2011

Proving Genocide: The Role of Forensic Anthropology in Developing Evidence to Convict Those Responsible for Genocide

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PROVING GENOCIDE:
THE ROLE OF FORENSIC ANTHROPOLOGY IN DEVELOPING EVIDENCE TO CONVICT THOSE RESPONSIBLE FOR GENOCIDE

By

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A Thesis submitted to the
Department of Anthropology
in partial fulfillment of the
requirements for the degree of
Master of Science

Degree Awarded:
Fall Semester, 2011

Jean M. Morgan defended this thesis on October 17, 2011.

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I would like to dedicate this work to Bishop Juan Gerardi Conedera, of the Archdiocese of Guatemala, who was murdered two days after issuing a report on the Guatemalan genocide. Additionally, this work is dedicated to all of the courageous forensic scientists and prosecutors who investigate atrocities and prosecute cases of genocide at the risk of their own personal safety. Without their dedication and hard work, justice would not be served for the victims of genocide and their loved ones.

ACKNOWLEDGEMENTS

The thesis presented here would not have been possible without the support of colleagues, family, friends, and medical professionals. First, I would like to thank the members of my Committee. They were lead by Professor Glen Doran, and included Associate Professor Lynne Schepartz and Associate Professor Rochelle Marrinan. I will be eternally grateful for their patience, advice, and council. In particular, I owe a special debt of gratitude to Professor Doran for his support when I became very ill while researching and writing this thesis. His kind and thoughtful help will always be treasured. My brother Michael Morgan, his wife Madelyn, and my sister Roberta Morgan were also very supportive and helped me on many occasions. Michael showed considerable interest in this work and advised me when I needed to discuss ideas. Roberta helped design the illustrations presented in this document and edit its contents. Madelyn Morgan, the family editor and tax consultant, graciously offered to edit this thesis. Madelyn's edit was very comprehensive, professional, and insightful. The thesis is a far better product because of Madelyn's review. Any errors in this document are my responsibility alone. My best friends, Nancy Watson and Irene Kress were particularly supportive and interested in this project. Additionally, they, along with many of my Institute of Notre Dame friends, in particular, Mary Lawson, helped me through a very difficult health crisis with their prayers, phone calls, letters and cards. The medical professionals at the Mayo Clinic, in particular Dr. Jeffery L. Garland, and my local doctors Robert Stein, Farideh Zadeh, and Linda Lukman saved my life. None of the research, writing, and production of this document would have been possible without the kindness, support, and assistance of each and every one of these wonderful people.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

At the beginning of the second half of the Twentieth century, the crime of genocide was defined and the Genocide Convention was enacted by the United Nations to prosecute those responsible for such atrocities. Since enactment, genocides in eight countries have been investigated and prosecuted. One key player in these investigations has been the forensic anthropologist. The role of the forensic anthropologist in excavating mass graves, and analyzing the skeletal remains of the victims has been pivotal to successful prosecution of the guilty. As mass graves have been excavated, forensic professionals have used protocols that were not specifically designed for this work. The research conducted for this thesis included: the identification of genocides committed during the second half of the 20th Century, examination of indictments and judgments from international tribunals, evaluation of mass grave excavations done to support prosecutions, and the compilation of a protocol from those used during these excavations. The Protocol for the Excavation, Exhumation, and Examination of Mass Graves and Their Contents is provided in this thesis. It is a comprehensive six-stage protocol designed specifically for the excavation of graves resulting from genocide. Five of the six stages are discussed. They include: I Planning and Logistical Analysis, II Exploratory Mission and Feasibility Study, III Excavation and Exhumation of the Grave, V Skeletal Analysis, and VI Conclusion, Review, and Final Report. Stage IV Intake and Autopsy is beyond the scope of this thesis and is included but not fully described. The protocol was produced by supplementing the UN Manual on the *Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Execution* with protocols and other authoritative materials produced by authors who have successfully completed mass grave excavations. Also, the protocol was supplemented by material from experts in related fields. This protocol is intended to organize and facilitate the work of excavating mass graves, analyzing the remains, and preserving evidence in a manner consistent with the best practices of forensic scientists, and in a manner that will withstand the scrutiny of international tribunals and courts prosecuting these cases.

1 INTRODUCTION

Genocide is the most egregious of crimes. It requires massive governmental and civilian resources to be brought to bear against a group. It vilifies the members of a group to justify gruesome crimes. It denies the individual basic human dignity by attacking a person not because of who he is, but for what he is. It destroys not only the individuals of a group, but the group's physical and mental well-being, their towns and homes, even their ability to have and raise their children. Survivors are often left stateless, homeless, and penniless. They are often unable to find refuge from exposure to harsh weather, gain comfort from observing religious practices, or acquire sustenance other than from the kindness of others. They have often lost many family members and friends, their way-of-life, and their ability to satisfy basic human needs. The devastation from genocide is complete.

After World War II, the international community had become outraged by the Nazi genocide. Consequently, they established an international law against genocide, hoping this law would prevent future genocides. Sadly, this hope was dashed during the second half of the 20th Century. When the former State of Yugoslavia collapsed into waves of ethnic cleansing, and the Hutus of Rwanda began slashing at their fellow countrymen, the Tutsi, the world was riveted by scenes in the media of internment camps and mass killings. It seemed that the 20th Century, one of the most violent in human history, was ending in an orgy of state-sponsored atrocities.

Is it genocide? Answering this three-word question is often left to forensic anthropologists who excavate mass graves, gather pertinent evidence, and analyze skeletal remains and related information. While the contributions forensic anthropologists make investigating common murders has been glamorized on popular television shows, these programs often overlook the role forensic anthropologists play during the investigation and prosecution of genocide. Additionally, textbooks and training manuals for forensic anthropologists often understate the unique requirements for the field investigation of clandestine mass graves. While

these references provide excellent guidance for the excavation and analysis of murders, they do not provide guidance on the specific evidence needed to convict those responsible for genocide.

By reviewing selected trials of those charged with the crime of genocide, this thesis will determine the types of evidence used by judges when they convict the perpetrators of these crimes. Genocides during the second half of the 20th Century will be reviewed to determine the most effective forensic evidence used to successfully prosecute those guilty under the Genocide Convention. Finally, this thesis will describe an investigative protocol that can be used by forensic anthropologists, archaeologists, and others while investigating these crimes.

It is argued that there have been sufficient numbers of genocide cases and mass grave exhumations to establish a protocol for use by forensic anthropologists and archaeologists for the excavation and exhumation of mass graves and examination of skeletal remains. This thesis will establish the needed protocol by reviewing indictments and court judgments, forensic anthropology reports and articles on mass grave excavations, as well as other authoritative texts and articles.

The prosecution of those accused of committing genocide includes the requirement to prove that the attackers had the intent to destroy one of four protected groups included in the Genocide Convention. The requirement to prove this type of discriminatory intent represents an additional requirement beyond those for prosecuting crimes against humanity. Crimes against humanity are crimes against civilians that do not include the intent to destroy one of the protected groups specified in the Genocide Convention. Therefore, it is argued that by focusing on genocide, the protocol produced will be sufficient, not only for genocide mass grave excavations, but also excavations done to support the prosecution of those indicted for committing crimes against humanity.

2 EXISTING LITERATURE

There is extensive literature available on various aspects of genocide. In this thesis, the literature review focused on how and when genocide was defined and adopted as an international law, what the forensic anthropologist's role is during the investigation of genocide, how mass graves are defined, what requirements need to be met to prosecute the guilty, and why a protocol for the excavation, exhumation, and examination of mass graves is needed.

2.1 Genocide Defined

It was Raphael Lemkin who coined the word 'genocide.' Lemkin was a Polish Jew and international lawyer who studied linguistics at the University of Lvov, Ukraine (Power 2002; Lvov 2010). Within days of the *Wehrmacht's* invasion of Poland, Lemkin fled the capital to his family home in eastern Poland. From there, he made his way to Vilnius, Lithuania, where he petitioned his friend, the Minister of Justice in Sweden, for refuge. Once his petition was granted, he traveled to Sweden in 1940. While a lecturer at the University of Stockholm, he began collecting Nazis legal decrees issued in the countries that they occupied. His purpose was to demonstrate the sinister ways that the law could be perverted to propagate hatred and incitement to murder. He also recognized that the Nazis' decrees and ordinances were the irrefutable evidence needed to convince the world that atrocities were taking place. By 1941, Lemkin had secured an appointment at Duke University to teach international law. In 1942, he was hired by the Board of Economic Warfare and the Foreign Economic Administration in Washington, D.C.; and later, in 1944, he transferred to the U.S. War Department. All the while, he kept trying to convince people that the occupation of European countries by Germany began a cycle of atrocities directed at minority groups, in particular the Jews, with the objective of killing all of them (Power 2002).

In 1944, the Carnegie Endowment for International Peace published Lemkin's compilation of Nazi decrees and ordinances. Within this publication, Lemkin also discussed his

new term, 'genocide.' Genocide was derived from the Greek word *genos,* meaning race or tribe and the Latin word *cide* or killing (Lemkin 1944). Genocide was intended to:

> signify a coordinated plan of different actions aiming at the destruction of essential foundations of the life of national groups, with the aim of annihilating the groups themselves. The objectives of such a plan would be disintegration of the political and social institutions, of culture, language, national feelings, religion, and the economic existence of national groups, and the destruction of the personal security, liberty, health, dignity, and even the lives of the individuals belonging to such groups. Genocide is directed against the national group as an entity, and the actions involved are directed against individuals, not in their individual capacity, but as members of the national group (Lemkin 1944:79).

The first official mention of genocide came in indictments issued in October 1945 by the Nuremberg court which described the atrocities inflicted on civilian populations within occupied territories as genocide. However, at that time there was no separate international law specifically defining the crime of genocide. In this instance, 'genocide' was used to describe the crime in terms that were sufficiently horrifying to match their gruesome nature. When the Nuremburg court pronounced judgment on twenty-four defendants, none was convicted of genocide. While Lemkin was devastated, he believed that this decision pointed out the need for a separate international law describing the offense of genocide. As a result, he began to lobby the new UN General Assembly to establish an international law that did not link such atrocities to cross-border aggression. On December 11, 1946, the General Assembly passed a resolution condemning genocide and tasked a UN committee with drafting a UN treaty banning the crime. Once this treaty passed the General Assembly and was ratified by two-thirds of the UN member states, it became an international law (Power 2002).

On December 9, 1948, the UN General Assembly passed a resolution titled, *The Convention on the Prevention and Punishment of the Crime of Genocide*, as stipulated in Table 2.1 (Power 2002:62-63). When the vote finally arrived, 55 delegates voted yes, with none voting no. However, almost forty years passed before the United States would ratify the treaty and fifty years before Jean-Paul Akayesu of Rwanda became the first to be convicted of the crime of genocide by the International Criminal Tribunal of Rwanda on October 8, 1998 (Power 2002; The Prosecutor versus Jean-Paul Akayesu 1998).

Table 2.1 Convention on the Prevention and Punishment of the Crime of Genocide

Approved and proposed for signature and ratification or accession by General Assembly resolution 260 A (III) of 9 December 1948
Entry into Force 12 January 1951, in Accordance with Article XIII

The Contracting Parties,

Having considered the declaration made by the General Assembly of the United Nations in its resolution 96 (I) dated 11 December 1946 that genocide is a crime under international law, contrary to the spirit and aims of the United Nations and condemned by the civilized world,

Recognizing that at all periods of history genocide has inflicted great losses on humanity, and

Being convinced that, in order to liberate mankind from such an odious scourge, international co-operation is required,

Hereby agree as hereinafter provided:

Article 1
The Contracting Parties confirm that genocide, whether committed in time of peace or in time of war, is a crime under international law which they undertake to prevent and to punish.

Article 2
In the present Convention, genocide means any of the following acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group, as such:

(a) Killing members of the group;
(b) Causing serious bodily or mental harm to members of the group;
(c) Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part;
(d) Imposing measures intended to prevent births within the group;
(e) Forcibly transferring children of the group to another group.

Article 3
The following acts shall be punishable:

(a) Genocide;
(b) Conspiracy to commit genocide;
(c) Direct and public incitement to commit genocide;
(d) Attempt to commit genocide;
(e) Complicity in genocide.

Article 4
Persons committing genocide or any of the other acts enumerated in article III shall be punished, whether they are constitutionally responsible rulers, public officials or private individuals.

Article 5
The Contracting Parties undertake to enact, in accordance with their perspective Constitutions, the necessary legislation to give effect to the provisions of the present Convention, and, in particular, to provide effective penalties for persons guilty of genocide or any of the other acts enumerated in article III.

Article 6
Persons charged with genocide or any of the other acts enumerated in article III shall be tried by a competent tribunal of the State in the territory of which the act was committed, or by such international penal tribunal as may have jurisdiction.

Article 7
Genocide and the other acts enumerated in article III shall not be considered as political crimes for the purpose of extradition.
The Contracting Parties pledge themselves in such cases to grant extradition in accordance with their laws and treaties in force.

Article 8
Any Contracting Party may call upon the competent organs of the United Nations to take such action under the Charter of the United Nations as they consider appropriate for the prevention and suppression of acts of genocide or any of the other acts enumerated in article III.

Article 9
Disputes between the Contracting Parties relating to the interpretation, application or fulfillment of the present Convention, including those relating to the responsibility of a State for genocide or for any of the other acts enumerated in article III, shall be submitted to the International Court of Justice at the request of any of the parties to the dispute.

Table 2.1 is reproduced from Powers 2002:62-63.

When the Nuremberg prosecutions took place, the accused were charged with crimes against humanity (Power 2002). This crime was initially recognized by the community of nations in the 1899 and 1907 Hague Conventions, as well as in the 1919 report of the Commission on the Responsibility of the Authors of War. Using these conventions and reports, the drafters of the Nuremberg Charter formulated a definition of crimes against humanity that intended to reflect the norms presented in these earlier documents. The International Criminal Tribunals for both Yugoslavia and Rwanda initiated development of a body of international jurisprudence on crimes against humanity. This facilitated the development of an internationally accepted definition of crimes against humanity that was included in the Rome Statute of the International Criminal Court, and adopted on July 17, 1998 (Robinson 1999). Crimes against humanity were defined as:

> Any of the following acts when committed as part of a widespread or systematic attack directed against any civilian population, with knowledge of the attack:
>
> (a) Murder
> (b) Extermination
> (c) Enslavement
> (d) Deportation or forcible transfer of population
> (e) Imprisonment or other severe deprivation of physical liberty in violation of fundamental rules of international law
> (f) Torture
> (g) Rape, sexual slavery, enforced prostitution, forced pregnancy, enforced sterilization, or any other form of sexual violence of comparable gravity
> (h) Persecution against any identifiable group or collectivity on political, racial, national, ethnic, cultural, religious, gender as defined in paragraph 3, or other grounds that are universally recognized as impermissible under international law, in connection with any act referred to in this paragraph or any crime within the jurisdiction of the Court
> (i) Enforced disappearance of persons
> (j) The crime of apartheid
> (k) Other inhumane acts of a similar character intentionally causing great suffering, or serious injury to body or to mental or physical health (Rome Statute 1998:3).

While the definition of crimes against humanity is similar to that of genocide, there is an important difference. The crime of genocide includes a requirement that the crime be committed with the intent to destroy a national, ethnic, religious or racial group (Power 2002). Crimes against humanity do not include a discriminatory motive for all such crimes. The discriminatory motive that the crime be committed on national, political, ethnic, racial or religious grounds only

applies to the crime of persecution. Also, the discriminatory motive includes the intent to destroy the group in whole or in part (Robinson 1999).

2.2 The Role of Forensic Anthropology

Anthropology is the study of the biological and cultural aspects of all people in all times, thus anthropologists are particularly well suited for the investigation of genocide because of their training in cultural anthropology, archaeology, taphonomy and biological anthropology. Their training in cultural anthropology allows them to identify cultural markers that define ethnic, religious or national groups. Their training in anthropology, archaeology and taphonomy gives them the skills needed to excavate clandestine graves and crime scenes where genocides occurred (Byers 2005). In particular, taphonomy, or "the interpretation of all events affecting the remains between death and discovery … represents the most important contributions made by anthropologists" (Ubelaker 1997:80). Their training in biological anthropology gives them the skills needed to analyze skeletal remains and the associated material needed to prove genocide (Byers 2005).

On its website, the American Board of Forensic Anthropology provides the following definition and additional clarifying information on forensic anthropology:

> Forensic anthropology is the application of the science of physical or biological anthropology to the legal process. Physical or biological anthropologists who specialize in forensics primarily focus their studies on the human skeleton.
> • The analysis of skeletal, badly decomposed, or otherwise unidentified human remains is important in both legal and humanitarian contexts.
> • Forensic anthropologists apply standard scientific techniques developed in physical anthropology to analyze human remains, and to aid in the detection of crime.
> • In addition to assisting in locating and recovering human skeletal remains, forensic anthropologists work to assess the age, sex, ancestry, stature, and unique features of a decedent from the skeleton.
> • Forensic anthropologists frequently work in conjunction with forensic pathologists, odontologists, and homicide investigators to identify a decedent, document trauma to the skeleton, and/or estimate the postmortem interval (ABFA 2008:1).

From the above, one can see that forensic anthropology, a sub-discipline within physical anthropology, is an applied science that combines aspects of both anthropology and forensic sciences. Forensic anthropology is the scientific discipline that examines human skeletal remains for medical-legal evidence. The goal of the analysis is to obtain as much information as possible about the person and the circumstances surrounding the death (Burns 2007; Byers 2005;

Stewart 1979). When examining the clandestine graves and remains of murder victims, the forensic anthropologist has five goals: First, determine various demographic attributes of the victim such as ancestry or ethnic group, sex, age, and stature of the individual. Second, collect evidence of traumatic injury to determine the nature and cause of the trauma to assist in the determination of the manner of death. Third, based on knowledge of decomposition and deterioration of human remains after death, estimate the time that passed since the individual died, or the postmortem interval (PMI). Fourth, assist in the location of remains buried or left on the surface of the ground in a way that allows the collection of all relevant evidence needed for the forensic investigation. Fifth, using knowledge of skeletal features, forensic anthropologists can provide information unique to each individual to obtain a positive identification (Byers 2005; Cattaneo 2007). Additionally, the practice of forensic anthropology can be seen as a clinical practice because it employs both clinical and actuarial judgment. Clinical judgment requires the practitioner to process information learned from both academic training and hands-on or clinical analysis of human remains. In contrast, actuarial judgment requires interpretations based on calculations using empirically established formulas (Klepinger 2006).

The practice of forensic anthropology is confronted with different challenges and obstacles when recovering human remains and related material from mass graves. (Klepinger 2006). In the case of mass graves resulting from genocides, the objectives of the forensic anthropologist are: first, collect narrative and physical evidence needed to establish accountability and prosecute the guilty; second, obtain the information necessary to identify the individual and their associated group; third, create a record that can withstand the scrutiny of courts and historical revisionists; fourth, expose atrocities to the world to prevent future atrocities; and fifth, provide a semblance of basic human dignity to the victims (Haglund et al. 2001; Haglund 2002; Cattaneo 2007).

Forensic anthropology can be subdivided into two areas: development of demographic information of the individual, and the forensic anthropologists' role in the broader medical-legal investigation (Klepinger 2006). At times, these two elements of anthropological work conflict when conducting field investigations of mass graves resulting from genocide. While the basic work on human rights cases like genocide appears the same, the scale of the work is greater, and support infrastructure (e.g., local crime laboratories, and other technical help) is either far from the location of the mass grave or is minimal at best (Burns 2007). This gives rise to a significant

issue for the forensic anthropologist. What should take precedence during the field investigation: the identification of individuals or the identification of the group the individual belongs to? Once genocide has been charged, the prosecution must prove that the perpetrators committed the acts with the intent to destroy a group protected under the genocide convention. This requires the forensic anthropologist to identify the national, ethnic, religious, or racial group of the individuals in the mass grave. With limited time and funding, once the group identification has been made, often the remains are turned over to local authorities for specific identification of the individual. Unfortunately, local authorities may either lack the expertise or the logistical means to identify such large numbers of individuals. This leaves families with uncertainty over the fate of their loved ones. Many family members have gone through tremendous psychological suffering because they have been unable to bury and mourn their dead, address burial customs, or meet religious obligations. To alleviate such suffering forensic anthropologists in particular, and all of the experts gathered to investigate a mass grave, need to provide as much identity information as possible to allow families and friends to locate, rebury and honor the dead (Florida 2010; Stover and Shigekane 2002).

2.3 Mass Graves Defined

Genocides have resulted in the killing of enormous numbers of people. There were over 34.4 million deaths in battle during the various conflicts that took place during the 20th Century. While this number is shocking in its own right, it pales in comparison to the intentional killing of civilians or military noncombatants by governments. That number is nearly five times greater than deaths in battle, or nearly 170 million men, women and children (Falconer 2003; Rommel 1994; Rommel 1995; Rommel 1997). Many of these killings were genocides. For example, in Rwanda it is estimated that from 500,000 to 1,000,000 people were killed in 100 days. In Cambodia, a staggering number of 1.7 million perished out of a total population of 8 million, many of whom were the victims of genocide. In the former Yugoslavia, there were 200,000 to 225,000 killed in Bosnia, 10,000 in Croatia, 10,000 to 20,000 in Kosovo and 10,000 in Serbia. In East Timor it is estimated that 200, 000 were killed out of a population of 800,000, or one-quarter of the total population. In Guatemala and Iraq, there were 60,000-200,000 and 180,000 killed, respectively. Killing on such a massive scale resulted in the clandestine burial of the victims in huge mass graves or what Haglund called the “extra-legal expedient to cover up both

human rights abuses and war crimes" (Haglund 2002:244). Figure 1 below, provides a chart of post World War II genocides, the number killed and their timeframes. This figure documents the magnitude of genocides committed after World War II (The Prosecutor versus Jean-Paul Akayesu 1998; Iliopoulos 2008; Blum et al. 2007; Kiernan 1999; Cook 2000; Des Forges 1999; Harff 2003; Power 2002; Power 2008). Figure2.1 was developed with software from Concept Draw using Mindmap Professional, edition 4.0.

Definitions for the term 'mass grave' vary. The greatest difference has to do with the minimum number of individuals contained in the grave that can vary from two, three, or six individuals. Therefore, the term mass grave becomes a relative term requiring an estimate of the minimum number of individuals. Some definitions require the bodies to be close enough in proximity to be touching. Within the legal context of tribunals, the type or manner of death of the individual is needed for a grave to be considered a mass grave. In this instance, the people contained in the mass grave must have been the victims of extra-judicial, summary, or arbitrary executions that have not resulted from participation in combat or armed confrontation. An additional distinction for mass graves is the orientation of the bodies to one another. Graves can be single graves, group graves where remains lie in parallel, and mass graves where the dead are placed in a disorganized manner and in a way that represent the lack of dignity given these victims. Finally, mass graves have been defined as a mass or aggregate of remains that were deposited in the graves in either an organized or disorganized manner (Haglund et al. 2001; Haglund 2002; Skinner et al. 2002).

While each mass grave is unique, there are common general structures. There are graves that are simple trenches with the bodies placed in a way that allows only minimal contact with each other. Some graves contain a dense, contiguous aggregate of bodies where individuals are not only in contact with one another, but are extremely jumbled, contorted and entangled forming a single body mass, often with satellite remains that are separated from the body mass. Multiple body masses may be contained within a single grave, indicating that the grave was opened more than once with a number of people buried each time. Graves with multiple body masses may contain layers of remains with intervening fill (Haglund 2002).

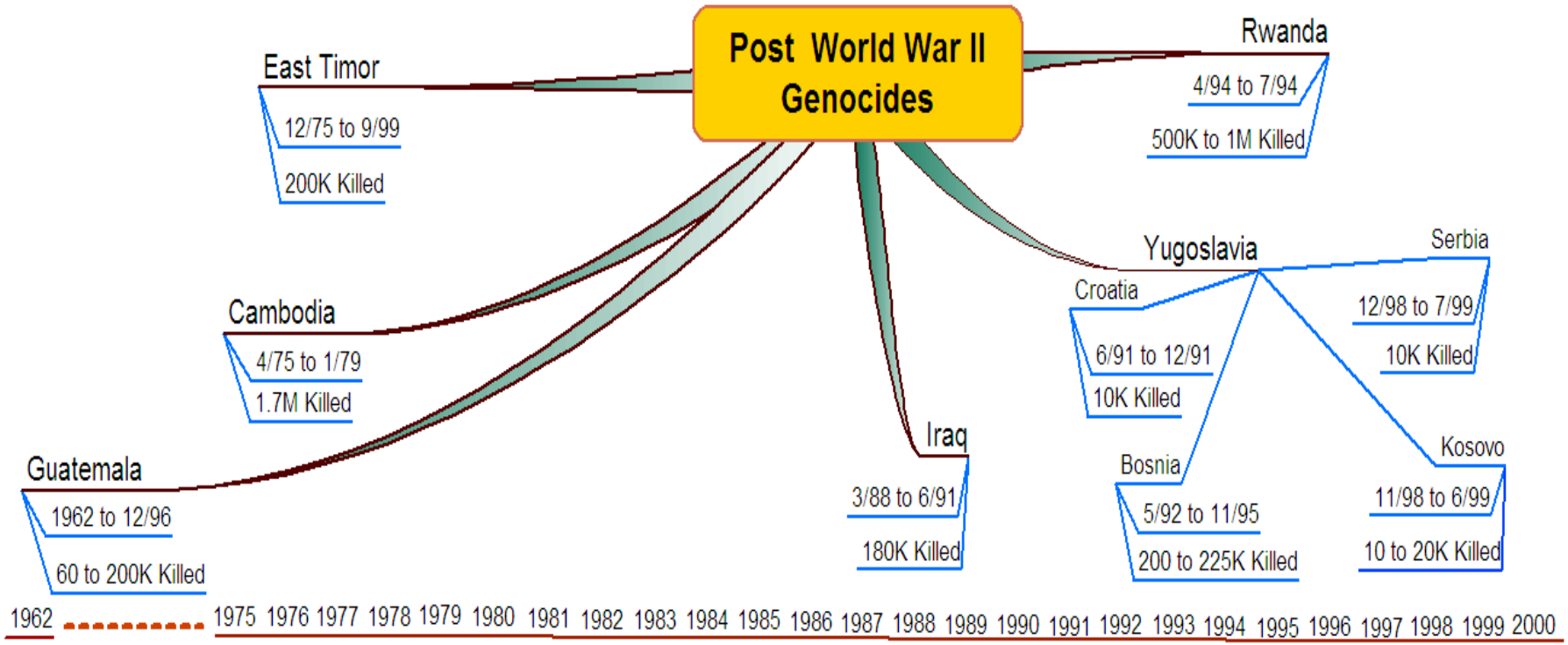

Figure 2.1, Post World War II Genocides. The material presented in this figure documents the countries that experienced genocides after World War II. For each country the length of time and number killed during each genocide is documented.

