Forward

The Fellows Program in the Anthropology of Human Rights was initiated by the Committee for Human Rights (CfHR) in 2002. Positions provide recipients with strong experience in human rights work, possibilities for publication, as well as the opportunity to work closely with the Committee, government agencies, and human rights-based non-governmental organizations (NGOs). 2003 CfHR Research Fellow Erin Kimmerle is a graduate student in anthropology at the University of Tennessee, Knoxville. Kimmerle came to the position with a strong background in the practice of anthropology in international human rights. Between 2000 and 2001 she served on the forensic team of the International Criminal Tribunal for the former Yugoslavia in its missions in Bosnia-Herzegovina and Croatia. In 2001 Kimmerle was made Chief Anthropologist of that team.

Janet Chernela,
Chair Emeritus (2001-2003)
Cause of Death: The Role of Anthropology
in the Enforcement of Human Rights

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Table of Contents
Introduction
Background
Forensic Science and Human Rights
The Roles of Forensic Anthropologists
Current Challenges and the Need for Future Research
Summary
Acknowledgments
Literature Cited

Introduction

One perfect autumn day in 2000, I attended eleven funerals. I stood alongside Mustafa, a middle-aged man with a hardened look punctuated by the deep grooves in his solemn face. Around us people spilled out into the streets and alleys, horse drawn carts filled with the bounty of the weekly harvest of peppers, potatoes, and onions jockeyed for space on the crumpled cobblestone road. No words passed between us as I contemplated the impossibility of the war. Only several years ago, these same streets were filled with incomprehensible terror as people were forced from their homes, driven to refugee camps, tortured, maimed and executed in an organized effort of ethnic cleansing. Our arrival in the
picturesque rural Kosovar village was no accident, it was the result of careful planning and coordination and was anticipated by the townspeople. We were there to complete a job, to pay respects, and provide closure for the living. Not far from where we were parked, in a sunlit clearing were freshly dug graves that awaited my truckload of coffins. Mustafa touched my shoulder and flatly told me this one was his brother. He then asked what caused his death. Looking down at my clipboard I replied, with chagrin, that the cause was undetermined. I could only tell him how sorry I was and that wished I could give him some answer. It was our job to find out. Most likely his brother died of a gunshot injury, that was true for the overwhelming majority of victims. But decomposition and the nature of the injury had left no conclusive physical evidence in his case.

As a forensic anthropologist, I was part of the international forensic team that was charged by the International Criminal Tribunal for the Former Yugoslavia (ICTY) with the task of collecting and analyzing physical evidence of the war crimes in the former Yugoslavia between the years of 1991-1999. During the field missions of 2000 and 2001, I had the privilege of working for the ICTY as a Forensic Anthropologist and later as their Chief Forensic Anthropologist.

Our task during the prior two weeks had been to drive throughout the countryside looking for surviving family members of the victims of the Kosovar war crimes. After all possible forensic evidence was collected; the identified victims were repatriated to relatives. On that day in Kosova, we had the task of repatriating eleven bodies in coffins to six villages. We drove from village to village, delivering coffins to families that awaited them with open graves. At several of these funerals the whole village took part in a funeral procession; in one, only a father and son were waiting to quietly bury the body. This was the second funeral for some families who had given us permission to exhume buried bodies for autopsy. Other families did not know what had happened to their loved one or where they had been buried until going through this process.

These bodies were among the almost 2000 victims in Kosovo that were exhumed and autopsied by the International Criminal Tribunal for the Former Yugoslavia (ICTY) in 2000. The ICTY was established by the United Nations (UN) Security Council, "to prosecute persons responsible for serious violations of international humanitarian law committed in the territory of Yugoslavia since 1991" (UN Security Council Resolution 1993/827). The ICTY exhumed graves and completed autopsies (examinations of the bodies or skeletal remains), to provide physical evidence of the extent and patterns of crimes committed and to supply the Tribunal with data used in prosecuting against individuals indicted by the Tribunal specifically for violations against international humanitarian law.

