Korean War, and 2,098 from the Vietnam War. Since 1973, the laboratory has been responsible for the identification of 738 unaccounted-for service members.

The search for POWs/MIAs is a very sensitive issue among many Americans who have lost children, spouses, and friends as part of the tragedies of war. Although these soldiers, sailors, airmen, and civilians were "lost" at war, they have not and never will be forgotten. The slogan of the American POW/MIA effort is "You are not forgotten."

Just as Americans long for the return of their loved ones, so do the people of other countries who also have missing friends and family members. The Vietnamese people, for example, have exceptionally strong, close family ties that are strained at the loss of a loved one. There are over 333,000 Vietnamese MIAs, most of whom will never be identified, even if found, because of the lack of Vietnamese medical and dental records from which to base a comparison, and subsequently, an identification. In addition, most Vietnamese soldiers were buried in large open fields or dense mountain jungles in unmarked or poorly marked graves, all signs of which in time will disappear.

### **In the Field**

The CILHI has a dual role. First, it deploys 12-person teams of experts throughout the world to find and excavate graves and aircraft crash sites (for example, F-4 Phantoms and UH-1 Cobra helicopters). Second, it provides for the laboratory analysis and identification of American MIAs. A typical recovery team consists of an anthropologist, a military officer, a noncommissioned officer-in-charge (the "foreman"), an explosive ordnance disposal technician for disarming or removing bombs, a medic, interpreter, radio operator, photographer, and mortuary affairs specialist.

While most of the world's forensic anthropologists work from the relative comfort of a laboratory, those at the CILHI must travel to distant, and often remote, areas of the world in order to excavate and recover POW/MIA remains. In 1997, for example, the laboratory sent teams to Vietnam, Laos, China, North Korea, South America, the Pacific Islands, Russia, and Armenia. The terrain in these countries varies from ice-laden to tropical rain forests, and the hazards include malaria, snakes, scorpions, spiders, unexploded ordnance (bombs and mines), and precarious mountains. Housing conditions "in the field"

also vary from hotels and guest houses in the larger cities to sharing an 8-person tent in the jungles of such inhospitable places as Laos and Cambodia for 30 to 45 days. The team must carry everything necessary to be self sufficient throughout the mission including excavation equipment, electrical generators, fuel, tents, food, cooking supplies, medicine, and hundreds of boxes of bottled water—all trucked or flown in by helicopters. It is a physically and mentally demanding job that requires dedication, professionalism, and stamina.

Although the teams excavate isolated graves, the majority of excavations currently undertaken by the CILHI are air crashes in Southeast Asia, many of which were lost over the infamous Ho Chi Minh Trail. This "trail" actually consists of a vast network of footpaths, tunnels, and dirt roads that served as a clandestine supply and personnel pipeline connecting North and South Vietnam during the war. The difficulty for the excavation/recovery teams, however, is that by the time they reach a crash site there is little remaining of the aircraft. Many environmental and cultural (i.e., human intervention) variables, over a period of 20 or 30 years, result in the decay and loss of remains, personal effects, and aircraft wreckage.

One such case is an F-4 Phantom jet that crashed in Quang Binh, Central Vietnam in 1969. While searching for the site, a witness told one of the authors that as soon as the airplane stopped burning, he and many other villagers rushed to the crash site and scavenged wreckage for useable parts. Using only their bare hands, they bent and snapped aluminum from the fuselage, cut electrical wiring with machetes, and used a blow torch to cut thick metal rods into useable items. Everything that could be scavenged from the site was either carried back to the village and used around the home or sold to the nearest scrap dealer. This and other crash sites serve as a sort of "hardware store" where villagers living in remote areas obtain items and materials otherwise unavailable. Examples of the creative use of wreckage include rice-house rat guards and boats from fuselage aluminum, smoking pipes from hydraulic fittings, knives and machetes from propeller blades, rubber Ho Chi Minh sandals cut from aircraft tires, and fence posts, flower pots,

and pig troughs from aerial-dispensed cluster bomb units resembling four-foot long canoes.

In forensic anthropology, the physical relationship of one item to another (i.e., its context) and whether the objects are on the ground or buried, are important in reconstructing what amounts to a police crime scene. Legally, forensic anthropologists and dentists deal in evidence. Unfortunately for U.S. recovery teams, villagers who remove aircraft wreckage from a site remove the very evidence that U.S. teams need to identify aircraft. For example, aircraft engines and many electronic components have serialized data plates unique to each aircraft. Finding one serialized data plate or identification tag ("dog tag") can turn an otherwise unidentifiable jumble of wreckage into an identifiable aircraft. Incredibly, excavation teams working in Southeast Asia often recover only 100 to 150 pounds of twisted wreckage from a 28,000 pound jet. The rest either disintegrated on impact or was destroyed as a result of secondary explosions, burning, or scavenging.