There are a few historical examples of mass grave investigations that predate the Genocide Convention of 1951. One interesting case concerns a mass grave discovered by the Nazis during the German invasion of Russia in 1941. The Germans had become aware of rumors of the systematic imprisonment and execution of 11,000 Polish officers by Soviet forces in the Katyn Forest near Smolensk. Fearing that the Nazis would be accused of culpability in the deaths of the individuals in the mass grave, the Germans established an international medical mission of forensic medical professors from nine occupied European nations, Italy, and neutral Switzerland. As reported by Germany in April 1943, a minimum number of 4,143 individuals were exhumed. Of those, 2,914 were identified based on personal artifacts and documentation located within the grave. Most had been shot in the head, and 5% had rope ligatures that tied their hands behind their backs. Based on this evidence, the investigation concluded that the deceased were killed execution style. Documentation, such as correspondences, diaries and newspapers, indicated that the deaths occurred in the spring of 1940 before, the German invasion. Consequently, the investigation determined that the Soviets were responsible for the deaths and clandestine burial of these Poles. Although the Soviets denied culpability, investigations published since the end of World War II have documented the excavation of 6,400 additional bodies and clarified Soviet responsibility for the mass killing. Other cases of the forensic exhumation of mass graves concerned the identification of missing allied personnel after World War II in Europe, Asia, Saipan and in Ukraine (Haglund et al. 2001; Haglund 2002).

In the mid-1980s, mass grave investigations began to expand with excavations in Central and South America in the countries of Guatemala, Argentina, Brazil and Chile. Additional sites were investigated in Afghanistan, Ethiopia, and Iraq. In 1996 large-scale mass excavations were organized by Physicians for Human Rights in Rwanda and countries that were formally part of Yugoslavia. In Rwanda the investigation of the massacres of 1994 took place at the sites of the Roman Catholic Church in Kibuye and in the capital Kigali. In the former Yugoslavia, at sites in Bosnia at Cerka, Lazete, Nova Kasava, Pitica, and in Croatia at Ovcara were excavated (Haglund et al. 2001; Haglund 2002). Table 2.2 provides a list of the mass grave excavations used for this research.

Table 2.2 Mass Grave Excavations

Country	Location	MNI	Reference
Cambodia	Crematories in Kompong Thkau Village	unknown	De Nike 2000
	Chup Rubber Plantation, Chup sub-district, Kompong Cham province	unknown	De Nike 2000
	Choeung Ek near Phnom Penh, mass grave of Tuol Sleng prisoners	8,000	Ta'ala et al. 2008; Berg 2008
East Timor	Dili's Santa Cruz cemetery, Hera, 15 km east of Dili	16	Jolliffe 2009; Murdich 2010
Guatemala	The Ixil community, Nabaj, Guatemala	9	Chacón et al. 2008
	Rio Negro, Achi village, north of Guatemala City	143	Stover and Ryan 2001
	Pan de Sanchez, Guatemala	84	Schmitt 2002
	Chichupac	unknown	Schmitt 2002
Iraq	Emergency Police HQ, Sulaymaniyah, northern Iraq border region with Iran	39	Stover 1992
	Mahawi brick factory, Mahawil, Iraq	3,000	Tyler 2003
	Edge of the Ash Sham Desert, Iraq	28	Burns 2006
Rwanda	Kibuye Catholic Church and Home St. Jean Complex, Kibuye, Rwanda	493	Haglund et al. 2001; Juhl 2005; Kimmerle and Baraybar 2008
	Amgar Garrage in the capital, Kigali	unknown	Juhl 2005
Bosnia	Karstic Cave in the Hrgar region in northwest Bosnia	70	Simmons 2002
	Tasovcici 2 km east of Capljina on a hill called Modric, Bosnia-Herzegovina	30	Skinner et al 2002
Croatia	13 wells near the Croatian-Serbian border and the Croatian-Bosnian border	61	Šlaus et al. 2007
	Ovcara, six kilometers from Vukovar in the Slavonia region of Croatia	200	Stover and Ryan 2001
Kosovo	Near the Kosovo border with Macedonia	1	Delabarde 2008
	Peja/Pec cemetary, Orahavac/Rahovec village, Kosovo	28	Kimmerle and Baraybar 2008

When preparing for the excavation of a mass grave, the forensic anthropologist must plan for the logistical measures that need to be taken to complete the excavation and provide for the physical safety of the forensic scientists. When the mass casualty incident of September 11, 2001 occurred in the United States, the resources needed to examine the scene and disinter the human remains were located within the country where the attack occurred. In Pennsylvania, Virginia, and New York, local and national authorities had the resources needed to obtain all of the evidence of the crime, examine the remains, and insure the preservation of the evidence and of the human remain disinterred. However, in large-scale operations involving mass casualties outside the United States, more personnel, teamwork, and infrastructure are needed. Often, because of the massive scale of the crime of genocide, local governmental and humanitarian aid organizations are overwhelmed. The scale of these investigations requires significant organization, financial support and a wide assortment of competent professional and technical participants. International human rights organizations often play a vital role in monitoring human rights issues, compiling databases, and actualizing and facilitating human rights missions. Often, private philanthropic and international agencies provide the funding for the investigation of genocide. The logistical planning for the excavation of a mass grave must consider the sources of funding, planning for travel and accommodation costs for a large number of people, designing a comprehensive command structure, delineating roles and responsibilities, defining operational, worksite safety procedures and quality of work standards, and examining multicultural challenges inherent to an international effort. Most human rights investigations must be completed far from crime laboratories and local technical assistance (Burns 2007). Additionally, large numbers of bodies, as well as enormous amounts of evidence, must be processed in just a matter of days, weeks, or at best, a few months.

As mentioned above, an additional issue for the anthropologist concerns the personal safety of the field workers. Often the perpetrators remain in the area where the grave is located. Because the scale of the crime requires the involvement of local, regional and national governments, there may be those supportive of the government that facilitated the crime remaining near the location of the grave, and the same government that committed the crime may still be in power. Consequently, they may take aggressive actions to conceal the crime and prevent field personnel from completing their mission. Such actions may include booby trapping the grave or mining the area surrounding the grave. For example, consider the case of

excavations of wells in Croatia. In addition to human remains, the wells also contained large amounts of garbage, including debris from destroyed houses, earth, bricks, broken appliances, furniture, automobile and engine parts, and in one well, unexploded ordinance including hand grenades, an 82mm mortar shell and a tromblone shell (Šlaus et al. 2007). An additional example is provided by Clea Koff in her autobiographical book, "The Bone Woman." When investigating mass graves in the former Yugoslavia, Koff and the other members of the team had to undergo landmine awareness programs. Demining efforts needed to be completed before forensic anthropologists and other team members could enter the area where the mass graves were located (Koff 2004). When such dangerous artifacts and situations are present, the forensic anthropologists should prepare documentation noting concealment of the crime by employing extreme measures to prevent excavation of the mass grave and recovery of the evidence contained within the grave. This evidence demonstrates not only efforts to conceal the crime, but also consciousness of guilt by those who committed the crimes.

When excavating a mass grave containing the victims of genocide, the forensic anthropologist must focus on the issue of the evidence needed to prove genocide. To do this, the anthropologist must first determine if the individuals in the grave come from one of the protected groups identified in the Genocide Convention (national, ethnic, religious or racial). The second requirement is to prove that the killings are committed with the intent to destroy all or part of the group targeted. The courts have generally used evidence of the scale of the crime and the systematic nature of the crime to prove this aspect of genocide. Therefore, the anthropologist must document the minimum number of individuals (MNI) contained in the grave, the location of mass graves, the skeletal trauma inflicted on those interred, and the manner of disposal of the human remains (Adelman 1999; Blum et al. 2007; The Prosecutor v. Blagović and Jokić 2005; De Nike et al. 2000; Kimmerle and Baraybar 2008; The Prosecutor v. Akayesu 1998; The Prosecutor v. Bagosora, et al. 2008; Power 2002). Such evidence includes the diagnosis of skeletal wounds and mechanisms of injury that lead to a determination of the manner and cause of death. The group attacked must be identified by determining the demographics of the victims, such as their height, sex, age, and ancestral group and cultural artifacts (Kimmerle and Baraybar 2008). Finally, when considering the nature of the crime, the anthropologist must consider not only the killing of the individual, but also determine if the individual was subject to: serious bodily or mental harm such as torture or rape; an environment designed to cause the physical

destruction of the group such as forced marches or starvation diets; measures intended to prevent births such as separation of men from women; or forcible transfer of children from the attacked group to another group such as requiring children to be placed into work camps or adoption by another group (Chigas 2000; De Nike et al. 2000; Des Forges 1999; The Prosecutor v.Akayesu 1998; Luftglass 2004; The Prosecutor v. Bagosora et al. 2008; Power 2002).

2.4 Prosecution of the guilty

The United Nations did not define a specific international court with jurisdiction over the prosecution of genocide until after major genocidal events occurred in the former Yugoslavia, Rwanda, Cambodia and Iraq. On May 25, 1993 the Security Council of the United Nations invoked the Genocide Convention when it created the first international criminal tribunal since Nuremberg to examine the atrocities being committed in the former Yugoslavia. The creation of the International War Crimes Tribunal for the Former Yugoslavia sparked the establishment of a UN court in 1994 to try those complicit in committing the genocide in Rwanda. These two actions fueled efforts to put in place similar mechanisms to try the aging leaders of the Khmer Rouge in Cambodia, and to punish Saddam Hussein for his crimes against the Kurds of Iraq (Power 2002).

What developed was a patchwork of different courts, some without an international component, that would try cases of genocide and crimes against humanity as can be seen in Table 2.3. Under the system used to establish the International Criminal Tribunals for Yugoslavia and Rwanda, the Security Council of the United Nations had to pass a resolution for each tribunal before they could be established (Power 2002; Stover and Shigekane 2002). While these investigations and prosecutions were taking place, an ambitious campaign was underway to establish the International Criminal Court (ICC). To accomplish this, the UN member states negotiated the Rome Statute of the ICC, and adopted it on July 17, 1998 (Power 2002; Rome Statute 2002). This court is an independent institution that is not part of the United Nations. It is based in The Hague and composed of the Presidency, the Judicial Division, the Office of the Prosecutor, and the Registry. The court has jurisdiction over genocide, crimes against humanity and war crimes. The Prosecutor can open an investigation when he receives a referral from a state or the UN Security Council, or by the Pre-Trial Chamber which authorizes an investigation based on information from sources such as individuals or a non-government organization. He

Table 2.3 Courts Trying Genocide Cases

Country:	Court:	Reference
Cambodia	People's Revolutionary Tribunal	De Nike 2000
	Extraordinary Chambers in the Courts of Cambodia	P. v. Kaing 2010
East Timor	Special Panels for Serious Crimes, Dili Distric Court	P. v. Wiranto 2004
Guatemala	Spanish National Court	Sanford 2008
	Spanish Supreme Court	Spanish Supreme Court 2003
Iraq	Iraqi Special Tribunal	Alvarez 2004
Rwanda	International Criminal Tribunal for Rwanda	P. v. Akayesu 1998
former Yugoslavia Including Bosnia, Croatia, Kosovo, and Serbia	International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of Former Yugoslavia since 1991	P. v. Blagovic and Jokic 2005 and Power 2002

can also intervene when the relevant judicial authority is unable or unwilling to investigate and prosecute the crimes (ICC 2010).

Since July 1, 2002, the date the Rome Statute came into force, the court has launched investigations into the following five countries: Uganda, the Democratic Republic of Congo, the Central African Republic, Sudan (Darfur), and the Republic of Kenya. As of November 2010, 18 people are or were under investigation. Two have died, one had charges dismissed, two appeared voluntarily, seven are considered fugitives, and four are currently standing trial. In the case of Kenya, no individuals have been identified yet because the investigation was just authorized on March 31, 2010. Finally, the court is funded by voluntary contributions from governments, international organizations, individuals, corporations and others (ICC 2010).

2.5 The Need for a Protocol

As more forensic anthropologists enter the field of mass grave exhumations, the need to develop scientific standards and protocols related to excavations, exhumations and examinations of the remains is becoming apparent (Stover and Shigekane 2002). Non-government organizations have emphasized their need for a protocol to assure consistent results for their missions to countries where extra-legal killings are alleged. Even though relevant experience with mass grave exhumations is increasing, little has appeared in peer-reviewed literature. Much

of the literature on these exhumations is hidden away in the reports of their investigation contained in the files of the entities prosecuting the crimes (Haglund 2002). In fact, "there is no court-accepted protocol or standard for the excavation of a mass grave" (Haglund et al. 2001:8). Given the variety of situations encountered and differences in cultural context for mass graves, an international protocol must be adaptable to fit the context of each mission. Therefore, a protocol for forensic anthropologists investigating a mass grave must be integrated in a way that provides a functional, consistent, and reliable process that is flexible enough to adapt to a variety of contexts. Additionally, the protocol must be consistent in the preservation, analysis, and presentation of data, and built on scientific rigor and forensic standards to ensure the resulting findings are not only reliable, but admissible in relevant courts (Kimmerle and Baraybar 2008).

There are three primary examples of guidelines referencing general standards of best practices. One is the United Nations' *Manual on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Executions*, formerly known as 'The Minnesota Protocol' (2010). Haglund, Connor and Scott (2001) provide another set of guidelines for mass grave exhumations that meet or exceed the mass grave documentation procedures described by the UN. Similarly, Kimmerle and Baraybar (2008) provide a protocol for the documentation of trauma with references to mass grave excavations and that are scientifically verified and admissible in most courts. Secondary examples of guidelines can be located in various articles and manuals.

What is lacking is a comprehensive protocol that specifically addresses genocide and prosecutions using the Genocide Convention. Given the volume of cases already completed for atrocities in Cambodia, the former Yugoslavia, Rwanda, and other countries, there is sufficient evidentiary information present to develop just such a protocol. Using the three existing protocols cited above as a baseline, this thesis will present a protocol that is supplemented with information from the excavation of mass graves, the prosecutions of genocide, and other authoritative sources. Additionally, the only difference between genocide and crimes against humanity as they relate to grave excavations is the requirement to prove that the attackers had the intent to destroy one of the four protected groups included in the Genocide Convention. Because this is the only significant difference, the protocol will focus on genocide. This should produce a protocol that will be sufficient, not only for genocide mass grave excavations, but also those from crimes against humanity.

3 METHODS

When conducting the research for this thesis, the scope of the project was limited to genocides that took place after World War II. To manage the volumes of data disclosed by this research, a series of databases were designed to include the basic information on each country selected for study and prosecutions that took place in those countries; information from mass grave excavations; and procedures used by forensic anthropologists when investigating mass graves.

3.1 Identification of Research Subjects

Since the end of World War II, the countries where suspected genocide occurred span the globe. Consider the information contained in Figure 2.1. The timeline demonstrates that genocides have occurred in Africa, Asia, Europe and Central America. Even the small island nation of East Timor, northwest of Australia, was not spared. The following nations were selected to be the subject of research for this paper: Bosnia, Croatia, Cambodia, East Timor, Guatemala, Iraq, Kosovo, and Rwanda. These countries were selected because suspected genocides occurred after the enactment of the Genocide Convention, courts were established to prosecute cases of suspected genocide, final judgments were rendered in cases where genocides or crimes against humanity were charged, and mass graves were located and excavated. While other suspected genocides have occurred since World War II, they did not meet the above criteria (ICC 2010).

3.2 Databases Constructed to Analyze Genocide Information

To analyze and manage the information obtained from this research, three databases were constructed using Microsoft Office Excel 2003. The first database was designed to document genocides during the second half of the 20th Century. The second database documents reported

findings from mass grave excavations. Finally, a third database compares partial protocols use when excavating mass graves, and develops a comprehensive protocol specifically designed for use when excavating mass graves where genocide is suspected.

For the first database 'Genocide Database,' a structure was designed to document the following: stages of genocide, conditions present in the environment, facts of the crime, targeted groups, aggressor groups, manner of attack, and the status of the court cases. Appendix A, Genocide Database Key, provides a listing of each variable with definitions of the contents of each element and citations of source material for the definitions. Appendix B, Genocide Database, was developed during the analytical process, and summarized in section 4 Findings. Appendix B provides a sample of the first few pages of the database. When each country was posted to the Genocide Database, columns were designated for each country and for reference citations, except in the case of Bosnia where additional columns were included for the city of Srebrenica. Information for this database was obtained from articles and books, internet references established by scholars (such as The Cambodian Genocide Project sponsored by Yale University, both government and non-governmental organizations (such as the International Committee for the Red Cross), and court documents including indictments, testimony and judgments. Additionally, news accounts in the form of press releases and articles were used.

As can be seen from the above discussion, court cases were a significant source of information for this research. For each country, prosecutions of at lease three suspected perpetrators were selected. Selected cases focused on the occupants of leadership positions before and during genocidal events. Additionally, some cases of less-prominent people were selected to document the culpability of those not instrumental in planning and directing the genocide. Finally, cases were selected where testimony was given discussing mass graves and their exhumations. Table 3.1 provides a listing of those cases that were selected for this research.

A second database was designed to document the information gathered by forensic anthropologists and archaeologists from mass grave excavations. The data elements were designed to demonstrate the potential information that can be obtained from an excavation. Appendix C, Results of Mass Grave Excavations, contains the results from this phase of the research, and is summarized in section 4 Findings. Appendix C provides a sample of the first few pages of the database. The data were obtained from sources written by forensic

anthropologists and other researchers that completed excavations. Additionally, information was obtained from court proceedings that were used to document information contained in the first database discussed above, and from news accounts.

Finally, a third database was constructed to compare protocol information from the authoritative literature. Appendix D, Protocol Analysis and Development, documents the information obtained from various sources, its analysis, and the development of the genocide mass grave investigative protocol. The protocols selected for use in this appendix were the *Model Protocol for Disinterment and Analysis of Skeletal Remains* (UN 2010), the protocol presented by William D. Haglund, Melissa Connor, and Douglas Scott in their article, "The Archaeology of Contemporary Mass Graves" (Haglund et al. 2001) supplemented by Haglund and Sorg (2002) in *Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives*, and lastly a protocol from Erin H. Kimmerle and José Pablo Baraybar's (2008) in the text *Skeletal Trauma: Identification of Injuries Resulting From Human Rights Abuse and Armed Conflict*. Additionally, protocol information from mass grave excavation literature was included from various authors with practical experience excavating mass graves, professional experience in analyzing skeletal remains, and experience in the identification of remains from mass disasters. These references are provided in Appendix D. By comparing the protocols from these sources, a consolidated protocol was developed. Finally, Appendix E Protocol for the Excavation, Exhumation and Examination of Mass Graves and Their Contents, presents the protocol as a standalone document with appropriate references.

Table 3.1 Court Cases

Country	Name of the Case	Case Number
Bosnia	Prosecutor v. Vidoje Blagović and Dragan Jokić	IT-02-60-T
	Prosecutor v. Radislav Krstić	IT-98-33-T
	Prosecutor v. Biljana Plavšić	IT-00-39&40/1-S
	Prosecutor v. Rodoslav Brđanin	IT-99-36-T
	Prosecutor v. Dražen Erdemović	IT-96-22-Tbis
Cambodia	Prosecutor v. Guek Eav Kaing alias Duch	001/18-07-2007 /ECCC/TC
	Pol Pot and Ieng Sary	no number
Croatia	Prosecutor v. Miodrag Jokić	IT-01-42/1-S
	Prosecutor v. Pavle Strugar	IT-01-42-T
	Prosecutor v. Milan Martić	IT-95-11-T
East Timor	Prosecutor v. Joni Marques, Manuel da Costa, Joao da Costa, Paulo da Costa, Amelio da Costa Hilario da Silva, Gonsalo dos Santos, Alarico Fernandes, Mautersa Monis, Gilberto Fernandes	09/2000
Guatemala	Spanish Supreme Court: Guatemala Genocide	327/2003
Iraq	Saddam Hussein, Ali Hassan Al-Majid, & others	unknown
Kosovo	Prosecutor v. Milan Milutinović, Nikola Sainović, Dragoljub Ojdanić, Nebojsa Pavković, Vladimir Lazarević, Steten Lukić	IT-05-87-T
Rwanda	Prosecutor vs. Jean-Paul Akayesu	ICTR-96-4-T
	Prosecutor v. Theonéste Bagosora, Gratien Kabiligi, Aloys Ntabakuze, and Anatole Nsengiumva	ICTR-98-41-T
Yugoslavia	Prosecutor v. Slobodan Milošević	IT-02-54-T

4 FINDINGS

In this section, genocide within each country will be discussed by addressing the historical context, attacks, mass graves, prosecutions and issues relevant to each country. The eight countries selected for research will be discussed in alphabetical order, except for the countries of the former Yugoslavia. Because the genocides in these countries were planned, directed and initiated by central authorities in Serbia, Yugoslavia will be discussed as a whole first, then issues specific to Croatia, Bosnia and Kosovo will be discussed individually. Additionally, this section will discuss issues concerning the prosecution of genocide and crimes against humanity, as well as impediments to those prosecutions.

4.1 Cambodia

On April 17, 1975, when Pol Pot and the Khmer Rouge, seized Phnom Penh and exiled its inhabitants to the countryside, a chain of events was ignited that would cause more destruction to the country of Cambodia, its culture and its people than anything that had occurred to a single country since the end of World War II. Pol Pot and the Khmer Rouge initiated a plan to return Cambodia to 'Year Zero' or an idealized, communal, Stone Age state (Bedat 2010). The Khmer Rouge wanted to reorganize society to a state of agrarian purity to combat westernization by French colonizers (Murphy 2000; De Nike et al. 2000). The plan was to evacuate cities, abolish markets and currency, defrock Buddhist monks, execute all leaders of the army or the government under Lon Nol, expel the Vietnamese, and secure the Country's borders. The Khmer Rouge wanted to build a socially and ethnically homogeneous society by abolishing all preexisting economic, social and cultural institutions, and transforming the Cambodian population into a collective workforce (Bedat 2010; Luftglass 2004). From April 1975 to January 1979 the Pol Pot regime put to death twenty percent of the population of 8 million, or approximately 1.7 million people (Cook 2001; Human Rights Watch 2001; Kiernan 1999).

In 1954 Cambodia gained independence from France and was ruled by King Norodom Sihanouk until 1970. At that time a supporter of the United States, General Lon Nol, took power

on March 18. Between 1970 and 1975, multiple rebel groups fought against each other and the Nol government in an attempt to seize control (Luftglass 2004). During the Vietnam War, starting as early as October 4, 1965 under the Johnson administration, the United States began a bombing campaign that would last until August 15, 1973. The total payload dropped was 2,756,941 tons. To give this number some perspective, consider that during World War II the Allies dropped just over two million tons of bombs including those dropped on Hiroshima and Nagasaki. As a result, Cambodia, a country covering an area of approximately 70,000 square miles, and that is comparable in size to the state of Oklahoma, gained the dubious distinction of being the most bombed country on earth. This drove an enraged populace into the arms of the Khmer Rouge insurgency that had little support prior to the beginning of the bombing campaign. By 1975 this small Communist group was able to seize control of the newly-named Republic of Democratic Kampuchea (Owen and Kiernan 2006; Gardner 1990).

On April 17, 1975 the Khmer Rouge occupied the capital Phnom Penh and forced all of its inhabitants to leave the city, their homes, and their possessions. In one week alone, 2.4 to 2.8 million citizens from Pnom Penh were forced out of the city into the countryside. The population was divided into categories such as the Phnom Penh people, or persons residing in areas under the control of the Lon Nol administration that were called 'New People,' who were considered war prisoners or the vanquished. They were forbidden to think, express any principles contrary to the Revolution, maintain interpersonal contacts, show emotion or feelings, or move from one village to another. A second category included personnel of the Lon Nol administration. The people in these first two categories were considered parasites or microbes to be exterminated, smashed or swept aside. Finally, there was a category of persons called the 'Old Inhabitants' who resided in resistance base areas. In addition to categorizing people, there was a systematic program of displacing populations from north to south, from east to west, and vice versa. This enormous dislocation was initiated to create a society that had no attachments to the environment in which people lived before April 17, 1975 (Bedat 2010; Chigas 2000; De Nike et al. 2000).

While the genocidal aspects of the attack targeted minority, ethnic, and religious groups such as the Vietnamese, the Chinese who settled in Cambodia prior to April 17, 1975, and the Muslim Cham, the majority of the attack focused on Khmers killing Khmers (Murphy 2000). Whole sectors of the society were eliminated. For example, the educational infrastructure was

destroyed by killing professors, teachers and students along with their families. One peculiar aspect of the attack on intellectuals concerned the attacks on those who wore glasses. Accusations were brought against anyone who wore glasses because it was believed that intellectuals damaged their eyes by reading too much. The Kampuchean Communist Party ordered foreign-educated elites to be transferred to centralize communal organizations of factory workers and peasant farmers so that they would be free of external support. Ethnic minorities were singled out, including the Vietnamese who had settled in Cambodia and who had long been in conflict with Kampuchea. It was the Vietnamese invasion of 1979 that put an end to the Khmer Rouge reign of terror. It is estimated that 150,000 Vietnamese residents were expelled and 10,000 to 20,000 were killed. The Muslim minority was murdered and their villages were destroyed. The Cham who survived had to change their names, speak only Khmer, and eat pork. Their children were taken away to be raised by the collective to become Khmers. It is estimated that from two-thirds to three-fourths of the Cham population was annihilated. The Chinese minority that lived in Cambodia under Lon Nol were labeled 'Bourgeois Elements' and killed in 1975 (De Nike et al. 2000; Cambodian Genocide Group 2010; Stanton 1993).

Not only were people killed, but other acts, such as the destruction of all cultural artifacts and buildings, mass displacement of its citizens, and torture and interrogation of Khmers and minorities were standard practices. Pagodas and articles of worship were burned. Statues of Buddha were broken, and priests were stripped of their robes, tortured and killed. Mass dislocations included the evacuation of the Eastern Zone, whose inhabitants were suspected of being sympathetic to the Vietnamese. Each evacuee was given a blue and white checked scarf by the Khmer Rouge and required to wear it. The Eastern Zone people considered the scarves as 'the killing sign.' People passing through Phnom Penh were given blue scarves that were considered analogous to the Nazi yellow star. Most of these people were worked to death. At Tuol Sleng Prison in Phnom Penh, regulations were posted in every cell forbidding speaking, and requiring permission before doing anything. It is estimated that from 12,000 to 20,000 prisoners died from torture, execution, or poor detention conditions. Executions took place at Choeng Ek outside of Phnom Penh. Methods of interrogation included electric shocks, severe beatings, suffocation, suspension, and the forced consumption of human waste. Only seven or eight people are known to have survived imprisonment at Toul Sleng (De Nike et al. 2000; The Prosecutor v. Guek Eav Kaing 2010b; Luftglass 2004; Stanton 1993).