The type of warfare that occurred in the former Yugoslavia is common today throughout the world where war is not fought between armies or by traditional military means. No longer do armies face off, where generals skillfully draw on traditional methods of combat honed and perfected through the study of historic battles, played and replayed at military academies and war rooms across the globe. There is a new war paradigm, today the targets are civilians and the strategy is mass murder. This is a style of warfare that comprises an estimated quarter of conflicts around the world today (Boutwell and Klare 2000). George Musser and Sasha Nemecek of the Scientific American wrote:

"... the norms of war have decisively shifted. Gone is even the semblance of order, the traditional view of war as two opposing forces, wearing uniforms and meeting at front lines. Anarchy is no longer merely part of war; it is war. Civilians are targets as much as combatants, often more so. Defenders loot the very people they claim to protect, and then flee. Children fight alongside adults. The front line may be
someone's bedroom. Hospitals and libraries are fair game. Even humanitarian aid workers become pawns." [Musser and Nemecek 2000:47]

Political focus has been on nuclear and other weapons of mass destruction, rather than on small arms, while submachine guns and mortars have become easily available (Boutwell and Klare 2000). For example, armed conflicts of the Former Yugoslavia involve weapons such as, assault rifles, pistols, mortars, submachine guns, and home-made grenades consisting of mundane household items that have been made into lethal weapons, such as nail clippers and wheel barings. The human toll in the former Yugoslavia demonstrates the enormous damage that small arms exact on a human population. The conflict marks an important shift for responsible countries to include small arms in their policy of non-proliferation of weapons.

The following discussion illustrates how forensic anthropology is key to enforcing human rights. Specifically, the variation in the nature of the conflict between different regions such as Bosnia and Kosova illustrate the diversity of the crime scenes encountered. This report reflects personal insight into what these missions can teach us, the sometimes perplexing issues that arise, and the challenges awaiting future investigators. Finally, I compare the roles of anthropologists and the processes of field and laboratory work in international human rights missions to casework here in the United States and outline areas of research that are needed to continue this work globally.

The purpose of this essay is to provide the Human Rights Committee of the American Anthropology Association with a summary of the roles forensic anthropology are playing in the investigation and enforcement of human rights cases, particularly in the Former Yugoslavia. The intent is to highlight the importance of exhumations and osteological analysis in the prosecution of those who violate international humanitarian law. For background on this region's long and complex history, discussion of recent events and of ethnic diversity and conflict in the region, I refer the reader to the numerous authoritative works on the conflicts in the Former Yugoslavia (Burg and Shoup 1999; Haass 1997; Silber and Little 1996; Woodward 1995).

Background

The total number of mass graves created in Bosnia and Croatia (1991-1995) is still not known. While a reported 250,000 people have disappeared or been killed, the ICTY has exhumed mass graves in BiH since 1995, which is only a fraction of the total amount created. Graves have contained over 200 individuals. The most recent and largest grave found to date, near the town of Zvornik, is a secondary site associated with the Srebrenica massacre and is currently under exhumation by the Bosnian Commission for Missing Persons (CNN World Report 2003). The most notorious incidence was the Srebrenica massacre in 1995 where approximately 7,000 - 8,000 men were killed in a four day period. These men had been held in warehouses and then shot. Additionally, grenades and other explosives were thrown into the warehouses. Subsequently, a series of mass graves were created with backhoes and the bodies were trucked to these remote graves. In A Problem from Hell: America and the Age of Genocide, Samantha Power wrote:

"Muslim men of Srebrenica belonged to one of four categories: those alive and trying to escape through the woods; those killed on that journey; those who had surrendered to the Serbs and had already been killed; those who had surrendered and who would soon be killed." [Power 2002:407]
Of those exhumed, there are still an estimated 40,000 individuals in Bosnia unidentified (Power 2000:440). As the Tribunal’s investigations progressed, the Serbian Army acted to evade the investigation through the destruction of evidence. For example, they exhumed the mass graves that they created only to rebury the remains in new and undisclosed locations in an effort to thwart investigators and possible prosecution. Upon excavation of these sites, physical structures from the warehouses were recovered in the graves as were impressions of backhoes and machinery used in the dirt, which corroborated other documentary evidence of the atrocities that took place. The efforts to ethnically cleanse and commit genocide resulted in large mass graves, commingled bodies (meaning that the body parts of many individuals are separated and mixed together), graves that were dug up and moved to new locations (secondary sites) and the well preserved but incomplete recovery of many individuals.

Events later in Kosova are in stark contrast to those which occurred in Bosnia. In 1998, the semi-autonomous status of Kosova was rescinded by Milosevic (OSCE report 1999a,b). Human rights abuses, armed conflict and ultimately war crimes followed. Power (2002:445) wrote:

"The tide turned in March 1998, when the KLA [Kosova Liberation Army] gunned down several Serbian policemen and Milosevic struck back so violently that popular support for the KLA soared. Serbian forces swept through the region of Drenica and murdered some fifty-eight relatives of KLA strongman Adem Jashari, including women and children."