During the act of scavenging aircraft wreckage, villagers sometimes find personal effects such as "dog tags," wrist watches, wedding bands, and religious medallions. If found, these items are taken from a crash site and used or worn by villagers while others are sold, traded, or subsequently lost. What must be borne in mind is that a wedding band or medallion to a villager living high up in the mountains does not bear the same sentimental value or significance as it does to Westerners. To villagers an identifying "dog tag" can be fashioned into a useful implement such as a small knife or tweezers for removing facial hair, one Vietnamese form of shaving.

The basic excavation strategy at a crash site is to let the evidence "speak" for itself. Only when there is no more wreckage coming out of the ground does the team cease working at a crash or grave site.

By searching for life-support related equipment (parachutes, oxygen bottles and hoses, flight helmets, flight suits), the anthropologist and life-support technician may be able to account for the aircraft's occupants. Determining the number of occupants on board an aircraft when it crashed can be done based on duplicated or multiple life-support related gear. For example, a parachute harness has only two metallic "D" rings. If the aircraft that crashed was an F-4, it carries a maximum of two occupants. If three parachute "D" rings are recovered from among the wreckage, it is safe to say that two people were on board at the time of impact.

Even with the presence of three "D" rings, could one of the occupants have survived this F-4 crash? The answer to this question can only be answered after reviewing all of the evidence and carefully considering the "preponderance" of the evidence. The items recovered from the crash site must provide substantial and wholly consistent evidence that, not only was the occupant(s) on board at the time of impact, but that the crash was not survivable. An example of a non-survivable air crash using this F-4 jet included the following evidence that we excavated from the crash site: portions of the cockpit were found near engine components; pieces of a flight suit, helmet, and wrist watch were recovered among cockpit debris; two parachute "D" rings; a religious medallion, one tooth, and two bone fragments were found near the flight suit material. Few would doubt that the preponderance of the evidence is consistent with one person in the aircraft when it crashed. (In this scenario we knew that the second individual parachuted from the aircraft and was rescued within hours.)



### **In the Laboratory**

At the end of each Joint Field Activity in Vietnam, all bones, teeth, and personal effects that were turned over by Vietnamese citizens or excavated by the six U.S. recovery

teams are received at the Vietnamese Institute of Forensic Medicine in Hanoi. Each set of remains—sometimes no more than a few dime-sized bone fragments—is hand-carried to the Institute in locked and sealed hard plastic cases by a Vietnamese official. Once at the Institute, the cases are opened during one of the regularly-scheduled Joint Field Reviews, which are attended by Vietnamese forensic specialists and a CILHI forensic anthropologist and forensic dentist. The task of the joint team is to conduct a preliminary examination to determine which of the remains may be American. All suspected American remains are repatriated to the CILHI for detailed forensic analysis. (Vietnamese remains are retained by Vietnamese officials for burial.) The remains are flown in a military C-141 airplane to the CILHI in flag-draped (American) containers for the identification phase.

At the CILHI, the remains are laid out in anatomical order on a foam-covered table, and a forensic dentist and anthropologist are assigned to the case. The two scientists work independently of one another in order not to bias their conclusions. The dentist focuses on the teeth and the anthropologist on the skeletal remains. The remains are inventoried and photographed and the teeth are x-rayed and compared to ante-mortem (before death) records, charts and x-rays. Dental x-rays provide the vast majority of identifications as the dental fillings and morphology provide unique individualizing features for basing a positive identification. Other methods of identification include mitochondrial DNA derived from bones and teeth, unique skeletal features such as a healed broken bone, and video superimposition made by overlaying an image of the skull on a facial photograph.

When the dentist and anthropologist have completed their work, their conclusions are put in writing and compared. The skeletal attributes derived by the anthropologist must be consistent with those of the individual identified by the dentist. In other words, if the suggested identity provided by the dentist is a 22-year-old white male, with a living stature of 5' 11," then the anthropological indicators must be in agree-

ment. If the anthropologist determines that the bones are those of a 30 to 35-year-old black male with a height of 5' 5," there is a problem. One possibility for the conflicting data is that the bones are from one person and the teeth from another (i.e., co-mingled remains). Once this portion of the examination process is completed, the reports are compiled and submitted for inside peer review by other CILHI scientists.

The next step is to submit the recommended identification to the CILHI Laboratory Director, the CILHI Commander, and to three laboratory consultants for outside review of scientific integrity and accuracy of interpretation. The reports then are sent to the Casualty of Memorial Affairs Office in Alexandria, Virginia, the appropriate Office of Mortuary Affairs in Washington, DC who presents the case to the family, and finally to the Armed Forces Identification Review Board. If the family disagrees with the suggested identification, they have the right to hire their own consultant who will review the laboratory's findings, examine the remains, and draw his/her own conclusions. If the family's consultant disagrees with the recommended identification, the entire case may be sent back to the original anthropologist and dentist for a second go-round. In all, the process is quite difficult and there are many checks and balances to ensure that each case is handled accurately and in accordance with strict scientific procedures. Once the family agrees to the recommended identification, which most commonly happens, the remains are forwarded to them for burial at the government's expense.

While finding, recovering, and identifying American POWs/MIAs is a costly as well as a physically and mentally demanding job, the POW/MIA issue deserves our fullest attention and unwavering efforts. America's POWs/MIAs truly are not forgotten.

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