It is not surprising that mass graves were located throughout the country given that an estimated 1.7 million people were killed during the Pol Pot regime. Mr. Vang Pheap, warden of Tuol Svay Prison in Phnom Penh, provided testimony in the Trial of Pol Pot and Ieng Sary explaining the systematic nature in which people were murdered. The process included the following steps: pits were dug, prisoners were taken up near the pits, they were struck on the head with three meter long iron bars, and their throats and bellies were ripped open to pluck out the liver. After removing the livers, the killers often cooked and ate them because the liver was considered the source of power. By eating the liver, one asserted total power over the victim. Finally, the bodies were thrown into the pits and covered over. Initially, five to six prisoners were killed each day. However, by 1977 they were killing 130 to 150 prisoners a day. Often the executioners were so young, from 15 to 18 years old, that they did not have enough strength to kill the victim with the first blow. Some required two or three blows. At times, victims were still alive when buried. Other methods of killing included pushing bound men and children into crocodile pits, crushing people with bulldozers, blowing up large numbers of people, killing children by impaling them on bayonets tearing them from limb to limb, and shattering their heads against tree trunks; and poisoning people en masse. Execution-style killings targeted military personnel of the Lon Nol regime, then clergy, the educated, and ethnic minorities such as the Cham, Vietnamese, and Chinese (De Nike et al. 2000).

At Choeung Ek, about 50% of the human remains from mass graves located there were exhumed and placed in a memorial shrine or stupa (charnel house). Professional forensic scientists examined 85 crania from this collection and found that blunt force trauma had caused extensive damage to the occipital. This is consistent with an execution method that employs the application of massive force directed at the inferior squamous portion of the occipital. Blows to this area of the skull can easily result in death because of the proximity to the cerebellum, the brainstem, and the spinal cord. In four cases, multiple blows were apparent. The examiner concluded that these individuals were executed by means of a systematic method of blows to the back of the head (Ta'ala et al. 2008). A limited number of mandibles were also examined. In these cases, sharp force traumas from machetes or other heavy-bladed knives were noted. Fractures to mandibles were visible that affected the ascending rami and mandibular bodies. Most often, damage was to the right ramus. All fracture margins were sharp and clean indicating that the bone was green or fresh when damaged and that the fractures occurred before burial.

The examiner concluded that based on the extensive damage and evidence of sharp force injury, the likely weapon was a machete, commonly used in beheadings (Berg 2008).

Cambodia can claim the distinction of handing down the first two convictions for genocide. In 1979, once Vietnam invaded Cambodia and placed the government of the country back into the hands of the Cambodians, the Cambodians responded to the above atrocities by placing the Prime Minister Pol Pot and his Deputy Prime Minister Ieng Sary on trial for genocide and convicting them (Luftglass 2004). The Cambodians established the People's Revolutionary Tribunal to discredit the Khmer Rouge and challenge the international community that recognized the Khmer Rouge government as the lawful government of Cambodia. The new government hoped that this trial would give them recognition as the lawful government among the international community and in the United Nations (De Nike et al. 2000). Once judgment was rendered, both defendants were given the death penalty. However, this sentence would never to be carried out. Pol Pot died in April 1999, "abandoned and alone in a thatch hut." In that same year, the Cambodian government offered Ieng Sary amnesty (Kiernan 1999:1).

The trial of Pol Pot and Ieng Sary was not recognized as legitimate for several reasons. The two defendants were tried in absentia, which is a violation of the International Covenant on Civil and Political Rights. The Decree Law establishing the People's Revolutionary Tribunal contained prejudicial language that assumed their guilt (Luftglass 2004). Additionally, the definition used by the Tribunal was not from the Genocide Convention contained in Table 3.1. The Cambodian definition included the following:

> planned massacres of groups of innocent people; expulsion of inhabitants of cities and villages in order to concentrate them and force them to do hard labor in conditions leading to their physical and mental destruction; wiping out religion; [and] destroying political, cultural and social structures and family and social relations (Luftglass 2004:903).

Finally, consider the reports provided to the Tribunal of mass graves, and presented in part in Appendix C. From the crematories in Kompong Thkau village, human remains are described as "fragments of white bones"(De Nike 2000:238). From the Chup Rubber Plantation, human remains are described as "nine skulls, six of which still have locks of hair … and two jawbones … detached. One skull has a hole on top 1.5 centimeters by 3 centimeters in size ... two leg bones 35 centimeters long which are tied with electric wire" (De Nike et al. 2000:259). Compare these descriptions to those from Choeung Ek that provided the correct names of the

bones and specific anatomical descriptions of the skeletal injuries. One cranium "displayed a pattern of BFT (blunt force trauma) distinguished by extensive damage to the occipital focused between the external occipital protuberance and the foramen magnum, with radiating fractures extending to the cranial base" (Ta'ala et al. 2008:196). A second description states that "the trauma was visible as fracturing of the mandible, principally affecting the ascending rami and the lingual aspects of the mandibular bodies" (Berg 2008:315). Although the forensic scientific evidence of the Tribunal appears to have been prepared in a less professional way than those from trained professional forensic scientists, the background information and witness testimony appears to be well corroborated and credible. After the trial of Pol Pot and Ieng Sary, no additional prosecutions were planned.

Over 25 years after the fall of Phnom Penh in 1975, and after years of negotiations with the government of Cambodia, the United Nations signed off on a formula for prosecuting those accused of committing crimes against humanity and genocide in Cambodian courts with international assistance (Cook 2001). On June 6, 2003 the Royal Government of Cambodia and the United Nations signed an agreement establishing the Extraordinary Chambers in the Courts of Cambodia (ECCC). That chamber was established to conduct the trial of senior leaders of Democratic Kampuchea and those responsible for crimes committed by them between April 17, 1975 and January 6, 1979. On July 26, 2010, 35 years after the fall of Phnom Penh, Guek Eav Kaing, the Deputy and then Chairman of S-21, a security center known as Toul Sleng Prison including Choeung Ek, was found guilty of crimes against humanity and grave breaches of the Geneva Conventions of 1949. He was sentenced to 40 years imprisonment (The Prosecutor v. Kaing 2010b). Unlike Guek Eav Kaing, the following four defendants had an additional charge of genocide added to charges of crimes against humanity: Nuon Chea, Ieng Sary, Ieng Thirith, and Khieu Samphan (The Prosecution v. Nuon, et al. 2011). Once these trials have been completed, the question of the extent and nature of genocides committed should be settled.

4.2 East Timor

The tiny nation of East Timor has the unfortunate distinction of having one of the longest running genocides of the second half of the 20th century. The island of Timor was initially colonized by Portugal in 1511. When Portugal withdrew from East Timor and dissolved its colonial empire in 1975, Indonesia invaded East Timor within days of Portugal's exit and began

a 25 year occupation that ended in 1999 (BBC 2010). During its occupation, Indonesian armed forces killed an estimated 200,000 Timorese (Power 2008). The deaths were the result of invasion, war, murders and arrests, destruction by Indonesian forces, and the incarceration of East Timorese in concentration camps (Magro 2000).

The island of Timor is located 430 kilometers northwest of Australia, and its eastern half covers an area of 5,641 square miles, slightly larger than the State of Connecticut. Prior to the arrival of the Portuguese, the island was ruled by two kingdoms, Serviao in the west and Belu in the east. Once the Portuguese colonized the island, a mixed race of Topasses was produced as a product of unions between Portuguese colonizers and indigenous people. They were called Black Portuguese by the Dutch. The Topasses eventually became the de facto rulers. The Dutch invaded the island and eventually signed a border agreement in 1858, dividing it into two components. Boundary disputes continued until 1913, when the boundary dividing East and West Timor was ratified by The Hague *Sentenca Arbitral*. By 1949, West Timor was incorporated into the independent state of Indonesia. The eastern side of the island remained under the repressive rule of Portugal, whose officials called the island, 'the gateway to hell,' because it was plagued with malaria and other tropical diseases. When the Portuguese Empire began to crumble in 1974 as a result of a coup, Portugal offered independence to its colonies including East Timor. On September 11, 1974 the *Associacacao Sosial Democratica Timorenses* or ASDT became known as the *Frente Revolucionária de Timor Leste Independente Timor* or FRETILIN. This group defended the right of the East Timorese to be independent. When East Timor was invaded by the Indonesians, the FRETILIN became rebels against the Indonesian military. Subsequently, when the East Timorese established the Democratic Republic of East Timor, the Indonesians launched an attack on Dili, the capital of East Timor on December 7, 1975. The Suharto military regime in Indonesia wanted to prevent the establishment of an independent state in place of the colonial regime that had controlled the eastern half of Timor (Margo 2000; Gardner 1990).

The Commission for Reception, Truth, and Reconciliation in East Timor found that an overwhelming majority of all of the unlawful killings and enforced disappearances were committed by Indonesian security forces. The Indonesian military and police were responsible for 57% of the deaths. An additional 37% of deaths were committed by East Timorese

auxiliaries under the control of the Indonesian security forces. The East Timor Resistance was responsible for the remainder of the killings (CAVR 2005).

Killings began within the first few days of the invasion by the Indonesian forces that indiscriminately gunned down civilians. Hundreds of Timorese and Chinese were killed at random. The Indonesians held public executions such as one incident where about 150 people were killed. The incident began when about 20 women were selected at random, led out to the edge of a jetty, and shot one at a time while horrified onlookers were forced at gunpoint to count out loud as each woman was executed. Additional atrocities included the use of chemical weapons, torture by beatings, electric shock, crushing, and immersion in water (Margo 2000). After 1984, arbitrary detentions became more targeted and more frequently accompanied by torture. East Timorese middle-aged males experienced the highest rate of detention, torture and ill-treatment, while women were sexually violated (Silva and Ball 2006). During five months of wanton destruction in 1999, troops and militias looted and burned tens of thousands of homes and public buildings, smashed electric generators and destroyed 85% of the county's schools and 75% of the health infrastructure (Steele 2002). The Indonesians forced the evacuation of the majority of people living in the mountain and forest areas controlled by the FRETILIN. The Indonesian military made inadequate provisions for the evacuees' needs and placed restrictions on movement that prevented camp inmates to provide for themselves. This resulted in a famine that killed thousands. During 1975-1979 displacements, killings, detentions, and torture reached their highest levels. A second high level of this type of activity occurred during a relatively brief time frame when the results of the referendum on independence were announced in 1999 (CAVR 07.3 2005). When the Indonesians left East Timor after the vote, they left graffiti on building walls saying "SLOWLY BUT SURELY, THIS PLACE WILL FALL APART" and "A FREE EAST TIMOR WILL EAT STONES" (Power 2008:298).

These unlawful killings came to the world's attention on November 12, 1991 when the infamous Dili Massacre occurred. At 6 a.m. a memorial mass started for a student killed by Indonesian military during a raid on *Motael* Church. Once the mass was completed, the mourners, including over one thousand students, marched to the Santa Cruz cemetery. At the cemetery, the military started shooting into the crowd. After ten minutes, the shooting stopped; and an estimated 270 people were killed and an additional 200 went missing (Margo 2000:8). Nearly 18 years after the massacre at Dili's Santa Cruz cemetery, the victims were located by

Timorese investigators and experts from the Victorian Institute of Forensic Medicine in Australia. They were discovered in unmarked graves at Hera when a local gravedigger testified that the army had forced him to bury the remains. In August 2009 the remains were exhumed (Jolliffe 2009; Murdoc 2010). However, the analysis and findings from these remains are not yet part of the public record.

The Special Panel for Serious Crimes in East Timor was established within the Dili District Court to take jurisdiction over serious criminal offenses of genocide, war crimes and crimes against humanity, murder, sexual offences and torture during the time of invasion and occupation of East Timor by Indonesian forces (The Prosecutor v. Wiranto et al. 2001). This court has successfully prosecuted cases of crimes against humanity, such as the case of The Prosecutor v. Joni Marques, Manuel Da Costa, Joâo Da Costa, Paulo Da Costa, Amélio Da Costa, Hilârio Da Silva, Gonsalo Dos Santos, Alarico Fernandes, Mautersa Monis and Gilberto Fernandes. All were charged and convicted of crimes against humanity. Their average sentence was 19.36 years with a range of 4 to 37 years. However, none was convicted of genocide (The Prosecutor v. Marques et al. 2001b). Consistent with the cases of genocides in other countries researched for this paper, those occupying leadership positions with decision-making and policy-setting responsibilities were the ones usually charged with genocide, because they were the ones who formed the discriminatory intent to attack specific groups. Although arrest warrants have been issued for leaders such as General Wiranto, no convictions for genocide have been issued by the Special Panel against these leaders. The most significant obstacle to successful prosecution of these crimes has been Indonesian refusal to accept the jurisdiction of the East Timor court. Consequently, the perpetrators of the heinous crime of genocide will probably go unpunished (New York Times 2004; War Crimes Studies Center 2010).

4.3 Guatemala

The Guatemalan genocide was similar to the Cambodian experience in that the leadership of the country sought to control the populous through intimidation, torture and murder. By using the colonial era oligarchic social structure that relied on forced labor from indigenous people, the Ladino elites of Guatemala fostered beliefs that indigenous Mayas were “lazy, vicious, conformist, distrustful, reluctant to be civilized and abusive” (Aylward 2007:52), to justify atrocities against the entire Mayan ethnic group. The Ladinos fanned the flames of fear that the

indigenous would rise up against Ladinos. This was combined with paranoia over the Cold War and anxiety over the threat of Communism. From 1962 to 1996 over 200,000 people were killed or disappeared, 626 village massacres occurred, 150,000 people fled to refuge in Mexico, and 1.5 million people were displaced. All of this violence occurred in a country the size of Kentucky (Aylward 2007; Oettler 2006; CEH 1999; Sanford 2008; Gardner 1990).

After independence from Spain in 1821, an authoritarian state evolved that served the interest of the minority, powerful, and wealthy class. By the end of the nineteenth century, Guatemala developed coercive mechanisms to integrate indigenous populations into a plantation economy and used repressive measures to maintain social control. With encouragement from the US Central Intelligence Agency (CIA) and the Catholic Church, an anticommunist counterinsurgency overthrew the first democratic government in a *coup d'état* in 1954 (Ottler 2006). After the overthrow of the government, what emerged was rapid reduction of freedom for political expression using new legislation outlawing extensive and diverse social movements, and measures to consolidate the restrictive and exclusionary nature of the political system. Facing injustice, exclusion, poverty and discrimination, the Guatemalan insurgency rebelled (CEH 1999). Based on the tenets of liberation theology, young Catholic priests trained young indigenous people as community leaders. Two trends emerged. A class-focused trend concentrated on economic problems, and a cultural-focused trend focused on ethnic identity (Aylward 2007). The armed confrontation in Guatemala that began in the 1960s between several guerrilla groups and the State lasted for 35 years, or 10 years longer than the occupation of East Timor. In response to the insurgency, the United States supported strong military regimes, such as the one in Guatemala, by providing military assistance that included reinforcing the national intelligence apparatus and training the officer corps in counterinsurgency techniques. What was first expressed as anti-reformist and anti-democratic policies, culminated in a criminal counterinsurgency military action (CEH 1999).

The Recovery of Historical Memory Project (REMHI) defined massacres as, "Collective murders of three or more people," and, "collective murders associated with community destruction" (REMHI 1999:134). Often, massacres occurred during large-scale military operations that were accompanied at times with bombing both before and after the massacres. General Romeo Lucas Garcia, President from July 1978 to March 1982, initiated a policy of annihilation. Succeeding him, General Efrain Ríos Montt, President from June 1982 to August

1983, further systematized the carnage. His presidency is considered the bloodiest period of systematic genocide, torture terror and cruelty directed at the indigenous Maya. Under Montt's regime, Mayans were targeted, killed, tortured, raped, and kidnapped. It is estimated that 93% of these atrocities were carried out by government forces that included the army, civil patrol, and/or people ordered to commit these heinous acts by government leaders. One example occurred on Sunday, June 18, 1982. According to eyewitness testimonies, the military came to the small town of Plan de Sanchez, where they blocked the road. People returning from the market in the town of Rabinal, were detained in a house. The military opened fire on the house, and detonated several grenades. The house was then set on fire. After obtaining permission to bury the dead, the remains were buried in shallow graves. Several women who had been raped and shot were placed in a separate grave. Surviving family members estimated the number of those killed that day at 99. In 50% of massacres like this one, the mass killing of children was included. Descriptions of the murders included incineration, machete wounds, drawing and quartering, and frequently, severe head trauma. Children were also killed by indiscriminate machine-gun fire. This aggression toward children included the raping of young girls (Oettler 2006; CEH 1999; Scott 2009; Schmitt 2002; REMHI 1999).

One of the most insidious aspects of the genocide was the coercive conscription of young men over the age of fifteen into the Civil Patrols (CEH 1999). The army's training of the Civil Patrollers was based on forcible recruitment, obedience, strict control over groups, and complicity in atrocities. This training was designed to instill an ideology that would serve as a psychological frame of reference for justifying atrocities. The army's intent was to foster a sense of unity and a preconditioned hostility toward anything related to the guerrilla movement. The army was presented as victim, and poverty was blamed on guerrilla actions. To force complicity, the army involved the Patrollers in the murder of drifters or alleged criminals. One aspect of the army's counterinsurgency policy was to routinely conduct mass murders of alleged collaborators to destroy the guerrillas and their infrastructure. Civil Patrollers and military commissioners participated in many massacres, either under duress or as a result of their indoctrination. To isolate the guerrillas, a series of large-scale indiscriminate massacres were launched by the army against the civilian support base. The process included routing civilians out of hiding; terrorizing them; starving them; burning their homes and crops; destroying their household

utensils; and stealing their belongings. Once people were forced out of their homes, they were clustered into 'special camps' (REMHI 1999).

In many cases, Civil Patrollers were forced at gunpoint to rape, torture, mutilate corpses, and to kill. The extreme cruelty inflicted on the Maya by the Army and the Patrollers caused social disintegration that was so profound that it deeply affected moral values and behavioral patterns. Violence became the norm for confronting conflict situations and promoting contempt for the lives of others. The impact on village life was devastating. Victims had to coexist with perpetrators, creating a climate of fear and silence. Additionally, the systematic torture of Maya resulted in the formation and presence of experts trained in the most efficient and deviant ways of applying pain to crush victims physically and spiritually, and to tolerate the normalization of torture. Maya were required to conceal their ethnic identity, language and dress. Aggression was directed at the most symbolic elements of Maya culture by destroying corn and killing elders. The presence of guerrillas also had a destructive effect on Maya customs by displacing traditional authorities with those appointed by the guerillas (CEH 1999). While the Army was implicated in 90.52% of the massacres, the smaller number of guerrillas massacres were committed only when communities were highly militarized by the presence of Civil Patrols. The techniques of using informers, congregating people into central locations, dividing people into groups and conducting orgies were not attributed to guerrilla forces. No cases of coercive participation, rapes, repeated massacres, or razing entire villages were found by the Recovery of Historical Memory Project. The guerrillas often used lists to determine victims indicating a more selective use of mass murder. This differentiates the cases of guerrilla killings from those massacres designed to eliminate communities (REMHI 1999). While this does not excuse the crimes committed by guerrillas, it does indicate that the guerrillas did not have the discriminatory intent to destroy an ethnic group.

One unique aspect of the recovery operation in Guatemala is the presence of The Guatemalan Forensic Anthropology Foundation (FAFG). FAFG is a non-governmental autonomous, technical-scientific, not-for-profit organization. It investigates, documents, disseminates, educates, and raises awareness of the historic violations of the right to life and cases of non-clarified deaths. Their mission is oriented toward the

> Location and identification of missing persons and … victims of the abuse of their human rights quickly, precisely and cost-efficiently for the historical clarification, the dignification of the victims and for the search for justice (FAFG 2011:1-2).

All excavations selected for Guatemala in Appendix C were done under the direction of FAFG. The Nebaj excavation of nine individuals documents the cruelest and most horrifying type of torture. The cause of death was from hypovolemic shock resulting from sharp-blunt force trauma. The skeletal remains were mutilated perimortem with most of the injuries located near joint articulations. The victims were subjected to torture that involved immobilization of the individuals using sharp-blunt force trauma to the upper and lower limbs, and ligatures. The presence of cut marks associated with dismemberment is consistent with witness testimony that indicated that it was common practice by the army to use cutting and amputation during interrogations. The fourteen-year-old subadult who was located in the mass grave had 88 such injuries, the most of all 9 individuals found (Chacón et al. 2008). A second mass grave in Plan de Sanchez had a minimum number of individuals (MNI) of 84. Since the remains were heavily comingled, charred and fragmented, MNI was determined by using long bones divided into three equal units; cranial vaults, maxillae, and mandibles divided into left and right haves; and innominates divided into the three component parts: left and right ilium, ischium and pubis. By carefully inventorying all elements in this way, MNI was determined by the most frequently encountered element, the proximal third of the right femur (Schmitt 2002).

A third mass grave from an agricultural field in Chichupac included clothing, jewelry and identification cards that were used for the identification of individuals contained in the grave. The exhumation team carefully packaged these associated artifacts with the remains so that their documentation could be completed at a later point. In Guatemala, it was common for family members to be present at the graveside when exhumations were conducted, as in this case. Family members were able to identify individuals by recognizing the above artifacts associated with the remains. However, this identification needed to be corroborated by a complete forensic skeletal examination to determine if the information from that analysis was consistent with the person in life. At best, the identification of an individual based on associated artifacts is only circumstantial evidence. The remains were heavily damaged, and disarticulation of the remains suggested that the remains were initially interred superficially or within 90 cm from the surface. Remains in deeper layers were less damaged. Reburial had taken place after decomposition had

loosened the points of articulation. These findings corroborated witness testimony of shallow burials at first, followed by reburial of partially decomposing remains 7 to 10 days later (Schmitt 2002).

In 2006, Judge Pedraz of the Spanish National Court issued international arrest warrants charging three former heads of state and five military officials with genocide, terrorism, torture, assassination, and illegal detention. Initially, the defendants were arrested and detained for over a year before the Guatemalan Constitutional Court decided that it would not honor the Spanish warrants and extradition requests. All of those charged argued that self-granted immunity gives them immunity from prosecution under these warrants. Consequently, even though they were freed, Guatemala has become their prison, because International Criminal Police Organization (INTERPOL) agreements makes any visitor with an international arrest order on INTERPOL's list subject to immediate extradition. Because the Guatemalan Constitutional Court declared that the arrest warrants and extradition request were invalid, Judge Pedraz was barred from interviewing witnesses in Guatemala. In response to the Constitutional Court's action, in 2008, the Center for Justice & Accountability (CJA) brought over 40 indigenous Guatemalans to Madrid to testify. This marked the first time that a national court heard evidence from Mayan survivors. On December 1, 2009, Judge Padraz heard testimony from the Director of the FAFG, Fredy Peccerelli. He presented the Judge with a 900-page report analyzing 363 excavations that included 1,884 victims exhumed, with more than 25% of them found to be infants and children. Gunshot wounds were present to the head of 78% of the victims (Roht-Arriaza 2009; Sanford 2008; CJA 2009).

There is one event in Guatemala that points to the insidious nature of allowing those who commit genocide to remain free. It concerns the safety of those who work to investigate genocide and crimes against humanity, and who attempt to speak truth to power. Two days after the issuance the final report of the Recovery of Historic Memory Project (REMHI), titled, *The Official Report of the Human Rights Office, Archdiocese of Guatemala*, Bishop Juan Gerardi, the leader of the REMHI project, was brutally murdered by three high-ranking military officials and the Bishop's assistant (Justice 2007).

4.4 Iraq

In Iraq, during Saddam Hussein's reign, two distinctive ethnic groups were attacked. The first, and most notable, was the attack on the Kurds of northern Iraq. The Kurds were an ethno-linguistic group that inhabited the mountainous area where the borders of Turkey, Iran, Iraq, and Syria converge. The Kurds were the fourth largest ethnic and linguistic group in the Middle East after the Arabs, Turks, and Persians. They are a stateless people who occupy a swath of territory that includes parts of Turkey, Iraq, Iran, Armenia and Syria. They number over 25 million people, and are the largest ethnic group without their own state (Power 2002; O'Leary; Montgomery 2001). In Iraq, the Sunni Kurds made up more than 4 million of Iraq's 18 million inhabitants. The Kurds in Iraq were subjected to poison gas and other types of attacks that killed between 50,000 to 100,000, destroyed over 4,000 villages, and forcibly resettled 1.5 million. Kurdish resistance fighters called themselves "*peshmerga*, or those who face death" (Power 2002:174). The second group, known as, 'Marsh Arabs,' was an ethnically and culturally unique group of Shi'a Muslims who lived where the Tigris and Euphrates rivers met and fed what was once the largest marshland in the Middle East. They were dependant on the marshlands for food and lived in huts on mounds of dried marsh reeds. They were attacked indirectly when the marshes were drained, depriving them of their subsistence and their water-borne way of life. Out of an estimated population of 200,000 Marsh Arabs, only 40,000 are left (Power 2002; Kelly 2005).

The country of Iraq was artificially created by the British Foreign Office at the conclusion of World War I. By creating a new state out of the oil-rich Kurdish Mosul province, the administrative center of the Sunni Arab Baghdad province, and the oil-rich Shi'a Arab Basra province, the British hoped to diminish French influence in the Middle East. The ethnic makeup was 20% Sunni Arabs, 17% Sunni Kurds, and 60% Shi'a Arabs (Kelly 2005). Iraq occupies a land mass of 169,235 square miles or about 5,500 square miles larger than California (Gardner 1990).