Unlike the genocide that already occurred in Bosnia and resulted in numerous mass graves, human rights abuses were executed differently in Kosova which resulted in the two countries having very different crime scenes. In Kosova, many victims who were unable to take refuge in the forests or mountains were killed in their homes. Consequently, surviving family members, neighbors, or the Roma passing through the area often buried victims immediately after they were killed. As a result, the international community knew who many of the victims were, suspected what cruel and murderous events had occurred, and comprised a long list of who had disappeared. Swift and immediate intervention by the international community, including NATO air strikes, meant that the world was closely watching the events unfold in Kosova and were not blind to the atrocities as they had previously been in the early years of the conflict in Bosnia. Kosovar survivors later gave permission to the ICTY to exhume and autopsy the bodies. In many cases the family wanted confirmation of identity. In some cases they also wanted to know what had happened such as the cause of death. Most importantly, they wanted the Tribunal to prosecute the offenders. The ICTY also had jurisdiction to exhume the victims who were unidentified to gain a complete picture of the atrocities and alleged crimes that occurred. Many of the families who had given permission, as well as those who were still searching for their missing loved ones, would join us in the field to witness the exhumation and to look over personal objects such as clothing or jewelry to aid in the identification process. Once the bodies were lifted from the ground and families had the opportunity for viewing; they were transported to the morgue for examination. It is in this way, the skeletons are said to "speak from the grave" by providing very incriminating and convincing physical evidence (Joyce and Stover 1991).

The difference between crime scenes in BiH and Kosova was in large part a reaction against the criminal forensic investigations that occurred by the Tribunal. The Serbian Army made changes as to how it continued to commit genocide in Kosova (1998-1999) in an effort to appear to the international community as though they were defending their national security through the extermination of "guerrilla terrorists" (Maass 1996) rather than the forced expulsion or the ethnic cleansing of Albanian Muslims from the Kosovar province. In doing fieldwork the context is everything - it is key to interpreting
evidence. In this scenario it couldn't be more true - understanding the history and nature of these conflicts was crucial to understanding the nature of the graves and interpreting the evidence.

Forensic Science and Human Rights

The forensic sciences are playing an increasingly important role in human rights investigations and are crucial for the enforcement of human rights under international humanitarian law (i.e. UN High Commissioner for Human Rights resolutions 1998/36). To illustrate the role of anthropology in human rights investigations, it is useful to exemplify the jurisdiction of the international law in question and the type of legal proceedings that follow. Although anthropology is only one part of the overall investigation, it often serves as the cornerstone to determining what events occurred and holding those responsible accountable because the crimes committed typically happened in the past and over long periods of time. Consequently, some of the most crucial evidence needs to be unearthed and reconstructed.

The Nuremberg (1946) and Tokyo (1946-1948) trials were the first international criminal proceedings against individuals for violations to customary and treaty-based international law according to the Versailles Treaty and the Kellogg-Briand Pact. Specifically, these international tribunals investigated crimes against peace (violating international peace by initiating a war of aggression), crimes against humanity (i.e., murder, extermination, enslavement, deportation, inhumane treatment before or during the war), war crimes (i.e., murder, ill-treatment or deportation of slave labor of civilians, killing hostages, plundering private or public property), and conspiracy to commit these acts (conspiracy against peace). While the atrocities that occurred during WWII would today be classified as genocide, this term was not a legal concept until 1946, "...genocide means any of the following acts committed with the intent to destroy in whole or in part, a national, ethnical, racial or religious group... (Convention on the Punishment and Prevention of the Crime of Genocide 1946)". Therefore, it was not until the criminal proceedings of the ICTY, that official charges of genocide were alleged in Europe. Since the 1929 Geneva Conventions, the body of international humanitarian law that currently exists has been built. Most notably are the Convention on the Punishment and Prevention of the Crime of Genocide (1946) that was the first piece of human rights legislation, followed by Universal Declaration of Human Rights (1948). The ICTY specifically has a mandate to investigate grave breaches against the 1949 Geneva Convention (Article 2), violations of the laws or customs of war (Article 3), genocide (Article 4), and crimes against humanity (Article 5). International tribunals have always adopted the rules of procedure and evidence from other Western countries (Holocaust History Project 2001), such as the Allied forces or NATO members, depending on the conflict (i.e. such rules have been adopted from the United States, England, France, and Soviet Union for use by the ICTY).