Saddam Hussein's primary concern when taking power in 1979 was to hold the multiethnic and multireligious country of Iraq together by imposing iron-fisted rule. Following the style of Tito's dictatorial rule of Yugoslavia, Hussein inflicted grievous harm on those who opposed him. His second concern was to control the oil wealth in the Kurdish north and the Shi'a south. A two-pronged approach was used. First, the inhabitants in oil-rich areas were

oppressed, displaced, and killed. Second, Hussein's Arab kinsmen repopulated these areas, in particular, around Kurdish Kirkuk. Hussein targeted the Kurds and Shi'a during or just after warfare with foreign powers. Hussein's intent was to punish disloyalty and place rich economic resources under the control of the central government (Kelly 2005)

In September 1980, Iraq's army crossed into Iran, starting an eight-year-long war. In the spring of 1987, Iran made significant gains with the assistance of Iraqi Kurds. Desperate to stem the advance of the Iranian army, Saddam employed chemical weapons. This effectively offset Iran's advantage of larger troop numbers. To deal with the 'Kurdish Problem,' Hussein appointed his cousin Ali Hassan al-Majid, leader of the Ba'ath Party's northern bureau, with the task of eradicating all Kurdish resistance. Al-Majid initiated eight military campaigns from 1987 to 1989. Having seen the effectiveness of chemical weapons against the Iranian army, Hussein and Al-Majid used them against his internal enemy, the Kurds, in May 1987. This earned Iraq the dubious distinction of becoming the first country ever to use chemical weapons on its own citizens. While Iraq's gas attacks received public attention, most of the Kurds who died in the eight campaigns that became known as the Anfal Operation, or Al-Anfal (The Spoils), were killed in mass executions. Kurdish men were rounded up outside of battle zones where they posed no military threat, bussed to remote areas, and machine-gunned. The most notorious and the deadliest gas attack took place in the city of Halabja. The loss of approximately 5,000 civilians and the accessibility of Halabja to outsiders made people outside of Iraq take notice of the brutality of these attacks. Located 15 miles inside Iraq, Western reporters were able to reach the site of the attack from Iran. Although Halabja was only one of at least 40 chemical attacks to take place during the Anfal Operation, it became emblematic of the Kurdish genocide. Al-Majid, who earned the sobriquet, 'Chemical Ali,' employed a variety of chemical weapons including mustard gas, a blistering agent, and Sarin, a nerve agent known as GB (Power 2008; Kelly 2005).

Although the chemical weapons attacks were the most notable, the genocide included mass executions, actions that caused serious bodily and mental harm, and the destruction of the Kurds as a group. Captured al-Majid directives banned all human existence in prohibited areas. This not only included chemical attacks, but a shoot-to-kill policy. One directive was an incitement to mass murder, when the military was ordered to carry out random bombardments with artillery, helicopters and air attacks. Anyone captured between the ages of 15 to 70 were to

be executed once useful information was obtained from them. The elderly were bused to a concentration camp in the desert where an average of four or five succumbed from exposure and infection each day (Kelly 2005). Kurdish women were taken to concentration camps, raped, forced to witness the killing of family members, starved, and forced to walk on broken glass (Trahan 2009). The Anfal Operations commonly featured looting and fire bombing of villages by Iraqi soldiers, and rendered Kurdish life extinct in zones Hussein identified as outlawed. Forced deportations often accompanied the destruction of villages. By the end of the Anfal campaigns, 1.5 million Kurds had been forcibly resettled, and 60,000 Kurds had fled to southeastern Turkey (Kelly 2005). Investigators from the United States reported that Kurdish village upon Kurdish village had simply disappeared. The Iraqis had destroyed all traces of some villages that had been in existence since the beginning of civilization. Even cemeteries and orchards were utterly destroyed. Only Iraqi Arab villages were left untouched. In the wake of the Halabja attacks, survivors were left with corneal scarring from mustard gas burns, birth defects such as cleft palates and harelips, infant deaths, leukemia and lymphomas at rates four times higher than in unexposed areas, and permanent genetic mutations (Power 2002).

In addition to the attacks on the Kurds in the north, Saddam Hussein's regime carried out a concerted and planned effort targeting the Marsh Arabs with the intent to destroy them as a group. Military attacks killed and injured large numbers of civilians. Additionally, the draining of the Marshlands created conditions that made it impossible to survive. Initially, the Marsh Arabs were dehumanized by the Hussein regime by calling them, "Inferior and un-Iraqi monkey-faced people" (Kelly 2005:997). When the military offensive began during the Iran-Iraq war, Hussein's regime began draining the Marshland. Large earthworks were constructed in the drained areas. Massive relocations were undertaken that led to the physical destruction of the Marsh Arabs. Marsh Arabs were also subjected to chemical weapons attacks. Napalm was used to poison the water, kill the wildlife, and eliminate the Marsh Arabs' food chain. Villages of most tribes were razed. Saddam Hussein justified the attacks on the Marsh Arabs by citing the economic objective of securing the oil wealth in the south, ferreting out Iranian sympathizers, and establishing defensive positions in the marsh areas. A captured document titled "Plan of Action for the Marshes" laid out the plan for draining an area that was considered a haven for Iran-backed Shi'a rebels sowing the seeds of dissent. Marsh Arabs who were not killed during the chemical attacks or the drainage and razing process, and who remained on the 15% of

marshland that survived, fled to Iran. Consequently 95,000 Marsh Arabs were exiled to refugee camps along the Iranian border. Their homeland and way of life was decimated (Kelly 2008).

The information on mass graves that resulted from the above crimes was found to be limited for two reasons. First, forensic investigators who exhumed mass graves were restricted from providing details of locations, names of investigating bodies, and reasons for conducting investigations when writing articles for publication because of ongoing trials and the prosecutorial nature of an investigation intended to provide evidential information for presentation in a war crime tribunal in Iraq (Anson and Trimble 2008). Second, starting in 1991, Kurdish investigators began exhuming mass graves to locate and identify family members. However, the investigators did not have the expertise to professionally excavate the graves and collect pertinent evidence in a way that would allow presentation during prosecutions (Stover 1992).

In spite of the above difficulties, three sources were located that examined mass graves, and they are instructive for this research. One report of a seven-day-fact-finding trip and two news articles provided the information on Iraqi mass graves presented in Appendix C: Results of Mass Grave Excavations Database. The results of excavations of graves from the Saywan Cemetery in Northern Iraq disclosed that two of the four graves excavated contained victims of executions. The first skeleton was that of a young man with a bullet wound in the dorsal aspect of the skull and an exit wound in the base of the skull that proceeded through the upper neck. The second skeleton was that of an adult man with and entrance wound on the left side of the skull and an exit wound on the right side. The wound appeared to be a double-entry wound from an automatic weapon. Additionally, there was one eroded projectile recovered from the interior of the skull. These findings corroborated a grave digger's description of burying 75 to 80 bodies with gunshot wounds to the head. A third skeleton was that of an adult female. While there was no apparent trauma visible on the skeleton, an assistant pathologist, Anwar Ali Mohammad, who was assisting the forensic team, recognized the remains. The woman's morgue records were located, and she was identified as Gula Karim Ahmed. Once she was identified, the grave digger remembered burying her, and that she had bruises around her neck. She had been brought to the morgue by Iraqi soldiers. The autopsy report disclosed that she had been hanged to death by a rope. The forensic team concluded that there was enough evidence to warrant a U.N. supervised

investigation of the Hussein government who may have been responsible for the deportation and killing of tens of thousands of Kurds (Stover 1992).

The New York Times reported that two additional mass graves had been located. One by the Mahawil brick factory, 50 miles south of Bagdad, may contain human remains from as many as 3,000 individuals. Many of the skulls are wrapped in blind-folds that are marked with execution wounds. This information corroborates a victim statement from Mahmoud Shakr Abdel-Hussein, who described his brush with death. He, along with 400 prisoners, was taken to a warehouse in Basra, where Ali Hasan al-Majid took a Kalashnikov rifle and pointed it at the group. After asking, "Were you involved?" he shot 13 men, one at a time. Finally, shaking with rage, he released the weapon and left (Tyler 2003:1-2). A second Times article discussed a mass grave located on the Edge of the Ash Sham Desert in West Central, Iraq. Human remains from 28 men between the ages of 20-35 were located. In addition to human remains, at least 80 spent cartridges from Kalashnikov rifles were located. This evidence seems to confirm information from Mr. Juhi, an Iraqi judge, indicating that young men of fighting age were seized at random and executed without trial. These victims seemed to have died during Saddam Hussein's suppression of the Shite uprising in 1991. According to Michael Trimble, head of the excavation team, "The men who killed all these people came down this road, and they did what all mass murderers do – they dug deep, they killed their victims quickly, they covered them up and then they left, as quickly as they came" (Burns 2006:7).

Prosecution of the principals responsible for these atrocities fell to the Iraqi High Tribunal that was established once the United States and its allies had completed its initial invasion of Iraq during the Second Gulf War. Interestingly, Saddam Hussein was not prosecuted for genocide, but for the actions he and his codefendants had taken in response to a failed assassination attempt on Hussein's life. In retribution for this attempt, Hussein, 3 senior government officials, and 4 lower-level Ba'ath party members detained and tortured 800 hundred men, women, and children, sentenced 148 male detainees to death, and confiscated and destroyed property and land. In the Tribunal's first judgment, all eight defendants were found guilty of crimes against humanity. Saddam Hussein was sentenced to death by hanging. On December 30, 2006, he was executed (Kelly 2007). In April 2006 prior to Hussein's execution, the Iraqi High Tribunal charged seven defendants with crimes against humanity and war crimes for their actions related the Anfal operation. Two of the defendants, Saddam Hussein and Ali

Hassan al-Majid, had additional charges for genocide. Once Hussein was executed, proceedings against him were discontinued (Tabassi and van der Borght 2007). Finding that al-Majid intended to eradicate the Kurds in Northern Iraq, the Tribunal convicted al-Majid of genocide, crimes against humanity, and war crimes. He was subsequently executed (Trahan 2009).

4.5 Rwanda

The genocide in Rwanda lasted 100 days. On April 12, 1994, the presidents of both Rwanda and Burundi were killed when a surface-to-air missile shot down their plane (Iliopoulos 2008). This event triggered the wanton massacre of three-quarters of the Tutsi population and thousands of moderate Hutu and their families throughout Rwanda (Des Forges 1999). By the time the orgy of violence ended on July 18, 1994, an estimated 500,000 to 1,000,000 or more people were dead (The Prosecutor v. Akayesu 1998) in a country less than 400 square miles larger than the State of Vermont (Gardner 1990).

Rwanda was ruled as a colony of Germany beginning in1897, then by Belgium after 1917. Rwanda was a complex advanced monarchy that ruled through representatives from Tutsi nobility. In those days, the Hutu and Tutsi were distinguished by lineage rather than ethnicity. Both colonial powers relied on elites to rule. This ruling class was composed of people who identified themselves as Tutsi. Since the Tutsi looked more like Europeans, because of their stature and skin color, the colonizers believed that the Tutsi were more intelligent and better able to govern. Consequently the Belgians decreed that the Tutsi alone should be officials of the government, and Hutus should be systematically removed from positions of power. Additionally, the Hutu were excluded from higher education because such education was meant for those wanting careers in the administration. Those Hutus aspiring to higher education could study only in religious seminaries. This discriminatory policy gave the Tutsi a monopoly over public life that lasted beyond the 1920s and 1930s. It was the Belgians who defined Rwanda's three ethnic groups. Hutus represented 84% of the population, the Tutsi about 15%, and the Twa only 1%. The Belgians also required each Rwandan to carry a card that noted each person's ethnic identity. This practice continued after Rwandan independence (The Prosecutor v. Akayesu 1998; Des Forges 1999).

At the beginning of the decolonization process in the late 1940s, the Rwandan elites attempted to free themselves from the domination of the Belgian colonizers and the Catholic

Church. This caused both the Belgians and the Church to shift their alliances from the Tutsi to the Hutu by developing political awareness among the Hutu majority. Hutus were given more opportunities for education and senior government office by the Belgians. In 1956, the Belgians organized an election based on universal suffrage. The outcome of the election was decided along ethnic lines, giving Hutus an overwhelming majority. This meant the end of Tutsi supremacy and the beginning of confrontations with the Hutu. Bloody incidents first victimized the Hutu, who in turn looted Tutsi homes. The cycle of violence ended on October 18, 1960, when Belgian authorities established an autonomous provisional government headed by Grégorie Kayibanda, head of the Hutu grassroots movement. On July 1, 1962, Belgium granted self-government to Rwanda, and independence was declared. By July 5, 1973, disagreements with the Kayibanda regime resulted in anarchy and a coup that brought General Juvénal Habyarimana to power. With the political success of the Hutu parties, Tutsi began to flee to neighboring countries where Tutsi paramilitary units made incursions into Rwanda (The Prosecutor v. Akayesu 1998). In 1993, a four-year-long civil war was settled by the Arusha Accords one year before the outbreak of genocide. The killing of Habyrimana with the surface-to-air missile, gave Col. Théoneste Bagosora, the operational commander of the Rwandan military, the excuse he needed to begin execution of the plan for genocide (Iliopoulos 2008).

The plan for the attack included an extensive propaganda campaign and a campaign of killing by military and civilian militias. A sophisticated and virulent propaganda campaign was launched to widen divisions between Hutu and Tutsi. The campaign included broadcasts over *Radio Télévision Libre des Mille Collines* (RTLM) in support of the Hutu power movement, and embodied the ethnic solidarity that Habyarimana had championed for three years. The Tutsi were vilified using the label *Inyenzi* meaning, 'cockroach,' because Tutsi incursions took place at night, and were only rarely seen in the morning. This activity was compared to that of cockroaches that are rarely seen during the day, but often at night. Tutsi were also labeled *Ibyitso* or 'collaborator.' The term evolved and expanded to mean not just collaborators but all Tutsi. *Inyenzi* was used by extremist media including RTLM, to describe Hutu who did not accept the Arusha Peace Accords and those who wanted to exterminate the Tutsi (The Prosecutor v. Akayesu 1998).

The well-established military, administrative and political system hierarchies were appropriated by the leaders of the genocide to conduct the campaign of killing. Both civilian and

military authorities conducted training and provided weapons to militiamen. Political parties created youth wings that were converted to civilian militias. These party militias, such as the *Interahamwe* and *Impuzamugambi*, not only became incorporated within the civil defense structure, but they participated in military operations against the RPF (the Tutsi, Rwandan Patriotic Front) alongside of the army. The logistical preparation for the attack included using communal police and former soldiers to direct the civilian defense force to attack the enemy within their communities. The plan was to exterminate the Tutsi and eliminate members of the political opposition. The plan included recourse to hatred and ethnic violence, training and distribution of weapons, and preparation of lists of people to be eliminated (The Prosecution v. Bagosora, et al. 2008; Des Forges 1999). The Hutu extremists who were opposed to the Arusha Accords set out to terrorize the Tutsi. They armed themselves with planeloads of guns, grenades, and machetes. By 1992, they had stockpiled and began distributing 85 tons of munitions and 581,000 machetes. There were enough machetes issued to arm every third Hutu male (Power 2002).

Clearly, the objective of the massacres of the Tutsi was to destroy the Tutsi. The perpetrators wanted to cause the complete disappearance of the Tutsi to the point that children would need to refer to history books to know what a Tutsi looked like (The Prosecutor v. Akayesu 1998). Many of the killings were done with machetes, clubs and similar weapons. The military and militia also used firearms to begin the massacres and to threaten those who opposed the killings (Des Froges 1999). When the onslaught began, it was natural for the Tutsis and Hutus to seek refuge in places like churches, hospitals and public buildings, where they traditionally felt safe. In fact, on several occasions, local authorities directed those seeking sanctuary to these gathering places. Unfortunately, once assembled in these locations, the very authorities who directed people to gather in churches, hospitals and other public spaces participated in systematic attacks and massacres by the militiamen and military (The Prosecution v. Bagosora, et al. 1999). For example, an estimated 4,000 to 6,000 people gathered at the Kibuye Catholic Church and the adjacent Home St. Jean in April 1994. Once assembled, they were attacked by gendarmes, communal police, and armed civilians using grenades, guns, cudgels, machetes, and other weapons. After the massacre, the dead were placed in four mass graves. Excavations conducted by William D. Haglund, Melissa Connor, and Douglas D. Scott located a minimum number of individuals with 39 on the surface and 454 in the graves. Forty-

four percent of the victims were children under 15 years of age. In the case of one 50 year-old man, his fibula had been completely severed by a sharp object at the location of the Achilles tendon, rendering him unable to flee. Sharp force trauma of the neck and back of the torso were interpreted as injuries consistent with an individual trying to protect himself by presenting different aspects of the body to an armed assailant. Unfortunately, forensic excavations and examinations at additional locations were stopped after an agreement between Chief Prosecutor Goldstone and the Rwandans to discontinue excavations and withdraw UN peacekeepers from Rwanda. Additionally, Stover and Shigekane indicated that the number of dead made it impossible to continue the large-scale forensic investigation (Haglund et al. 2001; Juhl 2005).

In addition to the killings discussed above, women and young girls were routinely subjected to sexual attack. Near the capital of Kigali, these acts were committed in the open and often associated with roadblocks. In coordinated attacks, soldiers and civilian militia would take the young women that they stopped and repeatedly rape them (The Prosecution v. Bagosora et al. 1999; The Prosecution v. Bagosora et al. 2008). Additionally, attacks on children extended to the unborn. In an attempt to wipe out the Tutsi as a group entirely, newborns were killed. Even pregnant women, including Hutu women with Tutsi husbands, were killed on the grounds that the child belonged to the father's group in this patrilineal society. Public statements made by Jean-Paul Akayesu, the bourgmestre of the Taba commune, relative to Hutu women impregnated by Tutsi men, indicated that such women had to be found and their pregnancy aborted. He stated that the fetus had to be destroyed so that the Tutsi child would not survive (The Prosecutor v. Akayesu 1998).

In November 1994, the United Nations established the International Criminal Tribunal for Rwanda. It was based in Arusha, Tanzania, and established to prosecute the crimes described above as war crimes and genocide. To accomplish this objective, the tribunal set up forensic units to gather the evidence needed to prosecute the guilty. These units drew upon the expertise of forensic workers who had investigated the forced disappearances in Central and South America (Stover and Shigekane 2002). In 1998, 50 years after the General Assembly passed the resolution that lead to the Genocide Convention, the first genocide case was brought before an international criminal tribunal. It was the case of The Prosecutor Versus Jean-Paul Akayesu, the Taba commune bourgmestre discussed above. On September 2, 1998, Akayesu gained the dubious distinction of being the first person convicted of genocide under the Genocide

Convention. In a precedent setting decision, the Tribunal found him guilty of the systematic rape of women, an act that was interpreted to be a genocidal act of, "Causing serious bodily or mental harm to members of the group" (The Prosecutor v. Akayesu 1998:177). The Chamber found that most cases of the rape of Taba women were committed with the intent to kill those women, because most rapes were committed near mass graves where the women were taken to be killed. The Chamber found further that the acts of rape and sexual violence reflected the determination to make Tutsi women suffer and to mutilate them before killing them. The intent of such acts was, "To destroy the Tutsi group while inflicting acute suffering on its members" (The Prosecutor v. Akayesu 1998:177).

4.6 Yugoslavia

By far, the most complex genocide took place in the former country of Yugoslavia. When it was over, Yugoslavia no longer existed, and the three new states of Bosnia, Croatia and Kosovo were left to pick up the pieces of what were once successful pluralistic societies. For example in 1991, Bosnia was 43% Muslim, 35% Orthodox Serb, and 18% Roman Catholic Croat. It represented the most ethnically heterogeneous of Yugoslavia's six republics. After the genocide, these three heterogeneous states were decidedly homogenous with each dominated by one religious-ethnic enclave. It was in June that Slobodan Milošević began his campaign to increase Serb dominance, setting off a chain reaction that would ultimately pull Yugoslavia apart and kill an estimated 230,000 to 240,000 people in an area about the size of Oregon. Additionally, in Bosnia, 2 million were displaced; in Croatia, 700,000 were displaced; and in Kosovo, 1.3 million were displaced (Gardner 1990; Blum et al. 2007; Power 2002). In the discussion that follows, Yugoslavian history and actions taken by its leadership to instigate genocide will be discussed first, and then the impact on Croatia, Bosnia, and Kosovo will be examined in turn.

In 395 AD, the Roman Empire was split into eastern and western halves. This division became a permanent feature of the European cultural landscape that separated Greek Constantinople from Latin Rome and eventually the Eastern Orthodox and Roman Catholic churches. It also separated lands of the former Yugoslavia and exerted significant influence on Serbs and Croats. For the next millennia, the region was beset by invasions of Huns, Ostrogoths and Slavic tribesmen. In 1371, Yugoslavia was invaded by the Ottoman Turks who defeated the

Serbian army at the battle of Kosovo on June 28, 1389, called Vidovdan (St Vitus's Day) by the Serbs. As the discussion below will demonstrate, this day became a fundamental defining moment in Yugoslavia's history. The defeat of Serbian forces was seen as the best example of true heroism and sacrifice by the army and a source of pride for Serbians. It also marked the beginning of a time when no force was capable of standing up to the Turks (Serbian Orthodox Diocese 2011).

Subsequently, the region was ruled by the Ottoman Empire for nearly five centuries until the Balkan wars of 1912-1913 terminated Turkish domination. Shortly thereafter on June 28, 1914, the key day noted above in the Serbian calendar, Austrian Crown Prince Fanz Ferdinand was assassinated by the Bosnian Serb student Gavrilo Princip in Sarajevo. This was the precipitating event for World War I. With the end of World War I and the downfall of the Austria-Hungary and the Ottoman Empires, the Kingdom of Serbs, Croats and Slovenians was proclaimed in December of 1918. Seven years after the beginning of World War I, the newly-founded Yugoslav state received its earliest centralized constitution, again on June 28. Later, Stalin chose this date in 1948 to expel Yugoslavia from the eastern bloc, leading to the independent development of Yugoslav communism. Under Broz Tito, an economic system of socialist self-management was devised that had a nonaligned foreign policy and a one-party political system. After Tito's death on May 4 1980, long-standing differences among Yugoslavia's republics began to boil over (Serbian Orthodox Diocese 2011; Bieber 2002).

Without the iron-fisted rule of Tito, the country of Yugoslavia began to tear itself apart. In June of 1991, Serbian President, Slobdan Milošević, cited Vidovdan when he began to invoke nationalist ideals to increase Serb dominance over the republic of Slovenia that had seceded, sparking a 10-day war. Also, Croatia declared independence at the same time. Because of Croatia's sizable Serb minority and lucrative picturesque coastline, the Serbs did not want to let it go. The Yugoslav National Army (JNA) fought a seven-month war that killed 10,000 and displaced 700,000. By late 1991, Bosnia realized that if it stayed within Yugoslavia, Serbs would receive the best jobs and educational opportunities. The Muslims and Croats were facing marginalization and physical abuse under Milošević's oppressive rule. Compounding matters for Bosnia's Muslims was the fact that the United Nations had imposed an arms embargo in 1991 that left the Serbs in charge of a fully-equipped modern military and left the Muslims relatively defenseless. Later in 1995, Kosovo's Albanians were hoping that the United States and its allies

would pressure Serbia into restoring its autonomy. Instead, Western negotiators at the Dayton Peace Conference did not broach the subject of Kosovar independence. Embittered, the Albanians formed a band of fighters known as the Kosovo Liberation Army (KLA). Before it was over, the Serbs displaced over 1.3 million Kosovars from their homes, and killed an estimated 10,000 to 20,000 (Power 2002; Blum et al. 2007).

By using pejorative terms like *Balijas* for Muslims, *Ustašas* for Croats and Terrorists for Kosovars, the Serbs vilified all non-Serbs and polarized each republics' citizenry between ethnic Serbs and all other religious and ethnic groups (Prosecutor v. Brđanin 2004; Power 2002). They classified their actions as 'ethnic cleansing' to differentiate them from acts of genocide that the Nazis employed during World War II. The term was used to describe any action employed to eliminate an ethnic group from a territory or region controlled by another ethnic group. In fact this euphemism described a murderous campaign of mass atrocities committed by Serb forces in Croatia, Bosnia and Kosovo. The attacks initiated under the guise of ethnic cleansing were well-planned and organized. An attack would begin when Serb artillery unleashed a barrage on a village. Next, paramilitaries and Serb forces launched an infantry assault that would include the killing of armed men, rounding up of unarmed men, and sending women and children into flight. When the majority of Serb forces moved out to their next objective, paramilitaries stayed behind to loot valuables, shoot livestock, and destroy homes. All non-Serb life was banned. Clearly, the Serbs intended to displace and/or destroy all non-Serbs from mixed areas, even those areas where the Serbs were in the majority. Their objective was to create an ethnically homogeneous state. The Serbs justified their actions by citing religious leaders of the eighteenth century who declared Moslems as evil. Leaders such as Radovan Karadžić believed that they were defending Europe from Moslem domination and fundamentalism. He felt that all Moslems should convert to Christianity, and that his policies were blessed by the Serbian Orthodox Church (Powers 2002; Blum et al. 2002; Baron 1999). Although the Serbs may have felt justified in their actions, the International Criminal Tribunal for Yugoslavia disagreed. They found 80 key figures guilty of crimes committed while executing the above activities, sentencing two individuals to life, and the remaining individuals to an average sentence of 15 years (ICTY 2011).

As can be seen from the above statistics on convictions, the International Criminal Tribunal has been very successful in trying cases of those guilty of committing atrocities during the wars in Yugoslavia. However, Slobodan Milošević, President of the Federal Republic of

Yugoslavia from July 15, 1997 to October 6, 2000, died on March 11, 2006 while on trial for genocide, complicity in genocide, deportation, murder, and many other crimes. Because the trial proceedings were terminated upon his death, the extent of his crimes may never be known fully (The Prosecutor v. Milošević 2006). Radovan Karadžić was a founding member of the Serbian Democratic Party and its President until his resignation. He became Chairman of the National Security Council of the Serbian Republic of Bosnia when created in 1992, and Supreme Commander of its armed forces. He was indicted on charges of genocide, extermination, murder, persecution, and many other charges. He was arrested on July 21, 2008 and his trial commenced on October 26, 2009. His trial is proceeding; therefore, no judgment has been made as to his guilt or innocence (The Prosecutor v. Karadžić 2010). The third individual who bore responsibility for planning, initiating and leading the Serbian Army to commit genocide was General Ratko Mladić. He has been indicted for genocide, complicity in genocide, persecution, extermination and murder, as well as many other crimes related to the atrocities committed in the former Yugoslavia. He was Commander of the Bosnian Serb Army. He was indicted by the International Criminal Tribunal and remained at large until arrested May 25, 2011, and transferred to the International Criminal Tribunal for the former Yugoslavia on May 31, 2011 (The Prosecution v. Mladić 2010). These three men were the prime players in a sinister game of genocide. With Mladić's recent arrest, Karadžić standing trial, and Milošević dead before judgment, those committing the most egregious crimes have not yet paid their debt for what they did.

4.6.1 Croatia. The war in Croatia started in 1991. Croatia nearly encircled Bosnia with a common border on Bosnia's northern, western and most of the southern border (Power 2002:248). Its landmass is only 2,358 miles smaller than West Virginia. As noted above, the precipitating event was Croatia's declaration of independence. Before this seven-month war was over, 10,000 people were dead and 700,000 were displaced. Additionally, it was this war that initially introduced the world to images of Serb artillery attacks on civilians in towns like Dubrovnic and Vukovar (Harff 2003; Power 2002; Gardner 1990). During the spring of 1992, a strip of land, The Posavina Corridor in the northeastern territory of Bosnia, was blocked by Croatian forces in alliance with those from Bosnia. This was a critical pass, because it linked Croatian and the Bosnian Krajina regions with Serbia. During the summer and late autumn, the Serbian military operation known as Koridor 92, was carried out. While the Serbs claimed that

the offensive was initiated to clear the blockade and resolve a humanitarian crisis, Serbia's principal intent was to link Serb lands. During the operation, the Serbs devastated the entire Posavina area. Many homes were torched, and civilians were killed (Prosecutor v. Martić 2007).

One of the most infamous acts during the Croatian war was the massacre of 200 lightly-wounded soldiers and hospital workers on a farm called Ovcara. On November 20, 1991, Major Veslin Ljivancanin, Commander of the Yugoslav National Army (JNA) and the soldiers under his command entered the grounds of the Vukovar hospital in eastern Croatia. Yugoslav forces removed the wounded and civilians from the hospital and bussed them to Ovcara. Once there, they were forced to stand in a freshly-dug pit, where they were gunned down (Stover and Shingkane 2002; Stover and Ryan 2001). Later, forensic specialists, including Clyde Snow and Eric Stover, located the grave on Ovcara farm, nine miles south of Vukovar. They had to work quickly, because they had only three days, and they were working under such harsh conditions that one of the American archaeologist's called it, "Flack Jacket Archaeology" (Stover and Ryan 2001:18). When exhuming the remains, they located a Roman Catholic cross below the skull of one of the skeletons. This helped to identify the victim as a Roman Catholic Croat because the cross was inscribed, "'BOG I HRVATI' or, in English, 'God and Croats'" (Stover and Ryan 2001:20). On one corner of the grave, over 75 spent cartridges of a caliber consistent with a standard Yugoslav National Army (JNA) weapon, the 7.62-millimeter Red Star, were found. Additionally, bullet holes were present in acacia trees on the opposite side of the grave, suggesting that a firing squad had formed on one side shooting directly into and across the grave. By late 1998, over 120 of the 200 remains recovered from the grave had been identified. One was of a guardsman with battle wounds who had been admitted to the hospital on November 17, 1991. His mother said that her son wore a silver necklace with the inscription, "BOG I HRVATI," just as describe above (Stover and Ryan 2001:23). This jewelry identified the guardsman as the woman's son.

Three JNA officers were charged with ordering the massacre. Colonel Mile Mrkšić was found guilty of murder, torture and cruel treatment. He withdrew JNA officers and soldiers guarding the prisoners at Ovcara, rendering them defenseless. This allowed paramilitary forces to move in and murder all of the prisoners. Mrkšić was sentenced to 20 years imprisonment. Captain Miroslave Radić was found not guilty. Army Major Veslin Šljivanćanin was found guilty of torture and sentenced to 10 years imprisonment. He was responsible for the security of

the prisoners. Additionally, he was present at the time the Ovcara prisoners were being mistreated, but did nothing to stop their beatings (Stover and Ryan 2001; The Prosecutor v. Mrksic et al. 2010).

Additional excavations took place in Croatia's eastern border with Bosnia, and in the southern region of Croatia, also along the border with Bosnia. The human remains of 61 individuals were recovered from 13 wells. The hazardous nature of this exhumation was discussed above in section 2.3, Mass Graves Defined. Most of the individuals were between the ages of 51 to 60 years old, with the oldest being approximately 76 to 80 years old. Two subadults were located with estimated ages of 9 to 13 years and 14 to 18 years old. Their injuries were from gunshots, shrapnel, and blunt force trauma, with most of the individuals suffering from more than one trauma. However, there was one notable exception. One 79-year-old woman was found with no trauma, in the Petrinja well wrapped in a blanket. Her remains were saponified and she had deep marks around her waist. The marks were from a rope wound round her waist, knotted tightly, and tied by the other end to a large stone causing her death by drowning (Šlaus et al. 2007).

4.6.2 Bosnia-Herzegovina. What happened in Bosnia-Herzegovina (Bosnia), a republic 4,500 square miles smaller than West Virginia (Gardner 1990), is best exemplified by what happened to the Bosnian city of Srebrenica. Declared a safe area and defended by a lightly-armored force of UN peacekeepers in 1993, Srebrenica became a refuge for thousands of Muslims (Power 2002). In 1991, this municipality had a population of 37,000 people; but by March of 1993, its population had swelled to 50,000 to 60,000 people occupying an area of 150 square kilometers (Prosecutor v. Blagoević; Jokić 2005). As the Serbs raked across Bosnia and moved on Srebrenica, the population of the region around the city was concentrated within this limited area. On July 10 and 11, 1995, the Serbs intended to kill all the Bosnian Muslim men of military age, whether they were military or civilian. The killings and intimidation began with the shelling of the city of Srebrenica. On July 12, General Ratko Mladić entered the city and addressed the terrified Muslims by saying that, "There is no need to be frightened … You'll be taken to a safe place" (Power 2002:401). Mass executions started the next day (Prosecutor v. Kristič 2001). More than 7,500 men including children and the elderly were killed. Men and women were separated, women were bussed away; and luggage was burned. The Kraviča warehouse was used to detain and massacre the men. Serb Army soldiers stood in doorways and fired into the

crowd. Mortars were fired into the building, and grenades were thrown through the windows. Unbelievably, two men survived by hiding under bodies and later escaping into the woods. Disposal of the bodies included using bulldozers to dump the bodies into nearby mass graves. Since the Serbs realized that US planes had photographed the events taking place, they opened the mass graves later and moved the remains to secondary locations (Kimmerle and Baraybar 2008). Initially, the Serbs had intended to seize only the southern section of Srebrenica. However, to the Serb's amazement, the UN forces offered no resistance. As a result, the Serbs overwhelmed the entire city (Power 2002).

When reporters interviewed Muslim survivors fleeing Bosnia, they heard grisly stories of men being held in camps, subjected to torture, and starved. Additionally, women were being raped and all those held in camps were being denied access to relief officials and journalists. Edicts were posted forbidding Non-Serbs to meet in public places; bathe or swim in rivers; hunt or fish; move within the country without authorization; carry weapons; drive; gather in groups; contact relatives outside of the region; use communication devices other than post office phones; wear uniforms; sell real estate; or exchange homes without approval (Power 2002). Bosnian Serb forces consistently committed a number of crimes under the guise of military operations that included the wanton destruction of cities, towns and villages, and the destruction of religious institutions, beyond what was justified militarily (Prosecutor v. Brđanin 2004).

The use of grenades and military-issued rifles to kill people was documented by the excavation of a Karstic cave named Jama-Bezdan in the Hrgar region of northwestern Bosnia. In 1992, this cave was used to dispose of a minimum number of 70 individuals who were executed on the ground near the vertical entrance to the cave, then thrown into the cave. Around the opening to the shaft, grenade pins and .762 cartridge casings littered the area. All of the remains appeared to be male, ranging in age from a subadult 3-5 years old, of indeterminate sex, to one gentleman 65 years old. A variety of ligatures were also present in the grave. For 45 bodies, the cause of death was attributed to single or multiple gunshot wounds. Five cases had a combination of gunshot wounds and blunt-force trauma. There were only three cases where the mechanism was simply blunt-force trauma. One case exhibited penetrating sharp force trauma with an implement consistent with the size and shape of a screwdriver (Simmons 2002).

A second mass grave containing a minimum number of 30 individuals was located in Tascovcici, 2 kilometers east of Capljina, Bosnia-Herzegovina on a hill called Modric. These

bodies were buried in unmarked graves and in rows with obvious gaps where bodies had been removed. A minimum of 13 bodies may have been removed. The individuals exhumed were identified as civilians with an average age of 66, and 2 children. It was determined that 20 of the 22 sets of fairly complete remains displayed hard-tissue trauma, with 9 having experienced 2 or more wounds. Most of the trauma was confined to the head and trunk with unequivocal evidence of gunshot wounds. The clandestine removal of remains and evidentiary material, as is suspected in this case, indicated an additional breach of international humanitarian law. Mass graves often function as political tools to intimidate survivors, because when they are scientifically excavated, they are threats to the perpetrators (Skinner et al. 2002).

4.6.3 Kosovo. Funding the wars in Croatia and Bosnia left Serbia ravaged. Unemployment and inflation were soaring, and the quality of life for Serbia's citizenry was plummeting. In 1996 and 1997, Serbs staged massive demonstrations demanding an end to the corrupt rule of Milošević. However, he responded by tightening control to stifle dissent by ordering assassinations, shutting down independent media, and stealing elections. Additionally, Milošević began to brutalize ethnic Albanians in the southern province of Kosovo (Power 2002). In 1998, the conflict in Kosovo renewed and refocused Serbians nationalist interest on the province. The actions of the Kosovo Liberation Army against Serbs mobilized popular opinion in Serbia against the Albanian Muslims. Both the war in Kosovo and the bombardment of Serbia in 1999 marked a resurgence of Serbian self-perception as victims. Two themes emerged in Serbian public discourse. The Milošević regime emphasized the victimization of Serbs by the international community; but the opposition emphasized oppression at the hands of the regime (Bieber 2002).

One massacre, in particular, galvanized support for Kosovo against Serbia. In October 1998, US Ambassador, Richard Holbrooke, negotiated a deal with Milošević for Serbia to avoid NATO air strikes if Serbian troops pulled forces back from Kosovo, and allowed the deployment of 2,000 unarmed, international troops who would verify Serb compliance with international agreements. However, Serb forces ignored international officials and bombed the small town of Racak with artillery fire for three days. One January 15, 1999, Serb paramilitary and police units rounded up and executed 45 Albanian civilians, including 3 women, a 12-year-old boy, and several elderly men. The executed bodies were left in an icy ravine, face down. Within 24 hours, Ambassador William Walker arrived at the scene, debriefed villagers, and examined some of the bodies. When talking to a reporter about the incident, he roared into the camera that the

Serbs had committed a "crime against humanity" (Power 2002:447). Consequently, beginning on March 24, 1999, NATO jets began bombing Serbia. Allied leaders demanded that either Milošević accept autonomy for Kosovo, or the bombing would continue. This was the first time in history that the United States or its European allies acted to stop a potential genocide (Power 2002).

Serbian response to the bombing was the use of regular military units, police and militia to expel the entire Albanian population from Kosovo at gunpoint. Two days after the NATO bombing began, Milošević ordered his Interior Minister, Vlajko Stojikovićc, to conceal the evidence of war crimes. Stojiković removed corpses from execution sites for either reburial in Serbia or incineration (Power 2002). Rather than reduce military personnel in Kosovo, personnel were increased, in contravention of the October agreement; and heavy weaponry and equipment were retained in the area. It was estimated that over 700 bodies originally buried in Kosovo were exhumed and transported to Serbia during the NATO bombing campaign. The fact that the Serbian leadership found it necessary to conceal these bodies in the first place indicated that they knew that the great majority of the moved remains were victims of crimes, rather than combatants (Prosecutor v. Milutinović et al. 2009). On May 24, 1999, the International Criminal Tribunal for the former Yugoslavia indicted Serbian President Slobodan Milošević for crimes against humanity and war crimes. This was the first time a head of state had been charged with violations of international law, during an armed conflict. In March of 2001, Milošević was arrested and turned over to the tribunal in The Hague. At last, Serbia's citizenry were able to begin to deal with Serbian war crimes. (Power 2002). On February 17, 2008, Kosovo declared its independence from Serbia, and became the Republic of Kosovo (State 2010).

Before it was over, the small province of Kosovo had to endure the loss of 10,000 to 20,000 killed and 1.3 million displaced from their homes in a country the size of Hawaii (Blum et al. 2007; Power 2002; Gardner 1990; State 2010). In addition to the killing of Kosovars, Serbian forces also indulged in torture. One case demonstrates the inhumanity of the Serbs toward one lone elderly woman. She was 70 to 85 years old at the time of her death. Her body was discovered by villagers who buried the remains in a shallow grave. When forensic scientists exhumed her remains, they were able to determine that she was an Albanian Muslim by her traditional clothes. When the skeletal analysis was done, it was obvious that the manner of death was torture-induced killing. She had the following fractures: 29 rib fractures, 11 on the left and

18 on the right; a healed fracture of the proximal right humerus; and 2 perimortem fractures of the sternal body. Twenty-five of the fractures were antemortem. Eventually, she was identified using DNA testing. Her relatives told a heartbreaking story of her attempt to escape the Serb onslaught of April 1999. When the Serbian Army began attacking her village, the family fled. Because she was too old to keep up with them, they decided to put her on a bus to Mitrovica in northern Kosovo. She was never seen again alive. When her remains were located, they were in a forest near the border with Macedonia in the southern part of Kosovo. Between March and May 1999, the area where she was found was controlled by the Serbs, and was an area where many killings took place. Considering her injuries and the location of her remains, it appears that she was abducted and tortured. When her rib fractures were examined, there was evidence of reactive bone formation around or adjacent to the fractured edges, and their remodeling indicated that she survived for several days after she was injured. Alone, injured, and left unattended in the forest, she finally died what must have been a terrible death (Delabarde 2008).

To conclude the discussion of the former states of Yugoslavia, consider the size of Yugoslavia before these wars. Above, it was noted that Yugoslavia was the size of Oregon or 98,766 square miles. When Croatia, Bosnia and Kosovo became independent, the Serbs lost a combined landmass of 52,546 square miles, or about 52% of the size of the former Yugoslavia (Gardner 1990; State 2010). In addition, over a quarter of a million people were dead, and four million people were displaced from their homes (Power 2002; Blum et al. 2007). Considering the condemnation of the international community and the information coming out of the proceedings of the International Criminal Tribunal of the former Yugoslavia describing the atrocities committed in their name, one wonders if the Serbs of today think that the wars initiated by Serbia against their neighboring republics were worth it.

4.7 Prosecutions of Genocide and Crimes Against Humanity

The 'crime of crimes,' genocide, is considered the most difficult crime to prove because of the requirement to prove intent to destroy a protected group (Tabassi and van der Brought 2007). "The victim of the crime of genocide is a human group. It is not a greater or smaller number of individuals who are affected for a particular reason but a group as such" (Prosecutor v. Krstić 2001:193). Also, it includes the systematic actions of military, paramilitary and civilian operatives across a large area. When intending to prove either genocide or crimes against

humanity, it is necessary to reconstruct the context of a functional criminal system within which the crimes were committed. In these cases, the scale of criminal conduct is so massive that the underlying acts of mass killings, forced displacements and mass arrests cannot be denied (Tabassi and van der Brought 2007).

Proving the intent to commit a crime is difficult at best. In the case of genocide, proof of intent is often obtained from seized documents that establish personal culpability in committing specific acts, and the scale of the crime. In two of the cases reviewed, the systematic execution of well-organized plans was evident in seized documentation, public announcements and proclamations. The documents recovered from Tuol Sleng prison and Santebal in Cambodia (Chigas 2000), and from the secret police buildings stormed by the Kurds in northern Iraq (Power 2002), yielded huge volumes of government records that were used later to demonstrate personal involvement in the planning, ordering, and organizing of the genocides that followed. These documents often outlined the intent to attack a national, ethnic, religious or racial group and were corroborated by findings from mass grave excavations. For example, in Rwandan mass graves, the ethnic identification of the victims as Tutsi was often documented by identity cards unearthed with the bodies and issued by the government specifically identifying their ethnic group as Tutsi (Tyler 2003).

Often the intent was to kill all males of military fighting age from a protected group. This was true in the Nebaj, Guatemala grave where the remains were all males between the ages of 14-56 (Cacón et al. 2008); in Iraq on the edge of the Ash Sham Desert where all of the victims were reported by the New York Times as being men between the ages of 20 to 35 (Burns 2006:6); and in a Karstic Cave named Jama-Bezdan, Bosnia-Herzegovina where all the victims were males between the ages of 16-65, except for one child between the ages of 3 to 5 years old (Simmons 2002).

Artifacts associated with the victims often identified the ethnic or religious group. This was true in the graves of Ovcara, Croatia where one of the remains was accompanied by a Roman Catholic cross engraved with an inscription professing allegiance to God and Croats (Stover and Ryan 2001), and in Kosovo where a single grave of an elderly woman wearing Albanian clothes was exhumed (Delabarde 2008).

Both the gravity and scale of the crime of genocide presumes that several protagonists were involved in the preparation stage. Although the motive of each participant may be

different, the intent of the criminal enterprise remains the same. The prosecutor must establish whether the accused shared the intent that genocide be committed (Prosecutor v. Radislav Krstić 2001). In this instance, the scale of the crime is important. The minimum number of individuals exhumed from each mass grave can demonstrate the need to involve both local and national government operatives. For example, the minimum number of individuals exhumed from the Ovcara grave in Croatia was 200 (Stover and Ryan 2001); at the Kibuye Roman Catholic Church in Rwanda, 39 individuals were located on the surface and 454 were buried (Juhl 2005; Kimmerle and Baraybar 2008); and 3,000 were reported removed from the Mahawil brick factory in Iraq by the New York Times (Tyler 2003). For an additional perspective on the widespread nature of the genocide, consider the large number of mass graves present in these countries. For example, Cambodia had over 300 mass graves (Cambodian Genocide Program 2007).

To prove personal responsibility to commit genocide, the prosecutors in the cases reviewed were required to establish guilt by presenting documents signed by the accused, statements made by the accused, their rank or position within the hierarchy of the military or the government, or their presence during the commission of the crime and/or actions taken directly by the accused to commit an element of the crime such as executing individuals. Also, a person in a leadership position was found guilty of genocide if he was in charge of a unit that carried out atrocities. The principle stated was that even though someone was not physically present when an atrocity was being committed, he could be found guilty when one of the units that he commanded committed atrocities. In these cases, judges held that the accused should have known what those forces were doing, and should have taken actions to stop their crimes. Findings from mass graves are useful in identifying the attacking group. Artifacts such as unexploded ordinance, caliber of shell casings and bullets located with the remains, and type of weapon used can identify those who perpetrated the crimes. For example, Haglund (2002) provided an example of a Rwandan individual whose fibula had been severed, all of the soft tissue on the right side of the neck was cut through, and a tibia and scapula exhibited sharp cut marks. This type of injury can be associated with machetes or the weapons issued to the *Interahamwe,* or the young people's militia units, in Rwanda (Des Forges 1999). At graves located on the edge of the Ash Sham Desert in Iraq and the Ovcara grave in Croatia, large numbers of spent shell casings (80 in Iraq and 75 in Croatia) were located in and around the

graves. In the case of Iraq, the casings were traced to Kalashnikov rifles that were known as the weapon of choice of Hussein's secret police. In the case of Croatia, the casings were traced to the 7.62-millimeter Red Star, the standard weapon used by the JNA, or the Yugoslav People's Army (Burns 2006; Stover and Ryan 2001).

Genocide is characterized by not only the *mens rea*, or the intent to destroy, in whole or in part, one of the protected groups, but also the *actus reus*, or the acts enumerated in the Genocide Convention (Prosecutor v. Krstić 2001). The *actus reus* in the Convention include:

> (a) killing members of the group; (b) causing serious bodily or mental harm to members of the group; (c) deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part; (d) imposing measures intended to prevent births within the group; (e) forcibly transferring children of the group to another group (Power 2002:62).

Prosecutors and commissions in all of the countries that were the subjects of this research were able to obtain evidence in the form of testimonies by eyewitnesses, victims and, at times, perpetrators of these crimes to prove these types of events. That evidence was corroborated by evidence located in mass graves. By comparison, crimes against humanity are defined by the International Criminal Court as:

> Including any of the following acts when committed as part of a widespread or systematic attack directed against any civilian population, with knowledge of the attack:
> - Murder:
> - Extermination;
> - Enslavement;
> - Deportation or forcible transfer of population;
> - Imprisonment or other severe deprivation of physical liberty in violation of fundamental rules of international law;
> - Torture:
> - Rape, sexual slavery, enforced prostitution, forced pregnancy, enforced sterilization, or any other form of sexual violence of comparable gravity;
> - Persecution against any identifiable group or collectivity on political, racial, national, ethnic, cultural, religion , gender,(…) or other grounds that are universally recognized as impermissible under international law (…)
> - Enforced disappearance of persons;
> - The crime of apartheid;
> - Other inhumane acts of a similar characteristic intentionally causing great suffering, or serious injury to body or to mental or physical health (Duhaime 2011:1).

Additionally, most of these acts are included under the language contained in the Genocide Convention. The difference between the two is the inclusion of the language covering the intent

to destroy in whole or in part one of the protected groups as defined by the Genocide Convention. Therefore, if sufficient evidence is gathered from mass graves to prove the *actus reus* of genocide, but not the *mens rea*, there should be sufficient evidence to prove a crime against humanity.

In the Genocide Convention, the first element of *actus reus* is "killing members of a group" (Power 2002:62). The types of murder committed in the cases review included: random killing of everyone found in a town with machetes; clubbing prisoners; shooting unarmed people at random or those rounded up and brought to a killing field; bombardment from artillery pieces; and asphyxiating people with chemical bombs. For example, from the grave in Kibuye in Rwanda, forensic investigators found that Tutsi gathered at a church were killed by sharp-force trauma. Forensic investigators found that the Choeung Ek grave in Cambodia contained prisoners who were gathered by the side of a pit and clubbed to death (Haglund 2002; Des Forges 1999; Ta'ala et al 2008). In East Timor at the funeral of a student, mourners in the cemetery were attacked by an Indonesian military unit that indiscriminately fired into the crowd. Although the mass grave of 16 out of a reported 271 killed has not yet been described in the public record, the people who exhumed the grave should have found evidence of gunfire injuries to corroborate witness and victim statements (Magro 2000; Joliffe 2009). At the shaft cave named Jama-Bexdan in Bosnia-Herzegovina, 70 people were brought to the opening of the cave, shot, and then thrown down the shaft of the cave (Simmons 2002). More impersonal methods for killing can be found in the indictment of Slobodan Milošević that documents the shelling of the City of Sarajevo in Bosnia-Herzegovina 26 different times (The Prosecutor v. Milošević 2002). Chemical bombs were used to kill an estimated 5,000 in the city of Halabja, Iraq. The Halabja attack was one of 40 chemical weapon attacks ordered by Ali Hassan al-Majid known as, 'Chemical Ali' (Power 2002).

The next element of *actus reus* enumerated by the Genocide Convention was that of "causing serious bodily or mental harm to members of the group" (Power 2002:62). Three forms of causing such harm are torture, rape, and the postmortem treatment of the remains.

There were two cases where torture was evident when the remains were examined by forensic anthropologists. The remains from the mass grave in Nebaj, Guatemala indicated clear evidence of torture using cutting amputations as the means of torture (Chacón 2008). A second example of torture came from the individual grave located on the Macedonian border of Kosovo

where a single elderly female had 29 rib fractures in various stages of healing. The reconstruction of the sequence of events and the characteristics of her trauma suggested that she was abducted, tortured, and then left in the forest. In terms of cause of death, the investigators noted that the elderly who sustain blunt-force trauma with rib fractures, have twice the mortality and thoracic morbidity of the young. With each additional fracture, mortality increases 19% and the risk of pneumonia by 27% (Delabarde 2008).

Widespread and systematic rapes were documented in all of the countries researched except Croatia and Kosovo. In Cambodia, in a barn serving as a prison, pretty girls were stripped, raped until they lost consciousness, and then killed (De Nike et al. 2000). In East Timor, both the Indonesian security forces and their auxiliaries conducted widespread and systematic campaigns of rape, sexual torture and sexual violence (CAVR 2005). In Guatemala, Xococ patrollers raped women from their own communities until ordered to stop by local commanders (Sanford 2003). In Iraq, Kurdish women in both the Tupzawa and Nugrat al-Salman detention camps were raped, made to walk on broken glass, and endured other sexual humiliations (Trahan 2009). In Rwanda, young women stopped at roadblocks were taken to nearby homes, fields, and religious centers where they were raped in coordinated efforts between military and civilian assailants (The Prosecutor v Bagosora et al. 2008). Finally, in Bosnia, women were put in rape camps (Power 2002). In cases of rape, there is no physical evidence on skeletal remains; therefore, skeletal examinations alone cannot corroborate evidence of sexual violence.

One of the most sinister acts to cause mental anguish to the survivors of genocide and the loved ones of those killed is the callous way the attackers handle the remains of people killed. For example, in East Timor, some were beheaded with their decapitated heads displayed as trophies; others displayed corpses in front of homes; and some of the dead or fatally wounded were thrown in gorges and rivers (CAVR 2006). In another example, consider this excerpt from the trial of Pol Pot and Ieng Sary from Mrs. Khem Nary's witness statement:

> In prison they tortured me savagely. They poured water into my nostrils, drove a stick into my ears, and passed an electrical current through my body. After torture sessions, they made me pick up corpses they had thrown into ditches, to make manure out of them. I was so horrified that I frequently fainted. My colleagues and I dug up ditches and found human skulls and bones. They made us burn the human bones to make manure. If we found bodies that had not yet decomposed completely, we had to tear the flesh off and mix it with manure to fertilize the ground. One day as I was getting manure in a ditch of

> human bones, some women told me that the bodies of my husband and child had been thrown there. I was so horrified that I fainted (De Nike et al. 2000:175-176).

The horrific disposal of nameless corpses into huge mass graves was yet another example of causing mental suffering among the survivors. Compounding the horror and anguish was the subsequent removal and reburial of mass graves to conceal the atrocities that had been committed. For example, a UN team found only 146 bodies and miscellaneous unmatched limbs at the site of Pilica, where an estimated 1200 Muslims were killed on July 6, 1995, according to a professed Serb executioner testifying before the International Criminal tribunal for the Former Yugoslavia. Satellite photographs taken three months after the killing showed heavy equipment removing remains from the site (Skinner et al. 2002). Additionally, at Tascovcici, Bosnia, exhumations of a graveyard disclose that a minimum of 13 bodies were previously removed without notification to their families. These actions not only served to conceal crimes, they also complicated the attempt by survivors to locate their loved ones. These survivors only wanted to understand what happened to their relatives and friends when thousands disappeared. When there is clandestine removal of bodies and other evidence from mass graves, it should be considered a breach of international humanitarian law, because it is an example of the inhuman treatment of a protected person (Skinner et al. 2002).

One additional aspect of the treatment of the remains of individuals killed during genocide included the identification of the remains after they have been exhumed by forensic investigators. As mentioned above, the remains of those exhumed from mass graves are released to local authorities after the forensic team determines the group identity and cause and manner of death. The relatives of the missing suffer a sustained shock because of the absence of their loved ones. Without bodies or funerals, relatives are unable to accept the reality of the death, and are unable to fulfill religious and communal obligations to the dead. By exhuming the remains, individual mourners and their communities have their losses acknowledged, allowing them to move forward. If the remains are left unidentified by forensic scientists and local authorities, family members are unable to recover their loved ones and complete burial rites allowing the departed to rest peacefully. As a result, the mental trauma continues indefinitely. In response to this issue, excavation teams need to contain experts dedicated to the identification of the remains, and need to maintain documentation of remains from the point of discovery through identification and reburial (Stover and Shigekane 2002).