All international tribunals are important for the enforcement of human rights through accountability of war criminals and for the documentation of the atrocities. At times, such legal proceedings have been used placed in direct military or humanitarian intervention. For example, the United States under the presidential leadership of both George Bush, Sr. and Bill Clinton were reluctant to involve the United States military to stop the genocides in either Rwanda or Yugoslavia, "Yet the only threat he [Clinton] issued on behalf of the United States was that Serb gunmen would eventually be held accountable at the UN war crimes tribunal" (Power 2002:404).

Ultimately, the enforcement of human rights on a global scale requires that all individuals who perpetrate such crimes are held accountable for their violations through an international justice system. Generally, these procedures require that physical evidence of human rights abuses and homicide be
collected and presented before a judicial body. The legal precedent used by the ICTY for the presentation of scientific evidence in court is the American case, Daubert v. Merrell Dow Pharmaceuticals, 509 US 579 (1993). It requires "relevance and reliability" of a scientific theory or process:

"...the Court recognized that general acceptance by the scientific community was relevant factor in determining the admissibility of expert testimony based on a scientific theory or technique (113 S.Ct. at 2797). But that acceptance, the essential ingredient of the Frye Principle is not he sole test. The Court thought relevant the question whether the theory or technique can be or has been tested (113 S.Ct. at 2796-2797). Peer review and publication of the theory or process is pertinent but also not an indispensable predecessor of admissibility (641 N.E.2d 1349)". [West Group 1999].

Globally, such judicial bodies are rarely international tribunals, but more often are domestic truth commissions, military tribunals, or standing judicial systems within various countries. However, the process of criminal liability differs greatly throughout the world, as does the development and authority of forensic investigators. Forensic teams generally consist of experts including anthropologists, pathologists, police investigators, and crime scene specialists who can analyze ballistic evidence such as bullets and shell casings and recover items for DNA analysis. New techniques constantly being developed and used in crime work in the United States are also becoming useful in international work, such as, fiber analysis, blood splatter analysis, and soil chemistry to establish the time since death (the determination of how long a person has been dead).

Since 1996, the ICTY has examined thousands of cases representing over 6000 people from Bosnia-Herzegovina (BiH), Croatia, and Kosova. The most prominent aspect of these international teams is anthropology. Anthropologists are able to interview witnesses, excavate human remains and the crime scene, conduct trauma analysis to aid in the establishment of the cause of death and create skeletal biographies for identification. Following the work of the ICTY, the United Nations Assistance Mission to Rwanda (UNAMIR) "requested that forensic experts including forensic anthropologists and archaeologist, as well as graduate students studying physical anthropology, from various parts of the world, participate in the recovery and analysis of the skeletal remains that resulted from the genocide" (Ferllini 1999:293). In fact, forensic Anthropology has played a key investigative role into human rights abuses in many international cases including Peru, Argentina, Guatemala, Panama, Haiti, Rwanda, BiH, Kosova, Croatia, Iraq, and East Timor.

The Roles of Forensic Anthropologists

The overall goal of forensic investigations in the Balkans is to document and analyze physical evidence, that in corroboration with witness testimony and other forms of documentary evidence, can be presented in court at the trials of suspected war criminals. The job of an anthropologist in these missions is varied, but typically has included determining the location of graves, the exhumation of human remains, analysis of the skeletal remains for identification and for trauma reconstructions to help establish the cause of death, ethnographic interviewing for the collection of ante-mortem (before death) information, negotiating repatriation of human remains and assisting with the coordination of funerals, as well as testifying as expert witnesses in court. Generally in anthropology, lines are drawn between the participants (members of the local community) and the observers (anthropologists). With the increasing number of anthropologists working in applied anthropology, the peripheral place of anthropologists in a particular society is changing. Forensic anthropology, particularly in the context of human rights issues is a form of applied anthropology upon where anthropologists become involved in
the lives of the participants in a very intimate way; determining the truth of what events occurred which involves reconstructing painful past events such as the cause of death of a family member, or as in Kosova, even coordinating the funerals. The two critical aspects in the process of gathering and analyzing evidence are field work such as exhumations and laboratory work.

Fieldwork begins with ethnographic interviews of survivors or witnesses to document atrocities that occurred or to collect information on who is missing. Primarily it includes the investigation of a crime scene and generally consists of unearthing evidence (exhumations) such as bodies for autopsies, personal artifacts associated with the bodies, shell casings, bullets, shrapnel, and other physical evidence. Through analysis of soil and other geophysical properties, we are able to determine whether this location is where the individuals were killed or if they had been moved after death, how long the bodies have been there (the time since death), and how the graves were made. For example, shovels and other tools leave marks in the soil that can be identified, even after being buried for years. Further, matching evidence found at the grave to the primary scene where the individuals were killed, such as cement from a warehouse found in a grave, proves to be crucial physical evidence in linking the scenes together and confirming accounts of what events occurred. For a thorough review of mass grave archaeology refer to Haglund and Sorg (2001).

Traditional archaeological techniques are typically used when exhuming human remains. In the case of the Balkans - the large number of exhumations, difficult terrain, and shortened seasons due to long and harsh winters forced investigators to part with traditional archaeological methods, where one grave could take months to excavate. Forensic archaeologists responded by creating new solutions to accommodate the time, resources, and environmental constraints. For example, shovels were typically used in place of trowels. Further complicating the already challenging situation was the threat of land mines. EOD (Explosive Ordinance Devices) personnel provided for by NATO military forces were called in to examine every site before archaeologists were allowed to begin digging. Unlike traditional archaeology or even crime scenes here in the United States where a limited number of people may participate, there is a substantial panoply of people present at international crime scenes. In addition to archaeologists, the media, local and international monitors, family members of victims being exhumed, a variety of forensic experts, NATO security personal, photographers, surveyors, and interpreters are also on site - which can make for a very interesting work environment. Karen Burns noted on human rights work in Guatemala, (Burns 1998:68): "...it is not unusual in a Latin American country to have religious ceremonies conducted alongside a disinterment in progress".

The role of forensic anthropologists in the morgue is to analyze skeletal remains, decomposing bodies, and skeletal fragments to ascertain the cause of death, victim identification, and the demographic profile of victims. Determination of the type, location, and number of injuries to aid in the determination of the cause of death, such as multiple gunshot wounds or blasting injuries, is used in conjunction with other physical evidence to reconstruct the events surrounding the death. Establishing the cause of death is important for demonstrating that human rights violations occurred and that unarmed civilians were targets. International human rights cases are pursued by forensic anthropologists like other casework but often the uniqueness of each crime scene, social and cultural considerations, and lack of legal precedence creates complexities not typically encountered in American forensic casework. The resulting impact is a need to draw on previous forensic protocols but with the recognition that the particular environment often requires an open and adaptive philosophy to successfully overcome the inherent challenges in this type of work. For example, the determination of the cause of death as a primary objective for anthropologists working for the ICTY contrasts with the initial goals in American casework where victim identification and the determination of the time since
death are the primary objectives of investigations into recovered remains. In the United States, the
determination of the length of time since death is crucial to determining identity. It provides a time line
which allows for some missing persons to be excluded, such as did the individual die in past two weeks
or within the last two years?

The second objective of forensic anthropologists is establishing victim identification. The process of
identification begins with the creation of a biological profile or skeletal biography for each individual
case. The skeletal biography includes the individual’s age-at-death, sex, and stature as can be
determined through analysis of the skeleton. The skeletal biography and odontogram (dental chart) are
then compared with information about missing persons (ante-mortem information) to make a positive
identification. Once the individual’s identity is determined, investigators are able to determine who
knew the deceased, who last saw them alive, and how they came to be where they were found. Ante-
mortem information is collected from surviving family members or friends of the victim who may have
personal knowledge of the deceased as well as, from various documentary evidence such a birth
certificate or identification papers. Victim identification provides resolution for families and restores
dignity and significance to victims.

In addition to identification, the accurate determination of the ages-at-death and sex of victims serve as
important factors in the estimation of the minimum number of individuals (MNI) exhumed from a grave. The
determination of the number of individuals buried within a mass grave is not always straight
forward due to the high number of victims recovered from a single grave, commingling of the remains,
and overall poor recovery due to massive destruction of the tissues (i.e., from explosions), or type of
burial (i.e., secondary burials that had been moved to new locations).