The next *actus reus* is "deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part" (Power 2002:62). A systematic campaign of displacing large populations is the common method used to bring about this type of destruction. Often, displacement is a form of arbitrary collective punishment, and associated with a range of human rights violations and deprivations including hunger, disease, and the loss of adequate shelter (CAVR 2005). Although the Pol Pot regime executed hundreds of thousands, many city dwellers died as a result of radical policies that emptied Cambodia's cities and forced evacuees to become slave farmers. These dislocations were done with extreme indifference to human life. Basic, sound, modern medical care was nonexistent, resulting in many preventable deaths. It is estimated that 2.5 million people were displaced from Pnom Penh alone, and 150,000 Vietnamese were expelled from the country (Bedat 2010; De Nike et al. 2000). In East Timor, the mortality rate was far higher than the peacetime rate between 1975 and 1999 because of the massive displacement of civilians. It is estimated that 84,500 deaths are attributable to displacement related hunger and illness (CAVR 2005). In Guatemala, an estimated 500,000 to one million people were displaced during the most intense period of the genocide. This massive displacement of civilians embodied the rupture of the social fabric because families and communities were fractured, and cohesive cultural ties were weakened (CEH 1999). In Iraq, soldiers completely wiped out Kurdish life in Northern Iraq by plundering and destroying everything. When gas attacks were rumored, terrified Kurds fled their villages. When villages were razed, the inhabitants were forcibly deported. By the end of the Anfal campaign, 1.5 million Kurds had been forcibly resettled. Additionally, the Marsh Arabs of Iraq were displaced when the marshes were drained and 160,000 of them were either killed or fled. An estimate of those displaced is 95,000. As stated above, over four million people were displaced from their homes in the former Yugoslavia (Power 2002; Kelly 2005). In addition, the Tribunal found that there was wanton destruction of cities, towns, and villages not justified by military necessity in Bosnia (Prosecutor v. Brđanin 2004). In Croatia, the Municipality of Dubrovnik, a World Cultural Heritage site, was shelled. Five hundred shells struck the Old Town destroying six buildings and damaging many others. Additionally, religious, charity, educational, and arts and sciences institutions were damaged or destroyed (Prosecutor v. Jokić 2004). In Kosovo, Serbian forces expelled an estimated 1.3 million or nearly the entire Albanian population at gunpoint. Massive artillery barrages were used to frighten local inhabitants into flight (Power 2002).

These numbers total at least 8.8 million to 9.3 million people displaced during the second half of the twentieth century. However, similar to the discussion of rapes above, the examination of mass graves and skeletal remains did not provide evidence of displacements.

The next *actus reus* is "imposing measures intended to prevent births within the group" (Power 2002:62). In East Timor, the occupying Indonesian authorities imposed a program of population control that included the forced sterilizations of Timorese women. This action, in addition to other atrocities, caused a steep drop in the island's population (Margo 2000). The chemical gas attacks in Iraq caused significant increases in miscarriages and birth defects. Infant deaths were four times greater than in areas not victimized by chemical gas attacks (Power 2002). Finally, in Rwanda, Hutu women impregnated by Tutsi husbands were killed to prevent the birth of what would have been a Tutsi child in this paternal society (The Prosecutor v. Akayesu 1998). In all of these cases, no forensic evidence was developed from mass graves supporting these charges.

The next *actus reus* is "forcibly transferring children of the group to another group" (Power 2002:62). Under the Pol Pot regime in Cambodia, small children from 5 to 15 years old were separated from their parents and put into mobile work teams (De Nike et al. 2002). Also, in Cambodia, the children of ethnic Cham were taken away from their parents to be raised collectively as Khmers and not as Muslims (Stanton 1992). In Guatemala, children were abducted and used as servants or fraudulently adopted by the perpetrators of violence against their families (REMHI 1999). However, the mass grave excavations reviewed did not contain any evidence to prove these allegations.

4.8 Impediments to Prosecution

Although the prosecutions discussed above were successful in convicting those responsible for genocide, there were significant obstacles to prosecuting these cases. For example, 35 years after the fall of Pnom Penh, the first conviction by an internationally recognized court was handed down to Gurk Eav Kaing for crimes against humanity. The four living individuals most responsible for the Cambodian genocide have been indicted. However, their trials have been delayed for so long, they are very old. Also, other potential indictments have not been issued because many criminals have died before justice was served (The Prosecutor v. Kaing 2010; The Prosecutor v. Nuon 2010). In Iraq, Saddam Hussein was not

brought to trial for his crime of genocide because he was convicted and executed for another crime (Kelly 2007). In the case of Slobodan Milošević, he died during his trial (The Prosecutor v. Milošević 2006). In both of these cases, the full extent of their crimes may never be known because their trials were not completed. In two cases in East Timor and Guatemala, arrest warrants have not been honored by the government in power where those indicted reside (Times 2004; Roht-Arreaza 2009; Sanford 2008). This action also thwarts prosecution.

An additional impediment to prosecutions concerns the professional excavation of mass graves. In Cambodia, the mass graves of prisoners from Tuol Sleng Prison were excavated, their bones disarticulated, and their remains were placed in a stupa containing stacks of bones by type of bone (Berg 2008). In Bosnia, the graves of those who were suspected to have been killed during the genocide were removed from their graves without family notification (Skinner et al. 2002). The graves from the Srebrenica massacre were removed from their primary grave and moved to a secondary grave for the purpose of concealing their remains (Kimmerle and Baraybar 2008). In the case of grave excavations in Rwanda, grave excavations were prematurely terminated for safety reasons, once UN peacekeepers pulled out (Juhl 2005). In instances where graves are disturbed, or where the excavation is incomplete, valuable forensic evidence is lost, and the identification of victims is more difficult.

One final issue concerns the access to authoritative information of mass grave excavations. As demonstrated by Appendix C, authoritative articles could not be located for graves in East Timor because the one excavation completed in 2010 has not yet been published (Jolliffe 2009; Murdoc 2010). In Iraq, an exploratory mission and feasibility study was located (Stover 1992), but a report or authoritative article discussing the excavation of a mass grave could not be published because of the ongoing prosecutorial nature of the cases involved (Anson and Trimble 2008). The lack of access to information concerning the results of mass grave excavations made it difficult to research the process for mass grave excavations and to analyze the findings from the examination of skeletal material and evidence from those excavations.

5 DISCUSSION

During the research, analysis of data, and discussion of findings for this paper, four prominent issues became evident: First, although mass grave excavations provide vital direct forensic evidence to support the prosecution of genocide cases, that evidence is relevant for only specific aspects of these crimes. It is important to consider the strength and limitation of that evidence when designing a protocol for the excavation of mass graves and the analysis of skeletal remains recovered during that process. Second, it has been found that the prosecution of genocide cases is often impeded by several factors as noted above. Any protocol must insure that the best practices of professional forensic examiners are brought to bear during the excavation and exhumation of mass graves and the examination of human remains recovered. Additionally, the protocol must contain procedures and practices that will document evidence in a way that can withstand the scrutiny of international court proceedings. Third, no single protocol is available for mass grave exhumations. While there are three primary sources available for such a protocol, when combined into one comprehensive protocol, there are significant gaps present in the resulting guidelines. As a result, the protocol presented here has been supplemented with additional steps not available in the three primary sources. Finally, during the process of gathering evidence to prove genocide, the forensic anthropologist develops considerable evidence to identify individual victims. While individual identifications are not generally part of the scope of the excavation, identity information needs to be preserved for those responsible for making the final determination of the identity of each person exhumed.

5.1 Mass Graves Evidence

Two hypotheses were made at the beginning of this research. It was argued that a sufficient number of genocide cases have been successfully prosecuted by international tribunals and other courts, and that a sufficient number of mass grave exhumations have been completed to establish a protocol for the exhumations of mass graves resulting from genocides. Additionally, it was argued that such a protocol would address not only the medico-legal

requirements to prove genocide, but would also be sufficient to prove crimes against humanity. In this section, the information requirements of prosecutors and judges trying cases of genocide, information produced from mass grave exhumations, and the sufficiency of this information for obtaining guilty verdicts against those who committed either genocide or crimes against humanity will be discussed.

As can be seen from Table 2.3 over a half-dozen tribunals and courts presided over cases where charges of genocide and crimes against humanity were prosecuted. The process of establishing each tribunal and court has been very complex and has involved international negotiations, UN Security Council resolutions, and self-appointed local courts. Even though the process has been confusing at best, each court has built upon decisions preceding their own deliberations back to the first cases prosecuted by the International Criminal Tribunals for Rwanda and the former Yugoslavia. The resulting case law establishes the requirements needed to find perpetrators guilty of genocide under the Genocide Convention and to prove them guilty of the crimes against humanity. The evidentiary requirements of these two types of crimes are similar. When reviewing both genocide cases and crimes against humanity cases, the process and procedures for excavating mass graves and examining human remains were the same regardless of which type of crime was being prosecuted. Therefore, it follows that a protocol designed for genocide cases is also valid for cases involving crimes against humanity.

In concert with initiating these criminal proceedings, mass graves have been exhumed. They have provided direct forensic evidence of the nature of the crime, its extent, and corroborating evidence form documents and testimonies. The *mens rea* component of the crime of genocide was documented by identifying the scale of the crime, the protected group attacked, and the military or militia units responsible for the acts through the identification of the weapons used. The *actus reus* component of the crime of genocide was also proven by findings that included the widespread and systematic killing of members of a protected group. Additionally, mass grave evidence proved that serious bodily and mental harm was inflicted on the victimized groups by documenting tortures and the post-mortem treatment of human remains by the attackers. However, there are several *actus reus* components of the crime of genocide where mass grave evidence is not as helpful. They include inflicting conditions of life design to destroy the group, preventing births, and the transfer of children. Also, mass graves are not good sources

of proof for population dislocations, rapes, and, in cases of fully skeletonized remains, forms of death that do not leave any trace of trauma on skeletal elements.

5.2 Potential Resolutions of Impediments to Prosecution

Several factors were noted above that impeded the prosecution of those responsible for genocide. Those include the complex system of various courts prosecuting these cases, delays in prosecution and the exhumation of remains, and requirements for the professional excavation of graves.

As the discussion above noted, several factors have hampered the timely prosecution of those guilty of these gruesome crimes. In some cases, perpetrators have died years after the crime, but before they were ever prosecuted. One of the most significant delays resulted from the complex mix of court systems and jurisdictional issues that arose because these aspects of prosecution were not considered by the United Nations when the Genocide Convention was adopted. However, with the establishment of the International Criminal Court, the process for opening an investigation, issuing an indictment, and prosecuting the guilty has been considerably streamlined. Consider the events in Libya in 2011. Even while armed conflict was still taking place, the International Criminal Court opened a case to preserve evidence of the crimes being committed, and to insure that the guilty would be prosecuted swiftly. Less than three months after the UN Security Council required the Office of the Prosecutor of the International Criminal Court to conduct an investigation into crimes committed in Libya, the Prosecutor asked that arrest warrants be issued. Based on evidence collected, the Prosecution applied for issuance of arrest warrants against Muammar Mohammed Abu Minyar Gaddafi, Saif Al-Islam Gaddafi and Abdullah Al-Sanousi on May 16, 2011 (ICC 2011). Only time will tell if the court will be able to hold those accountable for these crimes on a timely basis.

A related matter concerns the timely excavation of mass graves by teams of forensic professionals following clear guidelines that can withstand the scrutiny of the International Criminal Court. As noted above, in some cases excavations were completed by non-professionals, or were interrupted by the government of the country where the graves were located. Delays in excavation can lead to loss of evidence or the destruction of evidence when mass graves are moved and/or bodies are removed. The excavation of graves by non-professionals can result in the destruction of evidence or overlooking evidence that is present.

To prevent these oversights, the protocol below provides clear guidelines for the professional excavation of the grave, exhumation of remains, and examination of the remains and other contents of the grave. It should facilitate the planning, operation, and conclusion and reporting on the results of the excavation, exhumation, and examination in a way that is acceptable to the International Criminal Court.

5.3 The Protocol for the Excavation, Exhumation, and Examination of Mass Graves and Their Contents

Based on the research and analysis presented above, a six stage protocol was developed for the excavation of mass graves and is presented in Appendices D and E. It is designed to present the activities necessary to complete the excavation of large mass graves and the examination of large numbers of skeletal elements from many human bodies in a way that is consistent with scientific standards and legal requirements; and that is efficient and effective. Although not all mass graves require the extensive staff and resources envisioned here, the functions described in the protocol should be considered regardless of the size of the excavation. It is anticipated that this protocol can be easily adjusted to the size of the project and the cultural requirements of the community where the excavation takes place. Additionally, it is hoped that the protocol will be seen as a living document that can be modified for specific excavations, and/or supplemented with missing steps as required by field use of the protocol.

Significantly, the use of the protocol during the excavation, exhumation and examination of mass graves and their contents will produce massive amounts of documentation. To manage this aspect of the protocol, a document map is presented at the end of the discussion of the protocol in Figure 5.7. This Figure combines Figures 5.1 through 5.6 to show a map of documents produced during each stage of the process and their movement through the process to the final report. By discussing each flowchart that pertains to each component of the protocol separately, and then combining them in Figure 5.7, this should facilitate the understanding of the flowchart and the process overall.

5.3.1 Stage I Planning and Logistical Analysis. During the first stage of the project, approvals need to be obtained; NGO and other organizations need to be contacted; the staffing and organization of the project needs to be identified; and preliminary logistical planning needs to be completed. Exhumations in the United States always require approvals from local authorities.

When conducting massive international excavations on such a large scale, the approval process becomes more complicated. Project leaders must act quickly to obtain all the required approvals and visas for an international team to enter the country and conduct the excavation. Both the national government of the country and local authorities need to be apprised of the objectives of the project, as well as the anticipated results of this activity. Written approvals to proceed with the project must be obtained from all appropriate authorities as indicated in Figure 5.1.

During many of the mass grave excavations researched for this thesis, NGOs were actively engaged with staff members of the project team. They can provide critical help during the excavation such as interviewing witnesses and relatives; obtaining antemortem information about the victims in the grave; and at times, providing much-needed funding. The organizations most likely to be in a position to help support the work of excavating mass graves need to be identified, contacted, and the extent of their likely involvement in the project clearly delineated. Funding sources must be identified and a realistic budget for the project must be established. The project must be approved, funded and authorized by international, national and local authorities before any subsequent stages can begin.

One of the most critical aspects of this initial stage is the identification of competent, knowledgeable, and available experts that can staff the project. This part of the protocol includes

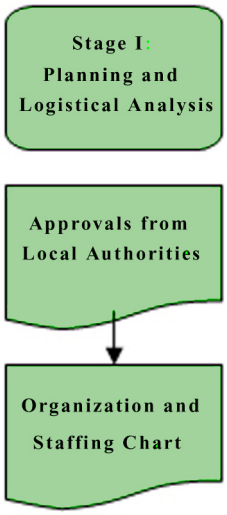

Figure 5.1 Stage I Planning and Logistical Analysis. Two documents are produced in Stage 1, approvals from local authorities and an organization and staffing chart.

an organization structure and logistical considerations presented by Tim Anson and Michael Trimble (2008). It is supplemented by Ian Hanson (2008) and Karen Ramey Burns (1998). The example is intended to provide guidance for the initial planning needed for the massive effort of excavating large mass graves utilizing international teams of experts. The structure and staff requirements of the various teams need to consider the size of the project, and the need to conduct exhumation operations, and autopsies and laboratory analysis of human remains simultaneously. An organization chart needs to be produced as indicated in Figure 5.1.

In addition to the identification of staff and organizational issues, it is critical to the success of the mission to effectively address logistical concerns and safety issues relative to staff, security of the evidence, and protection of the excavation site. Often these excavations take place in rural areas that are far away from laboratory facilities. Even if access to such facilities is convenient, often the authorities within the area surrounding the grave are overwhelmed by the size of the excavation and the number of exhumed remains that must be addressed. Therefore, logistical planning needs to consider basic needs for the staff such as travel, housing, meals, transportation and safety in addition to the requirements to bring in supplies, equipment and laboratory facilities, and security of the grave site and evidence. During Stage I, the initial planning for logistical management is started. In Stage II, logistical and safety plans are documented and in Stage III they are reassessed once the size of the grave is known and the scope of the excavation is finalized. Finally, arrangements need to be made for a small team to visit the probable location of the grave and complete a feasibility assessment and logistical plan.

5.3.2 Stage II Exploratory Mission and Feasibility Study. Stage II of the protocol addresses the exploratory mission to the potential site or sites of mass graves. During this stage, the future development of the final report needs to be considered when designing all protocols, logs and guidelines. This stage results in the writing of the feasibility study, logistical plan, security plan, and protocols for tracking human remains, photographs and evidence. Various forms used during the excavation, exhumation, autopsy, and examination of skeletal remains and other contents of the grave need to be designed or identified if they already exist. Also, protocols will be needed for field notes, and the inventory of human remains and related evidence. At this point, the need for data processing support and hardware requirements should be assessed.

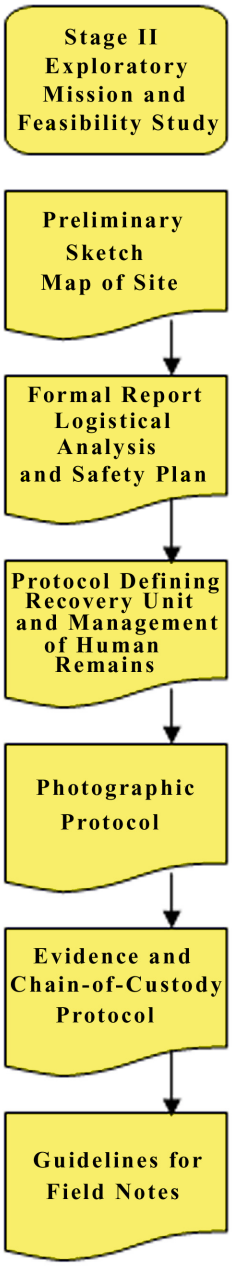

Figure 5.2 Stage II Exploratory Mission and Feasibility Study. During Stage II, maps, reports, protocols and guidelines used in subsequent stages are produced.

Several sources were used for this stage. The references used to describe preliminary field operations and site selection include the *UN Manual on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Execution*, later referred to in this thesis as the *UN Manual* (2010), the Anson and Trimble work sited in Stage I (2008), works from William D. Haglund, Melisa Connor, and Douglas D. Scott (2001; 2002), and two works by Karen Ramey Burns (2007; 1998). This stage complements the first stage in that it completes some of the steps started above. In this stage, field work begins, preliminary sketch maps are completed and the mass grave is located. At the conclusion of this stage, a formal report of the exploratory mission and logistical plan are completed; and protocols for handling human remains, photographing the site, evidence control, and the requirement for maintaining the chain-of-custody are documented. Also, guidelines for field notes are documented. Figure 5.2 identifies the documentation produced in Stage II.

An exploratory mission is often needed in a large mass grave excavation to initially contact the local community and determine the probability for success of the project. At this time, the country is visited by a small team of experts; sites are selected for storage of remains, artifacts and other evidence; and the sites to be excavated are identified. The identification of the location of the mass graves requires the review of witness testimonies; survey of the potential gravesite; and identification of the grave. Once the grave is located the surface of the gravesite is examined; surface remains and artifacts are flagged and examined; and any remains or artifacts are wrapped in plastic to protect them. Confirmation of the grave must be done by conducting a limited excavation or test trench when using probes and other methods does not clearly demonstrate that the grave has been located.

Preliminary logistical activities are completed at this time. Those activities include planning for laboratory and other facilities; locating housing for the staff and transportation capabilities; and arranging for security for staff, equipment and evidence. Additionally the sites for laboratory, administrative and field operations are located. The security plan should include requirements for assuring safety of the staff, and security of the evidence, human remains and all field locations. Personal safety issues for the staff include dangers present at field locations such as landmines, booby traps, and attacks by local residents that do not want the grave to be excavated. Security measures are required to prevent tampering, destruction or theft of evidence and remains. Field locations need to be guarded to insure that they are not altered when staff is

not onsite. Finally, a formal report is prepared that documents the exploratory mission, the logistical requirement for the major excavation, and a security plan.

Once the project is deemed feasible, protocols are developed for human remains' handling, photography of the site, remains and evidence documentation, maintenance of chain-of-custody, and completion of field notes. The protocol for recovery and tracking human remains and the requirements of the Master Case Log was developed from the *UN Manual* (2010), Haglund (2002), Schmitt (2002), and Burns (1998). This protocol defines the requirements for using a Master Case Log to control each set of remains, and their movement from the grave to their final resting place. That process includes documenting the human remains and associated artifacts located in the grave. Remains must be tracked through the process of moving the remains from the grave, through autopsy and skeletal analysis, to the final disposition of the remains back to the family for burial. When there are unidentified remains two skeletal elements are retained before the remains are released to local government facilities for a final determination of identity; or burial of the remains without the identity of the individual being known.

In addition to addressing security and tracking of remains the requirements for holding remains in temporary locations are defined in the protocol. This section uses information from the *National Association of Medical Examiners: Mass Fatality Plan* (NAME 2010), and the Pan American Health Organization's guidelines, *Management of Dead Bodies in Disaster Situations* (PAHO 2004). Also, the *Fatality Management Response Plan of the Florida Medical Examiners Commission* (Florida 2010) was consulted. When remains are placed in a holding container at the site or at laboratory facilities they must be refrigerated. Once the remains are moved from the field location and moved to the laboratory facilities, a 'tracker' is assigned to insure that the remains are examined by the appropriate staff and that changes in custody of the remains are documented in the Master Case Log. The tracker insures that all of the appropriate forms, tests and photographs are taken. The tracker must also be sure that the cause and manner of death has been determined and that the examination of the individual has been completed before the remains are released to the family or local authorities.

The next section discusses the Photographic Log and Protocol that requires the tracking of all photographs and visual media from the initial site visit by the team through to the preparation of the final report. It contains requirements for photographs to be taken of the scene

where the grave is located, human remains *in situ* and during the skeletal examination, and evidence examination in the field and in the laboratory setting. The information in this section is more detailed because much of the information is not available from forensic anthropological sources. Two forensic science textbooks were referenced, one from Charles R. Swanson, Neil C. Chamelin, Leonard Territo and Robert W. Taylor (2006), and the second from Richard Saferstein (2007). Additionally, this section is supplemented by INTERPOL (2007) and the US Department of Justice (2005) who provide the steps needed for the collection of antemortem information for later use when identifying individuals. Anthropological references from Erin H. Kimmerle and José Pablo Baraybar (2008) and Haglund, Connor, and Scott (2001) were also used.

Next, the requirements for the Evidence Log and Chain-of-Custody Protocol and guidelines for field notes are provided. This section explains the steps needed to insure that all evidence is collected from the scene of the grave and managed in a way that will withstand the scrutiny of the international courts trying these cases. Before any evidence is removed from the surface of the grave, or from the grave itself, a person is designated as the evidence custodian. This person is responsible for issuing evidence tracking numbers and monitoring the movement of evidence from field locations through various examinations in the laboratories to release to an evidence repository designated by the prosecutors. The evidence custodian must have copies of all transfer forms and be able to document who had the evidence, when they hand it, and why they had it. Additionally, guidelines for documenting field observation are produced. Field notes are evidence and must follow appropriate requirements to insure that they are court-admissible documents that contain no comments outside of those related to the excavation. Field notes must not contain any implications beyond the team member's expertise or references to color. Color determinations must be made using standardized reference charts. The procedures presented in this section are taken from Haglund, Connor and Scott (2001), Saferstein (2007), Swanson, Chamelin, Territo, and Taylor (2006), and Burns (1998).

One final section addresses the level of data support that is needed during the excavation. Much of the documentation, photographs, x-rays and forms completed are digitized. Therefore, computer expertise is needed for systems management and maintenance, design and development of databases and applications, data processing and hardware requirements and security measures that prevent unauthorized access to or manipulation of the data. The data

management staff is required to insure that all IT systems are functioning properly and nightly backups are completed for data, photographic and other files. This should include backups to offsite locations preferably using secure internet sites that encode the data, prevent hacking or manipulation of the data and that enforces strict access to and downloading of data.

An additional general concern is the use of standardized forms. There are many forms that are referenced in this protocol. Many of the publications sited contain forms for collecting antemortem and postmortem data, inventorying human remains and related artifacts *in situ*, inventorying skeletal elements, and posting dental information to dental charts. During this stage, the forms to be used need to be selected and a determination needs to be made as to which forms should be completed as automated documents and which should be completed as hardcopy documents. Each of the protocols must make these designations to insure that there are consistent results obtained from the excavation and that the documentation can be properly reconciled once the excavation and examination is completed. Additionally, all forms must be reviewed by the IT staff to insure that the automated forms are compatible with the software and hardware used by the team and that hardcopy forms meet data entry requirements.

5.3.3 Stage III Excavation and Exhumation of the Grave. During Stage III, the boundaries of the grave are defined, the site is fully documented, the evidence and remains on the surface are recovered, the grave is excavated, the remains and associated artifacts are exhumed, and the floor of the grave is examined. Additional issues concerning the taphonomy of the grave, scattering mechanisms impacting surface remains, and the development of antemortem information are discussed. The primary sources for this stage are Haglund, Connor, and Scott, and Haglund (2001; 2002). The work of these forensic scientists significantly enhances the *UN Manual* (2010). Schmitt (2002) provides information for determining the minimum number of individuals, and Burns (1998) provides supplementary information. The last section in this stage addresses the antemortem information that needs to be gathered to identify the individuals contained in the grave. References from the US Department of Justice (2005) and INTERPOL (2009) are the primary sources for this material. The intent of this stage is to guide field operations in a way that insures the professional excavation of the site, exhumation of remains, collection of evidence and adherence to the requirements of maintaining the chain-of-custody and collection of information to identify the individuals exhumed. The documentation produced during this stage is presented in Figure 5.3.