The third objective of forensic anthropologists working in human rights cases is to construct a
demographic profile of the victims because it is one of the central issues in the prosecution of
individuals indicted for violations to international humanitarian law as it provides of evidence of the
overall pattern of who was targeted. The demographic profile of victims in the Balkans (the number of
men and women and their ages at death) often followed patterns consistent with genocide. This was
evidenced by the fact that victims were not limited to men of fighting age. Perpetrators often argued
that the victims were soldiers engaged in combat or terrorists, but the physical evidence strongly
pointed to the contrary. In fact, men, women, and children, of all ages, even infants were tar-
targeted and found among the dead.

Current Challenges and the Need for Research

There are many challenges to victim identification in cases of international human rights violations.
Unlike in the United States where anthropologists are often presented with an idea of who is missing by
law enforcement; in cases of genocide or mass atrocities, there many thousands of victims that go
missing over several years. One of the greatest challenges to the identification process is that
investigators are constantly amending lists of the missing and presumed dead. While many thousands of
disappeared individuals have been reported, it is widely acknowledged that countless unnamed victims
are unaccounted for and undocumented. For example, unlike the estimated 250,000 persons
disappeared in Bosnia, the estimate for the number of people killed during the Rwandan Genocide of
1994 (Baraybar and Kimmerle 2002) varies between 500,000 and 1’000,000 people! The accurate
number of victims is important to understand the full extent of the killing and to properly place the
event in history.
A second challenge to the identification process is the collection of ante-mortem information which may not exist due to inadequate records or the survivability of such records, informant knowledge, or changing health conditions during long periods of conflict. Further, as Ferlini (1999:289) noted, "The logistics of identifying remains in this way can be extremely complicated if the grave contains hundred of bodies, particularly if entire families were killed." The application of American standards and methodology for victim identification in international casework demands accurate ante-mortem information. Also, several assumptions are made about the demographic profile of the victims and the knowledge of who is missing. Ante-mortem information such as age, height, weight, previous fractures or illnesses that is used in the forensic cases in the United States typically is obtained from driver's licenses, birth certificates, and medical or dental records. However, the assumption that any standard protocol will work anywhere in the world has often led to difficulties and cultural biases in international fieldwork. The application of traditional American protocols for identification are not always applicable to wide cultural variation. For example, in the Peruvian Highlands people don't have driver's licenses that record height. Data are obtained by asking extended family members the height of the missing person. The answer is often something like, "he was very tall, 5 feet" or "just a little shorter than you" (Baraybar per. com.). In addition to unreliable stature information, many societies such as those in the Balkans, do not have dental or medical records available, rather extended family members or friends are interviewed to gather this basic biological information. Such interviews raise a number of potentially contentious issues about the quality of the information, such as, who should be interviewed. Does your husband remember how many fillings you have better than your mother? How reliable is his or her statement? Is it reliable enough to base identification on what they say? In addition to interviewing, there are other ways in which information may be obtained. For example, I had a case where the dental crowns were removed during autopsy and brought to a particular dentist so that he could identify his own craftsmanship. Such comparisons are not based on radiographs. In this way, the identification process was approached on a personal case by case basis.

A further dimension to the litany of human rights abuses that occur during a genocide or campaign of ethnic cleansing is the denial of basic health and dental care. This poses a third challenge to the process of identification. Victims are usually transported, imprisoned or held under seize and then later killed. As a result, medical and dental care is denied which means that new or pre-occurring illnesses go untreated, pre-existing conditions worsened, teeth are lost, or caries (popularly referred to as cavities) and abscesses emerge, thereby altering any ante-mortem record that may have existed. By the time a forensic anthropologist examines the remains, often the dental and skeletal pathology has severely progressed beyond the point where it can be used as an indicator of positive identification.

Not all challenges are inherent, rather some have been presented by the Court. The case of The Prosecutor of the Tribunal against Radislav Krstic (Case No. IT-98-33) was a landmark case because it is the first time the matter of how to accurately age skeletons and thereby create a demographic profile of a skeletal population has been raised in a court of law and directly challenged forensic anthropology. This is particularly important given the international context, calling into question the applicability of American standards internationally. Overtime, questions of statistical methodology and population variation has lead to a revision of many of American standards used in the field of anthropology (i.e. Bocquet-Appel and Masset, 1982; Hoppa, 2000).