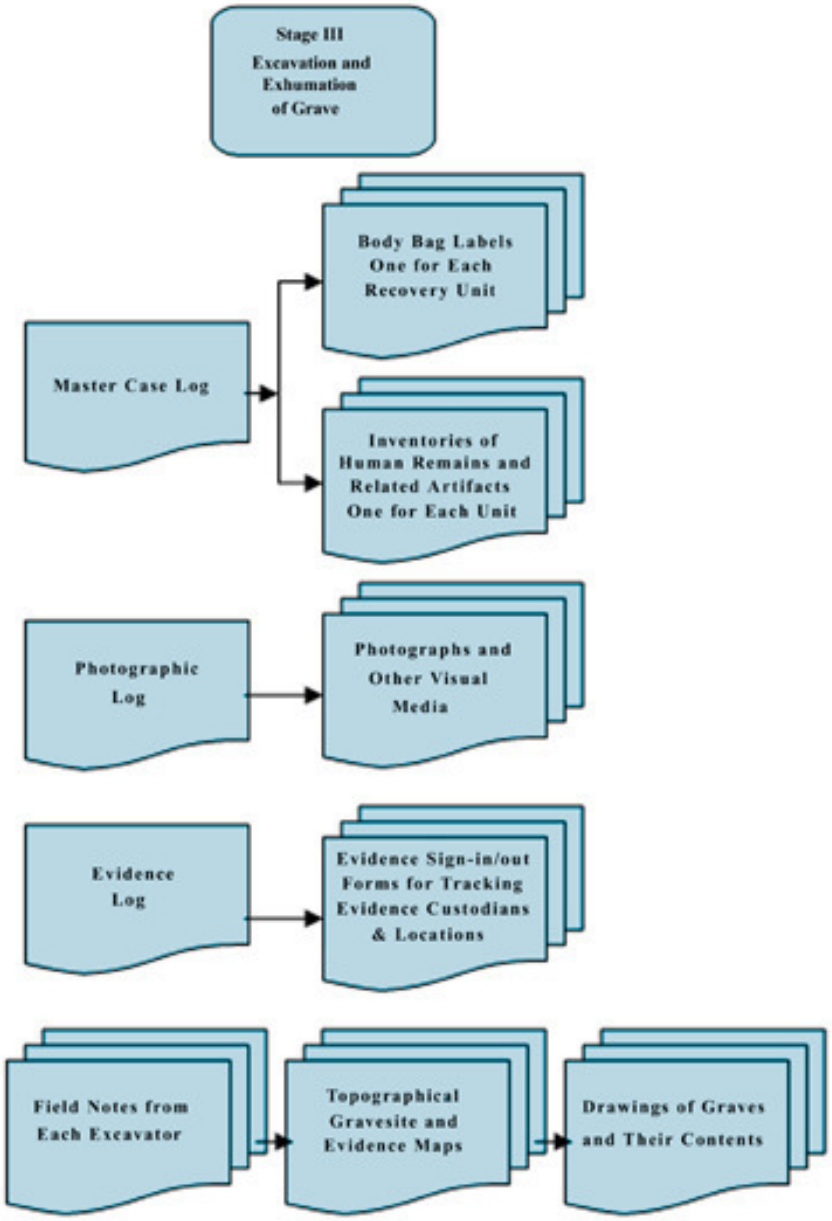

Figure 5.3 Stage III Excavation and Exhumation of Grave. During this stage, protocols are written and logs are established for the management of human remains, photographs and evidence. Guidelines are written for field notes. Topographical maps and drawings are completed.

The excavation and exhumation stage of the project takes place at the site of the grave in a field location. Initially, it requires location of the grave if not completed above, and delineation of the size of the grave. For large graves, earthmoving equipment is employed to remove the overburden and excavate down to a level just above the body mass or the human

remains. For this effort to be successful, roles and responsibilities of staff and requirements for notes, logs, and guidelines need to be established; the site needs to be documented before the ground is disturbed; and the presence of human remains must be confirmed. Any remains scattered on the surface of the site should be recovered and analyzed in a way that is consistent with the protocols defined in Stage II. Additionally, once the grave has been located it must be fully documented with maps, photographs and a description of the grave. The amount of overburden should be established, removed and screened for small artifacts and skeletal elements. A trench is excavated around the outside of the grave to a depth that is deeper than the anticipated floor of the grave. The body mass should be circumscribed and the trench should be dug in a way that presents the body mass on a pedestal. Once the body mass is exposed a profile of the grave is completed. Once this documentation is completed the logistical plan should be finalized.

When body removal begins the removal unit must be determined. Normally this is one individual including artifacts directly related to the individual. However, in some instances the remains are so comingled that multiple bodies need to be removed at one time. The soil is carefully removed from the top and around the body. All limbs are freed and removed with the torso, neck and head of the body. The crania are located on the site map and the horizontal and vertical position of the top of the crania is plotted. Also, the outline of the body is plotted. A tracking number for the body is obtained from the person in charge of the Master Case Log. The Log should document the person who was issued the number, the date it was issued and the time. At that time the exterior label for the body bag and a human remains inventory form are issued. Before removing the remains they must be photographed, mapped and documented in field notes. Measurements of the remains are completed *in situ* before removal. The remains are removed from the grave in a way that insures all skeletal elements, hair and related artifacts are removed as a unit and placed in the body bag. A metal detector must be used to search for items such a bullets or jewelry in the levels immediately above and below the remains. Finally, the bottom of the grave must be examined to determine if there is any additional evidence present in the site before the grave is closed.

Taphonomic issues such as dispersal of remains and classification of the grave should be documented. The factors that contributed to the dispersal or scattering of human remains must be identified. Those factors may include scattering by animals, agricultural activities, movement

by water and incomplete burial and reburial by local residents. Also, the burial should be classified as to individual or comingled, isolated or adjacent, primary or secondary, and undisturbed or disturbed.

One final issue is presented in this section. Although the identification of the individuals in the grave is often not within the scope of mass grave excavations, project team staff should insure that they do nothing that would hinder later identification by local authorities. Often, human rights organizations staff the effort specifically designed to identify the remains. The information presented in this section defines the antemortem information required for identification of the individual. It provides the forensic anthropologist with the information required of the team collecting the data. Additionally, the final stage of the protocol defines the postmortem information required for identification of the individual. Much of this information is collected at autopsy and during the skeletal examination. Therefore, it is important for the anthropologist to know what antemortem and postmortem information needs to be collected.

5.3.4 Stage IV: Intake and Autopsy. Although this stage of the project is beyond the scope of this thesis, there are two items that are documented either before or during this stage and required for subsequent stages. For information on the protocol for autopsy, see the *UN Manual* (2010). One of the documents produced in this stage is the Protocol for Handling Clothing. During intake and autopsy, clothing is removed from the body and photographed. In the next stage, Skeletal Analysis, the content of the clothing protocol is described because there are steps taken during the examination of the skeletal remains that also require the handling of the clothing. For example, clothing is often examined to determine if there are defects in the clothing that line up with injuries on the body.

The second item requires the writing of a protocol for all medical imaging of the remains, and establishment of a Medical Imaging Log. This protocol and log must be documented before or during the early stages of autopsy to track all medical images produced during the autopsy of the individual. Once the autopsy is completed, the remains are examined by the Forensic Anthropology Team that takes additional x-rays in accordance with the Medical Imaging Protocol. In the next stage, the portion of the protocol that involves medical imaging during the skeletal examination is described. The documents produced by this stage of the protocol are presented in Figure 5.4.

Figure 5.4 Stage IV Intake and Autopsy. During this stage, two protocols for clothing and medical imaging are produced for use in this stage and in Stage V.

5.3.5 Stage V Skeletal Analysis. In Stage V the skeletal remains are examined by forensic anthropologists. Usually, this stage takes place after the remains have been autopsied. As stated above, the process needed to autopsy the remains is beyond the scope of this paper, and will not be presented in this protocol. The steps described in the Stage V are taken primarily from Kimmerle and Baraybar (2008). This reference adds considerable depth to the *UN Manual* (2010). Kimmerle and Baraybar is a comprehensive reference that provides considerable first hand information on the analysis of remains. These steps are supplemented by Bradley J. Adams and John E. Byrd (2005), Douglas H. Ubelaker (2002), and Haglund, Connor, and Scott (2001) who provide the steps needed to address the comingling of remains and the calculation of the minimum number of individuals exhumed from the grave. Stage V addresses the inventorying of the remains and related evidence, examination of the skeletal elements to determine the apparent trauma, the resolution of comingled remains and the rearticulation of dismembered remains, as well as an estimation of the minimum number of individuals, and the reconstruction of the events that caused death. As in the other stages there are several documents produced during this stage. Figure 5.5 presents those documents.

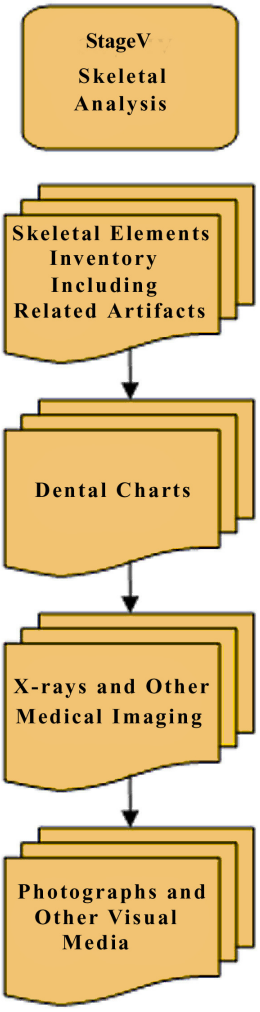

Figure 5.5 Stage V Skeletal Analysis. For each set of human remains received from the grave, an inventory of skeletal elements and dental charts are prepared. Also, a series of x-rays and photographs are taken.

When remains arrive for skeletal examination, the date, location, starting and finishing times and the names of everyone present must be recorded before the examination begins. All skeletal elements are radiographed before they are cleaned. This includes both dental and skeletal x-rays. Two lumbar vertebrae are retained in their original state. Often there are comingled remains exhumed from mass graves. In these cases, there are two sets of techniques for separating commingled remains. The first set of techniques is most effective for separating remains when comingling is on a small scale. The second set is effective for large scale

comingling. The objective of this process is to conjoin fragmentary and disarticulated remains, maintain provenance information collected during recovery, and identify as many elements for each individual as possible. Once skeletal elements are sorted by type, side and size they are associated with individuals using various techniques. For small scale comingling skeletal elements are identified by visual pair-matching, comparing elements at points of articulation, comparing osteometric measurements and examining taphonomic factors. For large-scale comingling a database may be needed to inventory bones by type and side, age at death, size, and any other descriptive information. The general morphology of bone fragments must be examined, and the remains must be assembled into likely individuals. The age, sex, and ancestry, relative bone weight and taphonomic changes of each element must be compared for consistency. Any joints, where all of the skeletal elements of the joint are present, must be examined to determine if the size and morphology of the elements form a congruent joint. In all cases of skeletal reconstruction, sorting and rearticulation procedures should not be used in isolation. Systematic procedures must be used that are well documented. Once the separation of comingled remains has been completed, and disarticulated remains are associated with an individual then the minimum number of individuals can be determine. This is an essential element for determining the scope of the crime.

Once all of the elements of an individual have been assembled the analysis of the skeletal remains of the individual can begin. The skeleton is laid out on laboratory table in anatomical position, fractured bones are reconstructed, and an anthroposcopic examination is completed. All of the skeletal elements are placed on the table in a way that distinguishes left form right, and that aligns bones that articulate with one another. All fractured bones are reconstructed and the fracture patterns are examined to determine the mechanism of injury. An inventory is done of all of the skeletal elements and any associated artifacts that have accompanied the remains from the grave to the laboratory. This inventory should list all fractures or defects to the bones and describe the number, type and severity of all fractures and defects. The timing of fractures must be determined and clearly documented to indicate when the injury occurred. That documentation should show if the injury was antemortem, perimortem or postmortem, and if there has been any remodeling of the bone since the injury took place. Any pathology that is present must be classified by disease category. The general condition of the remains, distinctions made between injuries from therapeutic measures versus those not related to medical treatment, and the

identification of normal skeletal variations must be recorded. The remains must be radiographed to located physical evidence of weaponry such as shrapnel or projectile fragments.

At this point, the clothing associated with the remains should be examined using the Protocol for Handling Clothing that was developed during Stage IV. The clothing should be radiographed separately from the body to determine if there are any dangerous artifacts contained within the clothing. The clothing must be photographed before and after it is washed. The type, amount and ownership of the clothing must be determined. Often there are multiple layers of clothing that were owned by different people than the individual that was buried with them. The contents of the pockets and the fold of the clothing must be examined. All defects in the clothing must be documented; and it must be determined if the defects line up with injuries on the skeleton. Evidence of burning and taphonomic changes should be noted. Textile patterns and colors as compared to standard color charts must be referenced to facilitate the identification of the individual. All artifacts associated with the remains must be examined using the Evidence and Chain-of-Custody Protocol. The artifacts must be photographed, inventoried, and examined for their probative value in proving the elements of the crime and for their value in identifying the individual. Demographic information must be documented for age at the time of death, sex, height, ancestry, medical pathologies, and other distinguishing characteristics that may aid in the identification of the individual. A preliminary identification may be made at this time and refined later.

The mechanism of injury and the death event scenario must be determined. That determination must consider if the injuries sustained by the individual are from blasts, blunt force trauma, sharp force trauma or gunfire. The forensic anthropologist must differentiate between injuries attributed to taphonomic changes versus traumatic or therapeutic injuries. If the injuries indicate that the person was tortured, that finding must be clearly documented. Once the examination of the remains has been concluded, the events leading to the injury and death of the individual must be reconstructed. Finally, if the remains are to be reburied without the individual being identified, selected skeletal elements are retained for examination later.

5.3.6 Stage VI Conclusion, Review and Final Report. During the sixth and final stage of the project, the identification of individuals is done, a reconciliation of the Master Case Log, Photographic Log and Evidence Log is completed, and final steps are taken to complete and report on the examination and analysis of the grave, recovered remains and other contents of the

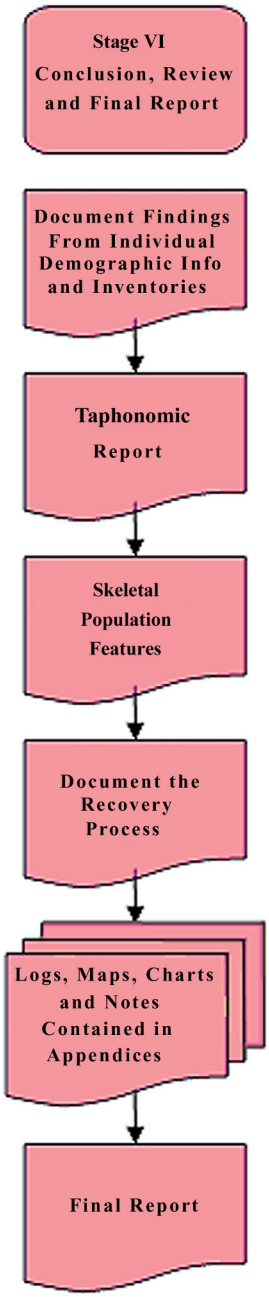

Figure 5.6 Stage VI Conclusion, Review and Final Report. During Stage V, individual demographic and identification information is documented; components of the final report are reconciled; and the final report is written, signed and submitted.

grave. The information from the *UN Manual* (2010) is considerably enhanced by several forensic experts. The US Department of Justice (2005), INTERPOL (2009), and Haglund and Sorg (2002) provide a comprehensive analysis for the identification of individual victims. The steps in the protocol needed to close the operation and complete the final report are from Haglund and Sorg (2002) and Burns (2007). Additionally, this author developed steps needed to conduct a final review and reconciliation of all logs, documentation and evidence. The documents produced by this stage are presented in Figure 5.6.

Once the excavation, exhumation and examination of the mass grave and its contents are completed as many individuals as possible should be identified. All postmortem data must be documented. The location of where the individual was killed and the location of the individual in the grave must be established. All remains and their associated clothing and artifacts are photographed. The general physical characteristics of the remains must be noted. Any distinguishing marks, scars, tattoos and external prostheses must be photographed and described in the postmortem information. Fingerprints, demographic information, and documentation on distinctive antemortem pathology must be obtained. All perimortem and postmortem trauma must be recorded along with the cause and manner of death. Trace evidence, valuables, clothing, and DNA evidence must be collected. This postmortem information must be compared to antemortem information discussed in Stage III to identify the individual. When the remains cannot be identified they are released to local authorities for additional actions to identify the individual, or for burial. Additionally, this information must be summarized and skeletal population features must be reported. The minimum number of individuals, average age and range of ages, ratio of males to females, shared inherited or acquired physical traits and anomalies, shared pathologies or trauma, common means of death and postmortem treatment of the remains must be documented. The national, ethnic, religious and racial group of the individuals must be reported. The events that caused the deaths of the individuals from the grave must be reconstructed.

The excavation of a mass grave produces a large amount of documentation as indicated by Figures 5.1 through 5.6. Before this documentation is released to the prosecutor it must be reviewed and reconciled to be sure that it is consistent and that any inconsistencies, gaps and duplications are resolve. Using the Master Case Log, insure that all remains have been exhumed, autopsied and the skeletal elements examined. Each case number should be examined to

determine if all forms, photographs, examinations, tests and reports have been completed and are consistent with each other. All related artifacts, clothing and tissue sample must contain the case number assigned to the individual. The documentation of the remain must trace the remains for their location in the grave to their place of final disposition, and all related artifact and clothing must be identified with the location of the items clearly indicated. The documentation for maintaining the chain-of-custody must be examined to insure that all evidence was properly collected, examined, photographed, tested and placed in an evidence repository for long term storage. All transfer forms must be reconciled to the Evidence Log. The photographic log must be reconciled by case number and evidence number to the Master Case Log and Evidence Log to insure that all required photographs have been taken and recorded in appropriate logs. All case photographic and evidence numbers must be accounted for, and any gaps or duplications in numbers must be explained. All supporting documentation, such as field notes, must be reconciled with the various logs to be sure that there are no inconsistencies. These steps are needed to insure that there are no problems with this material when the prosecutor receives the information and presents it at trial. Completion of this step insures that the project has been well-managed and professionally completed from start to finish.

The final report should be written consistent with the requirements established in this protocol and with any additional requirements from legal authorities. As a minimum, the report should contain the identity of the author, significant dates, chain-of-custody documentation, taphonomy report, skeletal population features, and reconstruction of the death event. Chain-of-custody requirements and the procedures used to recover the remains and the evidence must be clearly described. Skeletal population features and the description of the events that lead to the deaths of these individual must be clearly presented in language that is not too technical. When technical words or phrases are used they must be clearly defined. General conclusions and recommendations should be documented, and the report should be signed and dated. As required, all diagrams, drawings, maps and photographs referenced in the report must be initialed. Appendices of logs for evidence, master case inventory, and photographs must be attached.

The flowchart in Figure 5.7 combines all of the flowcharts from the protocol into one flowchart. By combining the smaller flowcharts into this larger one and adding directional

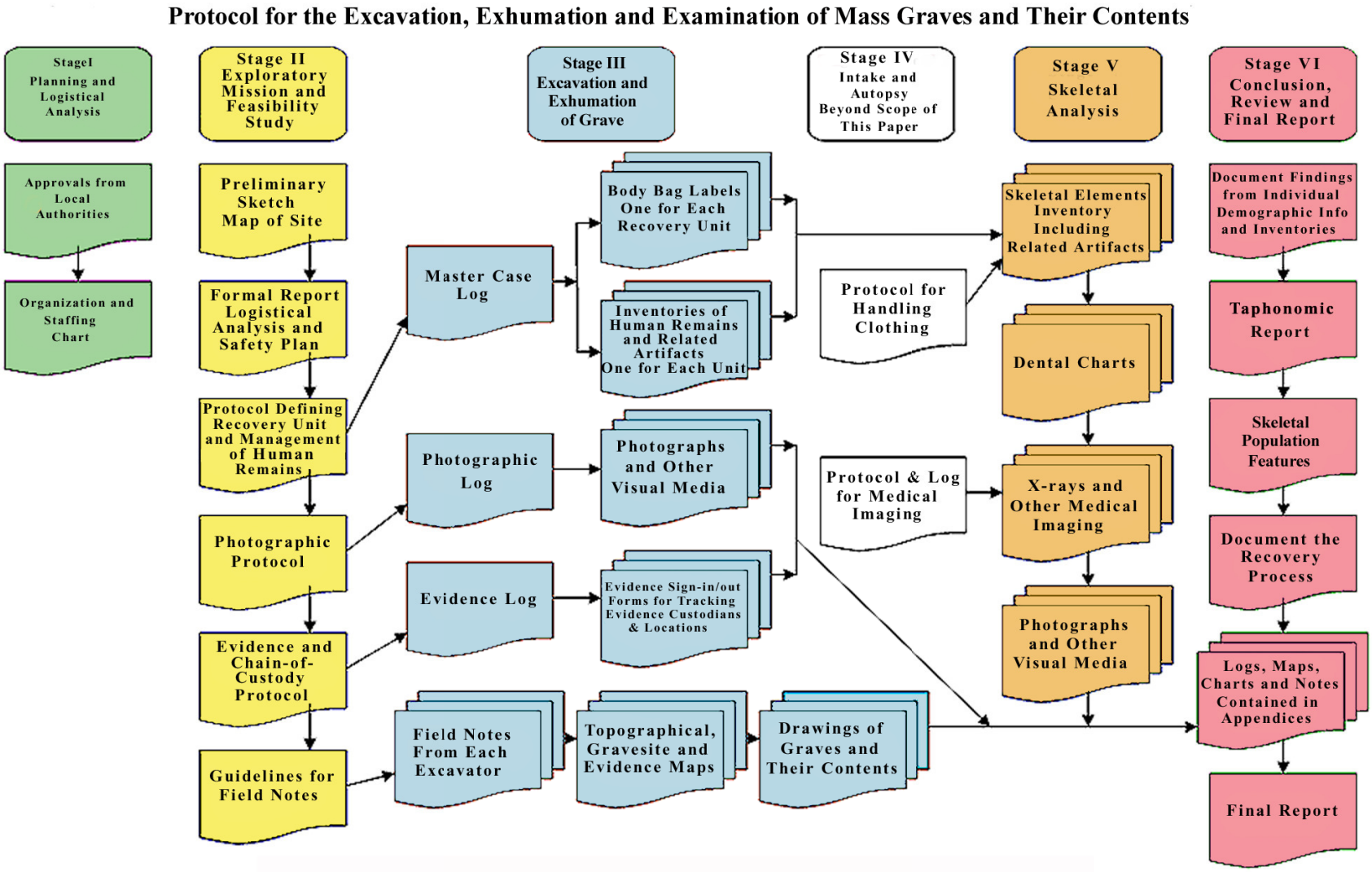

Figure 5.7. Protocol. In the documentation map presented here, the component parts of the protocol, described above, are assembled in to a contiguous whole. The resulting flowchart demonstrates the relationship between the different stages of the protocol and how the documents produced during Stages I to VI migrate from the stage where they were created to the final report.

arrows a documentation map is produced that shows the documents produced during each stage of the protocol and how those documents are related to subsequent stages of the protocol. This document map shows how the documents flow from one stage to the next, and finally to the Final Report. It provides a general overview of the protocol and a broad overview of the process. It can also serve as a tool for organizing the various aspects of the process for excavation of a mass grave.

5.4 Identification of Individual Victims

As noted above, there are significant moral, legal, and ethical issues relative to the identification of individual remains found in mass graves. Often, the mission statement and scope of the exhumation does not include the identification of individuals, but only requires the identification of the group attacked and the group who attacked. Local authorities are often overwhelmed by the number of remains to be identified and the requirement to obtain both antemortem and postmortem information needed to make so many identifications. Because it is beyond the scope of this thesis to resolve such complex issues, the approach taken in designing this protocol includes those steps necessary to obtain antemortem and postmortem information as well as demographic and physical evidence of the individuals exhumed.

To insure that the excavation process does not inhibit identification by local authorities or the NGOs specifically tasked to assist those authorities, this protocol was supplemented with the steps employed by INTERPOL (2009) and the US Department of Justice (2005) when identifying the remains of individuals lost during a mass casualty event. These steps were included because the excavation, exhumation and examination teams need to insure that no information is lost while they are completing their work. Additionally, they are responsible for obtaining any and all medical-legal evidence possible from the exhumation and analysis of the graves and human remains. It would compound the tragedy further if the completion of this work did not preserve all evidence including that needed to identify the victims of these crimes.

6 CONCLUSION

The protocol presented in this thesis is not intended to be the only reference for completing mass grave excavations. In Appendix D, Protocol Analysis and Development, several sources are identified that were used during this research. It is suggested that anyone attempting to initiate an effort to excavate a mass grave should make themselves and their staff familiar with the reference documents cited. Various charts and computer programs are presented in these references that may be useful as tools for successfully completing this vital work.

There is one final concern for future researchers in the field of forensic anthropology in particular and forensic science in general. While researching this paper, it was particularly difficult to locate consistent information on the excavation of mass graves resulting from genocides. Without access to the reports and exhibits produced during the investigation of these crimes, it is difficult to advance scholarship in this area. It is hoped that the International Criminal Court will provide access to such information when the prosecutions of these cases are completed. Just as case law has been enriched by the release of court proceedings and judgments rendered, forensic science can be advanced through the examination of the evidence obtained from these graves and the processes used to acquire and analyze it.

The protocol presented in this paper is intended to organize and facilitate the work of excavating mass graves, analyzing the remains, and preserving related evidence in a manner consistent with the best practices of forensic scientists who have successfully worked in this field, and in a way that can withstand the scrutiny of International Court Systems. Also, this work is important for documenting the history of what happened in a way that will withstand attempts by historical revisionists to obscure or deny what happened. The role of the forensic anthropologists that do this work is one of the most noble of all. In their capacity as international forensic scientists, they are helping people in desperate need of their assistance. The protocol presented here should facilitate that mission.