Inaccurate or skewed results can occur when applying one standard, such as an American standard, to a specific population for primarily three reasons. Because of biological variation, statistical methodology, depending on the reference population and particular model that is used, or inter-observer
error/variation. For example, Ferllini found that applying American standards of sexing criteria to Rwandan skulls was problematic due to differences in sexual dimorphism between the two populations:

"...in the morphological analysis, Rwandan male skull exhibited marked frontal eminences, which are considered to be a female trait in Western skeletal samples. Additionally, craniometric analysis was applied to the skulls in question the measurements obtained being fed into the Fordisc computer program, which produces a statistical probability of the sex based on the measurements taken. The results would at times contradict the morphological analysis. As a result, the morphological analysis was considered to the be the more reliable method." [Ferllini 1999:296]

In 2002, Baraybar and Kimmerle presented a study comparing three different stature formulae to Croatian and Kosovar populations. We found that the frequency with which reported stature fell outside the estimated range varied from 39 to 57% when one standard error for each method was used. One of the primary problems was in the reporting of ante-mortem stature, as this information was obtained from interviews with family members. Individuals with either the shortest or longest femora tended to have the same reported height. We believe that this is likely an artifact of people’s tendency to over estimate stature when trying to approximate someone’s height. Further, we found that the formulae provided by Ross and Konigsberg (2002) provided the closest measure of stature to both samples. This formulae differed from the other two in that it was first, derived from a Balkan sample and second, based on a Bayesian approach, rather than a linear regression model. While this confirms what we know about the considerable need for revised standards, one of the other formulas (Sarajlic 2001) was also derived from a Croatian sample, yet exhibited the greatest mean difference of 5.7 cm. Like the American stature formulae (Trotter and Gleser 1952), Sarajlic's formulae is derived from linear inverse regression, indicating the problem is inherently linked to the statistical methodology used.

A revision of methods used for identification is currently underway. Our goal is to establish new criteria for establishing the initial identity parameters of victims recovered in the former Yugoslavia that met the standards established by the court. The Forensic Anthropology Center at the University of Tennessee began working with the ICTY on analysis of the current methods used to construct the biological profile of victims to determine what standards should be used in the Balkans and to re-calibrate the age profiles of traditional aging methods used. Revised aging, sexing, and stature criteria for identification is currently in progress and will soon be available to anthropologists to use in the field at the time of autopsy/examination and will be further applied to the cases of unidentified victims that remain open (Kimmerle, Jantz, and Konigsberg; in press). One important outcome of this study will not only be revised Balkan standards but also improved American standards as our current methods are re-analyzed from more robust statistical analysis, namely a Bayesian statistical approach. For example, we found that the Gompertz-Makeham hazard model accurately predicts age when a large American reference sample is used, indicating the problem with the current methodologies is again based on statistical methodology, rather than biological variation in the aging processes of American and Balkan populations (Figure 17). Therefore, a revised calibration of aging methodology using a Bayesian approach does provide the most precise and accurate age ranges possible and may also be more reliable among the American population for better age-at-death assessment than the current methodology used (Kimmerle et al. 2003).

Summary

The people of the Balkans have shared their deepest sorrows with us to find missing loved ones and bring peace back into their lives. Mustafa, the man that I met that day in the cemetery wanted to know
what caused the death of his brother. He had lived through the war only to become a refugee - displaced and living in Germany. His grief revealed what it meant to be Muslim and living in Kosova during a campaign of ethnic cleansing. But what he sought was the truth and that who ever had killed his brother be held accountable. This is why he gave us permission to excavate the body that he had already once been buried. To perform an autopsy and reconstruct what traumatic events occurred. To gather evidence. To tell the story thereby restoring his brother's memory and bringing closure. It is why he had buried his brother only to rebury him a year later - waiting that autumn day for our truck to drive up, the grave dug. While there is no UN resolution that will prevent human rights abuses from happening tomorrow, the tireless pursuit of justice serves as a milestone in ensuring that offenders alleged to have committed such abuses and who have broken international humanitarian law are prosecuted. This is how life goes on after such unbelievable atrocities have occurred and this is how human rights are enforced. It is through judicial accountability that justice for victims and their families is achieved; that society heals and regains an atmosphere of safety; that a precedent is set; that such inexcusable behavior is not tolerated; that no one is immune from accountability - not even at the presidential level; and that not even time will allow past abusers to go unpunished for it is never too late to obtain justice for victims. To do this requires the continued reliance on forensic science to enforce these basic human rights though the scientific collection of evidence. The atrocities that have been documented by our forensic teams are matched only by the heroic efforts of those Bosnians, Albanians, Croatians, Serbians and Roma who have put the safety and needs of one another above themselves in their greatest hour of need.

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