APPENDIX A GENOCIDE DATABASE KEY

Data Elements	Definition	Citation
I. Tracking Number	Number assigned based on continent, country and year when attacks started, e.g., Rwanda would be AF-RW-1994	
II. Region	Continent or region of the world where crime was committed.	
III. Country	Country or countries where crime was committed.	
IV. Specific Location	Specific city, state, region within the country where crime was committed.	
V. Stages of Genocide Documented:	These stages were developed by Gregory H. Stanton in 1996 at the Department of State.	Stanton 1992
A. Classification	"All cultures have categories to distinguish people into 'us and them' by ethnicity, race, religion, or nationality"	Stanton 1992:1
B. Symbolization	To give names or symbols to the classifications, and apply them to members of groups.	Stanton 1992
C. Dehumanization	"One group denies the humanity of the other group. Members are equate with animals, vermin, insects or disease."	Stanton 1992:1
D. Organization	"Genocide is always organized, usually by the state, though sometimes informally…or by terrorist groups. Special army units or militias are often trained and armed. Plans are made for genocidal killings."	Stanton 1992:1
E. Polarization	"Extremists drive the groups apart. Hate groups broadcast polarizing propaganda. Laws may forbid intermarriage or social interaction. Extremist terrorism targets moderate, intimidating and silencing the center."	Stanton 1992:1
F. Preparation	"Victims are identified and separated out because of their ethnic or religious identity. Death lists are drawn up. Members of victim groups are forced to wear identifying symbols. They are often segregated into ghettoes, forced into concentration camps, or confined to a famine-struck region and starved."	Stanton 1992:1
G. Extermination	"Extermination begins, and quickly becomes the mass killing legally called 'genocide.' It is extermination' to the killers because they do not believe their victims to be fully human. When it is sponsored by the state, the armed forces often work with militias to do the killing."	Stanton 1992:1
H. Denial	Denial is among the surest indicators of genocidal massacres. " The perpetrators of genocide dig up the mass graves. Burn the bodies, try to cover up the evidence and intimidate the witnesses. They deny that they committed any crimes, and often blame what happened on the victims. They block investigations of the crimes, and continue to govern until driven from power by force, when they flee into exile."	Stanton 1992:1
VI. Condition Present in the Environment:		
A. Active conflict	for example, civil war or occupation	
B. Famine	for example, as caused by governmental action	
C. Natural disaster:	for example, droughts or earthquakes	

D. Other	for example, concentrations of natural resources in ethnic regions	
VII. Facts of the Case:		
A. Presence of blindfolds, ligatures, & ballistic artifacts	as located by forensic anthropologists while exhuming mass graves	
B. Intent to destroy a national, racial, ethnic or religious group	as defined in the Genocide Convention	Power 2002
C. Concealment of a crime	for example, removing remains from a primary grave and placing them in a secondary grave	
D. Scale of the crime	as measured by the size of the population attacked, killed, or displaced, or the number of villages destroyed	
VIII. Targeted group:	"The 'victim is chosen not because of his individual identity, but rather on account of his membership' in the protected group." Therefore, "'a victim of genocide 'is the group itself and not only the individual'"	Cook 2001:2
A. National group	"a national group constitutes "a collection of people who are perceived to share a legal bond based on common citizenship, coupled with reciprocity of rights and duties'"	Cook 2001:2
B. Race	"a racial group' is based on the hereditary physical traits often identified with a geographical region, irrespective'" of linguistic, cultural, national or religious factors.'"	Cook 2001:2
C. Ethnicity	"an ethnic group is one 'whose members share a common language or culture'"	Cook 2001:2
D. Religious affiliation	members who "'share the same religion, denomination or mode of worship'"	Cook 2001:2
E. Socioeconomic status	"An individual's or group's position within a hierarchical social structure. Socioeconomic status depends on a combination of variables, including occupation, education, income, wealth, and place of residence." age at death as determined by examination of formative and degenerative changes to skeletal material and teeth	Dictionary.com 2010:1
F. Age	as determined by a forensic anthropologist considering rates of bone formation	Burns 2007
G. Sex	as determined by a forensic anthropologist considering variation and overlaps between the sexes	Burns 2007
H. Physical condition before the attack	Condition of an individual's health antemortem and before the attack	
I. Other identifying characteristics	Protection under the Geneva Convention "should extend to 'any stable and permanent group"	Cook 2001:2
J. Group vulnerabilities to attack		
1. Political Upheaval	"the greater the magnitude of previous internal wars and regime crises,…the more likely that a new state failure will lead to geno-/politicide."	Harff 2003:66
2. Prior Genocides	"The risks of new episodes were more than three times greater when state failures occurred in countries that had prior geno-/politicides."	Harff 2003:66
3. Elite Ideology and Regime Type	"Countries in which the ruling elite adhered to an exclusionary ideology were two and a half times as likely to have state failures leading to geno-/politicide as those with no such ideology. Failures in states with autocratic regimes were three and a half times more likely to lead to geno-/politicides than failures in democratic regimes."	Harff 2003:66
4. Ethnic and Religious Cleavages	"The risks of geno-/politicide were two and a half times more likely in countries where the	Harff 2003:

	political elite was based mainly or entirely on an ethnic minority."	66-67
5. International Interdependences	"Countries with low trade openness had two and a half times greater odds of having state failures culminate in geno-/politicide."	Harff 2003:67
IX. Aggressor Group	Anyone who commits the acts enumerated in Article 2 of the Genocide Convention and who committed "(a) Genocide; (b)Conspiracy to commit genocide; (c) Direct and public incitement to commit genocide; (d) Attempt to commit genocide; (e) Complicity in genocide."	Power 2002:62
A. National Group	See VII, A above	
B. Race	See VII, B above	
C. Ethnicity	See VII, C above	
D. Religious affiliation	See VII, D above	
E. Socioeconomic status	See VII, E above	
F. Age	See VII, F above	
G. Sex	See VII, G above	
H. Other identifying characteristics		
I. Leadership structure	Placement in an organization that maintain order and governance over a population.	
J. Affiliation with government, military or other power centers	Rank in the military or government office held.	
K. Reasons for targeting a group	for example, for the control of natural resources	
L. Justification for the crime	for example, revenge for a historical event or perceived injustice perpetrated by the targeted group	
M. Tipping point or event that acted to initiate the attack	An event that started the attack	
X. Manner of Attack:		
A. Killing members of the group:		
1. Manner of death	"is the circumstance that gave rise to the cause of death…five categories: natural causes, accidental, homicide, suicide, and undetermined." For purposes of this research, this field is used to describe the type of homicide, e.g. execution, indiscriminant shooting, artillery or gas attack.	Klepinger 2006:4
2. Cause of death	"is any injury or disease that produces a physiological derangement in the body that results in the individual dying"	Klepinger 2006:4
3. Common means of death	for example, gas attack or blunt force trauma to the back of the head	
4. Evidentiary material	"Anything that tends logically to prove or disprove a fact at issue in a judicial case or controversy."	Swanson et al. 2006:779
B. Causing serious bodily or mental harm:		
1. Identification of bodily or mental harm	for example, torture, rape or starvation	
2. Evidentiary material	See X, A, 4 above	
C. Deliberately bringing about a group's		

physical destruction:		
1. Conditions of life imposed	for example, failure to provide rations in sufficient quantity to sustain life, or forcibly dislocating a population from their ancestral land	
2. Physical destruction that resulted	for example, destruction of home, town, or religious/cultural center	
3. Evidentiary material	See X, A, 4 above	
D. Imposing measures intended to prevent births:		
1. Methods used to prevent births	for example, forced sterilizations or killing a mother to prevent her from giving birth	
2. Evidentiary material	See X, A, 4 above	
E. Forcible transfer of children away for birth group to another group:		
1. Methods used to remove children	for example, abduction from home or separation of children from adults	
2. Groups that received the children	for example, military families of those who participated in the crime of genocide	
3. Information provided to recipients as to the child's origin	for example, recipients told that the child is an orphan	
4. Evidentiary material	See X, A, 4 above	
XI. Status of the case:		
A. People or entities charged	name of the individual indicted and those suspected of crimes	
B. Status of charges	as documented by the courts that issued indictments	
C. Factors leading to successful convictions	for example, timely investigation, arrest and prosecution	
D. Sentences	as handed down by the courts who convicted the individual	
E. Reasons for unsuccessful prosecutions	for example, lack of access to graves and crime scenes, refusal to recognize arrest warrants, or delayed prosecutions	
X11. Other Definitions		
A. Genocide	The Genocide Convention defines genocides and politicides as “the promotion, execution, and/or implied consent of sustained policies by governing elites or their agent—or, in the case of civil war,either of the contending authorities—that result in the death of a substantial portion of a communal, political, or politicized ethnic group.” In genocides, the victimized groups are defined primarily in terms of their communal characteristics	Goldstone et al. 2000:41
B. Politicide	In politicides, by contrast, groups are defined primarily in terms of their political opposition to the regime and dominant groups.	Goldstone et al. 2000

APPENDIX B GENOCIDE DATABASE

This database includes the information obtained from authoritative literature, legal documentation and other sources. The information is organized by the country where genocides occurred. It forms the basis for much of the text and is summarized in section 4 Findings. Only a sample of the first few pages of the database is provided.

APPENDIX B GENOCIDE DATABASE
Cambodia

Data Elements	Information	Citation
I. Tracking Number	AS-CA-1975	
II. Region	Southeast Asia	
III. Country	Royal Kingdom of Cambodia or Kampuchea, population 11.6 million (95% Khmer, 5% Vietnamese, and 1% Chinese	Murphy 2000:1
	"During the Cambodian genocide of 1975-1979, about 1.7 million people perished, in a population of 8 million."	Kiernan 1999:1
IV. Specific Location and Dates	"…war crimes committed between April 1975 and January 1979."	Human Rights Watch 2001:1
	"From 1975 to 1979, the regime of Democratic Kampuchea led by Pol Pot oversaw the deaths of approximately 1.7 million people, or one fifth of the population of Cambodia."	Cook 2001:1
	see map of DK Provinces, Zones, Regions and Districts also the English version	Cambodian Genocide Program 2007:1
V. Stages of Genocide Documented:	"According to the 1998 (UN) study, the documents do not indicate the Khmer Rouge leadership's intention to destroy the Khmer population as a group. With this in mind, it should be noted that the problem of the specific nature of the crimes, i.e., whether they constitute crimes against humanity or specifically genocide, remains unresolved. Genocide, as defined in the 1948 United Nations Genocide Convention, consists of killing, serious assault, starvation, and measures aimed at children 'committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group, as such. The UN convention does not include in its definition of genocide what has been called 'politicide,' which would describe many of the killings of the Khmer population. However, the inclusion of politicide in a Cambodian genocide law would not be without precedent. Politicide was included, for example, in the Ethiopian constitution to bring charges of genocide against the leaders of the Dergue.	Chigas 2000:7-8

	"The definition of crimes against humanity, on the other hand, involves mass or systematic killing against a protected group, including political groups."	
A. Classification	"The population was divided into three categories. The Phnom Penh people belongs to the last one, i.e., 'citizens' deprived of all rights, 'war prisoners.' in other words, the vanquished. They were called 'new inhabitants' and were treated as parasites. "The coercive system applied to the Phnom Penh population consisted of a kind of automation of men, in that they were forbidden to think, to express anything contrary to the principles of the 'Revolution,' to maintain interpersonal contacts, to criticize, to show emotions and feelings, or to move from one village to another. From the beginning of 1977, eating and cooking form home (apart from boiling water) was also forbidden. Failure to comply with these orders to the letter was deemed thinking, and this mental activity was considered a culpable act. Any delay in implementing the order amounted to an act of rebellion that might be intensively investigated….it was capital punishment decided by the head of the cooperative….husbands and wives dared not talk." from the Report on an Investigation into Crimes of the Pol Pot-Ieng Sary Clique Against the Population of Phnom Penh, p 290	De Nike et al. 2000:287-304
	"They divided the population into three categories. The first category was called ' the old inhabitants',' consisting of persons residing before the liberation in resistance base areas. The second category was called 'the new inhabitants, consisting of persons residing in the areas under the former Lon Nol administration. The third category consisted of the personnel of that administration. "They envisaged eliminating the third category, and carrying out purges in the second. The first category initially was favored but was also subjected to purges, beginning in 1977" from the indictment of Pol Pot-Ieng Sary	De Nike et al. 2000:464
	"Under the Pol Pot regime, citizens were put into three categories. The first category was mainly high officials of the regime and of the inhabitants of the former liberated zone. The second category included the other inhabitants of the zone liberated before April 17, 1975. The third category consisted of persons expelled from Phnom Penh and cities liberated beginning in early April 1975, these people being called either parasites or April 17, 1975' people. "At the same time, there was a systematic mixing, from north to south, from east to west and vice versa, of the inhabitants of border zones. Peasants in the east of the country had to move to the west because they were suspected of being pro-Vietnamese. …an enormous social dislocation initiated by the leaders of the regime, who wanted to build a society…with no deep attachments with the environment in which people lived	De Nike et al. 2000:346-350

	before April 17, 1975." from Report on Social Problems Under the Dictatorial, Fascist, ant Genocidal Pol Pot-Ieng Sary Regime, pp 346-347	
B. Symbolization	"They deemed each and every third category person a slave, and not a citizen." from Report on Social Problems Under the Dictatorial, Fascist, and Genocidal Pol Pot-Ieng Sary Regime, p 347	De Nike et al. 2000:346-350
C. Dehumanization	The December 20, 1976 document "… describes suspected traitors as microbes and calls for their extermination with terms such as 'smash' and 'sweep aside.' … 'If we wait any longer, the microbes can do real damage.' And: '[T]he string of traitors that we smashed recently had been organized during the people's revolution and the democratic revolution.' Finally: 'If we don't sweep aside treacherous elements and allow them to expand, they will place obstacles in the path of the socialist revolution.'"	Chigas 2000:4
D. Organization	Pol Pot's plan for the "Democratic Kampuchea"18 targeted both the structure of society and the status of individuals. Pol Pot outlined an eight-point agenda for the Angkor to force on the population: (1) evacuate the people from the cities; (2) abolish all markets; (3) abolish currency; (4) defrock all monks; (5) execute leaders of Lon Nol's army and government; (6) establish cooperative ties across Cambodia, with communal eating; (7) expel the entire Vietnamese population; and (8) establish firm and guarded borders. To further this effort toward homogeneity and allegiance to the country, the Khmer Rouge engaged in population relocation and the destruction of professional classes.20 According to Brian D. Tittemore, staff attorney with the Inter-American Commission on Human Rights, "[during its rule over Cambodia, the Khmer Rouge, under the political and ideological leadership of Pol Pot, strove to build a socially and ethnically homogeneous society by abolishing all preexisting economic, social, and cultural institutions, and transforming the population of Cambodia into a collective workforce."21	Luftglass 2004:899-901

APPENDIX C RESULTS OF MASS GRAVE EXCAVATIONS DATABASE

This database includes the information obtained from researching the mass graves that resulted from genocides in the eight countries that were the subject of this research. Section 4 Findings summarizes the information contained in this database. Only a sample of the first few pages of the database is provided.

APPENDIX C RESULTS OF MASS GRAVE EXCAVATIONS DATABASE

Country		**Cambodia**	
Site of Attack	Kra Lanh District, Siem Reap province	Siem Reap Province	Tuol Sleng or 'S-21' Prison and Choeng Ek
Site of Mass Grave	Crematories in Kompong Thkau village	Chup Rubber Plantation, Cham Bok Village	Choeung Ek
Minimum Number of Individuals (MNI)	4.3 cubic meters of human skeletal remains, pp 238-239	No MNI provided but witnesses estimated	~8,000, p 196
Estimated Numb. Individuals killed	ENI contained in listing found by villagers of 600 people, p 240	No MNI provided but witnesses estimated 20,000 killed, p 260	
References	De Nike et al. 2000:236-241	De Nike et al. 2000:258-261	Ta'ala et al. 2008:196-199
Information Elements		**Mass Grave Information**	
I. Measures taken to conceal the crime	Burning remains - recovered partially burned bones, p 238		
A. Measure intended to harm individuals that investigate the grave			
B. Locating grave in remote areas			
C. Common means of disposal of the remains			
II. Targeted group:			
A. National group			
C. Ethnicity			
D. Religious affiliation			
E. Age			Excluded subadults for cranial examinations. No individuals below 12 were present in the assemblage use for mandibular examinations. All mandibles came from adults between 20-40. p 196
F. Sex			74 of 85 male or 87%

			estimated tentative sexing because crania disarticulated from postcranial elements p 196
G. Race			
III. Killing members of the group or causing bodily or mental harm			
1. Presence of blindfolds, ligatures, & ballistic artifacts	two metal screens 30 by 40c, cloth from used clothing, p 238	cord, cloth, electrical wire, belt with buckle, shirts, clothing, rope, axe and pliers pp 259-260	
2. Identification of remains			
4. Manner of death	execution	murder	10 of 85 or 12% pattern of Blunt Force Trauma (BFT), p 196
5. Cause of death		blunt force trauma to the head, p 260	
6. Common means or mechanism of injury		striking the head with different types of tools, p 260	
7. Evidentiary material and skeletal trauma	First ditch: walls partially blackened with smoke, edge of the ditch, scattered ashes, partially burned bones, and piles of husks of paddy rice partially burned, p 238 Second ditch: bottom, large heap of ashes with bone fragments Numerous clumps of black ash from burned paddy rice husks Under top layer, bone fragments, black burned skulls On a different side, fragments of white bones and gray fragments half burned and nine skulls Pile of ash of husks and partially burned bones-3m wide and 8.5m long, volume 3cm-16 skull fragments	First pit: round, 9m in diameter at top, 6m at bottom, and2.3m deep before excavation Dug square hole 1.5m on each side: Depth 0.1m few bones mixed with soil Depth 0.2m skulls, disintegrating cloth, and foot bones Depth 0.4m nine skulls, six with locks of hair, two jawbones are detached. One has a whole on top 1.5c by 3c in size. Two leg bones tied with electric wire. Among the bones, cord tied to piece of white cloth with blue stripes, cloth belt with rusty buckle, two black shirts stuck to bones, and other cloth. Pp 258-289 Second pit: round, 9m in diameter at top, 7m at bottom and 2.8m deep before excavation.	"BFT distinguished by extensive damage to the occipital focused between the external occipital protuberance and the foramen magnum, with radiating fractures extending to the cranial base." p. 196 See figures on pages 197-198, photos of base of 3 skulls showing the trauma. "This execution method employed the application of massive force directed at the inferior squamous portion of the occipital, often resulting in an extensive fractured cranial base….sufficiently forceful blows to this area can easily result in death, because of the proximity of the cerebellum, the brainstem, and the spinal cord. In the cases presented, all but one cranium exhibits radiating fractures,
E. Age			Excluded subadults for cranial examinations.

			No individuals below 12 were present in the assemblage use for mandibular examinations. All mandibles came from adults between 20-40. p 196
F. Sex			74 of 85 male or 87% estimated tentative sexing because crania disarticulated from postcranial elements p 196
G. Race			
III. Killing members of the group or causing bodily or mental harm			
1. Presence of blindfolds, ligatures, & ballistic artifacts	two metal screens 30 by 40c, cloth from used clothing, p 238	cord, cloth, electrical wire, belt with buckle, shirts, clothing, rope, axe and pliers pp 259-260	
2. Identification of remains			
4. Manner of death	execution	murder	10 of 85 or 12% pattern of Blunt Force Trauma (BFT), p 196
5. Cause of death		blunt force trauma to the head, p 260	

The Role of the Biological Anthropologist in Mass Grave Investigation (Anson and Trimble 2008:55-59)

A. Organization of the forensic team:
1. Three-tiered structure:
   Tier 1 - Program Director
   Tier 2 - Field Director
   Tier 3 - Core Unit of subject matter experts p 56
   Field Operations Team:
   (a) Field Archaeologist
   (b) Evidence Manager
   (c) Unexploded Ordinance and Safety Officer
   (d) Osteolotical Technician
   (e) Heavy Equipment Operations
   (f) Field Photography
   (g) GIS Mapping and Survey
   (h) Geomorphology p 56
   Laboratory Team:
   (a) Biological Anthropology and Forensic Analysis
   (b) Osteological Technician
   (c) IT and Database Applications
   (d) Intake and Archives
   (e) Cultural Objects Analysis
   (f) Digital Imaging
   (g) Radiography
   (h) Evidence Management
   (i) Administration - including logistical management and assistance to director with day-to-day management of field team activities pp 56-59

The Role of the Biological Anthropologist in Mass Grave Investigation (Anson and Trimble 2008:55-59)

B. Establish a laboratory facility to include:
   (a) "Cultural Objects Laboratory
   (b) Digital Imaging Laboratory
   (c) Main Office
   (d) Document Stabilization and Archives
   (e) Forensic Anthropology Laboratory
   (f) Pathology
   (g) Radiography
   (h) Archaeology and GIS Mapping
   (i) Intake
   (j) Administration and Evidence Control" p 59

Forensic Archaeology: Approaches to International Investigations (Hanson 2008:24)

"For example, among experts used in one investigation for ICTY were anthropologists, aerial imagery analysts, archaeologists, pathologists, investigators, geophysicists, crime scene examiners, logisticians, radiographers, palynologists, engineers, ordnance disposal officers, surveyors, mortuary technicians, soil scientists, ante-mortem data collectors, photographers, data entry specialists, crime scene managers, mechanics, machine operators and drivers, ballistics experts, DNA analysts, lawyers, communication analysts, document analysts, administration support, and project managers." p 24

National Association of Medical Examiners: Mass Fatality Plan (NAME 2010:1)

"Evaluation Team
A. . . The safety of the scene must be assessed and clearance issued by the appropriate agency before the evaluation team enters.
B. Evaluate
1. Potential or real number of fatalities
2. Condition of the bodies
3. Level of difficulty in recovery – types and numbers of personnel and equipment needed.
4. Accessibility of the incident scene
5. Possible biological, chemical, physical, or radiological hazards
C. Begin the formulation of a plan for documentation, body recovery, and transportation
D. Select a site for a Temporary Morgue – estimate personnel needs. This morgue can be used as a holding area until the examination center is prepared to receive additional bodies.
E. Select a site for the Morgue Examination Center – estimate personnel needs
F. Select a site for the Family Assistance Center- estimate personnel needs" p 1

The Archaeology of Contemporary Mass Graves (Haglund et al. 2001:57-69)

Recovery and analysis of skeletal remains scattered on the surface. p 59-65
A. Preliminary logistical activities
(a) Set up a laboratory for physical anthropologist and pathologists to conduct their analysis of human remains.
(b) Erect a morgue on the site including the establishment of supplies of fresh water and electricity;
(c) Bring in equipment such as x-ray machines, computers, other equipment, tables, supply containers.

Forensic Anthropology and Human Rights Issues (Burns 1998:75)

The Stages of Human Rights Missions
A. The Planning Stage: Details - Investigate permissions, budgeting, funding, manpower, equipment, supplies, travel arrangements, weather conditions and safety.

Forensic Anthropology Training Manual (Burns 2007:286-288

"If a mission is to progress all the way from initial need to final resolution,, it requires organizers, funders, and a wide assortment of participants." p 286
"International human rights groups usually maintain a low profile, but they play a vital role in the actualization and facilitation of human rights missions. As a group, they monitor human rights issues, review requests for aid, and , complete databases.
"Beginning in the early 1990s, a few nongovernmental organizations (NGOs) and intergovernmental groups began assembling teams of forensic scientists. The nonprofit organization Physicians for Human Rights (PHR) was one of the leaders. . . .
"Other essential organizations include Amnesty International . . and the International Committee for the Red Cross (ICRC)." p 287

"Basic multidisciplinary groups include human osteologists, archaeologists, pathologists, odontolotists, photographers, and skilled interviewers." p 288

Forensic Anthropology and Human Rights Issues (Burns 1998:76)

B. The Exploratory Mission: A Feasibility Study - Visiting local people, the site and evaluating them on the basis of probability of success, select the site(s) to be examined, locate space for processing and storing remains, evaluate security issues, consider the logistics for maintaining a crew of workers, explore available transportation, food and shelter.

Recent Mass Graves, An Introduction (Haglund 2002:252-259)

"Overview of the Exhumation Process for a Mass Grave
1. Assessment
2. Staging, equipment, supplies

Protocol for the Excavation, Exhumation and Examination of Mass Graves and Their Contents

Stage I Planning and Logistical Analysis
A. Determine what approvals are needed, and obtain all required approvals from local authorities for conducting the investigation.
B. Obtain funding and develop a budget for the project.
C. Contact any NGOs and local authorities that may be actively involved during the project. Determine the level of input to be expected from those groups, as well as the community outreach activities that they can provide during the project, such as obtaining antemortem information on the deceased.
D. Determine the appropriate composition of the investigation team, and identify potential team members including specialists. Those team members may include forensic anthropologists, human osteologists, archaeologists, pathologists, odontologists, criminalists, photographers, skilled interviewers, and other specialists needed for unique situations.
E. Identify specific staff that can participate in the project, and develop an organization structure, such as the structure suggested below.
   1. "Three-tiered structure:
      a) Tier 1 - Program Director
      b) Tier 2 - Field Director
      c) Tier 3 - Core Unit of subject matter experts
   2. Field Operations Team:
      a) Field archaeologists
      b) Evidence managers
      c) Unexploded ordinance and safety officers
      d) Osteological technicians
      e) Heavy equipment operators
      f) Field photography specialists
      g) GIS mapping and survey specialists
      h) Geomorphology specialists
   3. Laboratory Team:
      a) Forensic anthropologists and forensic analysts
      b) Osteological technicians
      c) IT and database applications specialists
      d) Intake and archives specialists
      e) Cultural objects analysts
      f) Digital and photographic imaging specialists
      g) Radiologic technologists
      h) Evidence management specialists
      i) Administrative staff including logistical management staff and support staff to assist the Project Director with day-to-day management of activities"
F. Arrange an exploratory mission and feasibility study.

Stage II Exploratory Mission and Feasibility Study
A. Visit local people and the site. Evaluate the probability for success.
B. Select the site(s) to be evaluated and locate space for processing and storing remains, artifacts, and evidence.
C. Complete preliminary logistical and planning activities such as:
   1. Plans for establishing laboratory and other facilities including:
      a) "Cultural Objects Laboratory
      b) Digital Imaging (Processing Facility)
      c) Main Office
      d) Document Stabilization Laboratory and Archives (Library)
      e) Forensic Anthropology Laboratory
      f) Pathology" and Autopsy Laboratory
      g) Medical Imaging and Radiology Facility
      h) "Archaeology and GIS Mapping (Facilities)
      i) Intake (Unit)
      j) Administration and Evidence Control" Facilities
   2. Locate housing and food for all of the staff on the team.

V. Model Protocol for Disinterment and Analysis of Skeletal Remains, from the United Nations 2010, Manual on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Execution (UN 2010:23-27)

A. Introduction pp 23-24
B. Proposed model skeletal analysis protocol
"The following procedure should be followed during disinterment:
(a) Record the date, location, starting and finishing times of the disinterment, and the names of all workers;
(b) Record the information in narrative form, supplemented by sketches and photographs;
(c) Photograph the work area from the same perspective before work begins and after it ends every day to document any disturbance not related to the official procedure;
(d) In some cases, it is necessary to first locate the grave within a given area. There are numerous methods of locating graves, depending on the age of the grave:
(i) An experienced archaeologist may recognize clues such as changes in surface contour and variation in local vegetation;
(ii) A metal probe can be used to locate the less compact soil characteristics of grave fill;
(iii) The area to be explored can be cleared and the top soil scraped away with a flat shovel. Graves appear darker than the surrounding ground because the darker topsoil has mixed with the lighter subsoil in the grave fill. Sometimes a light spraying of of the surface with water may enhance a grave outline." pp 24-25

"(f) Assign an unambiguous number to the burial. If an adequate numbering system is not already in effect, the anthropologist should devise a system." p 25

(d) Locate housing for all of the staff in the team.
(e) Arrange for 24-hour security for the site and the staff. P 61
B. Location of the grave:
(a) Since the most successful method of locating graves is through witness testimony, review all testimony and news reports.
(b) If needed, ask someone to pinpoint the location of the feature.
(c) The area should be marked off with flagging by investigators or the anthropologist.
(d) "Given the general location for the grave, determine differences in vegetation, soil, and microtopography that indicate a ground disturbance." P 64
(e) "Conduct a very preliminary analysis of the human remains found on the ground surface around the" area: p 59
(f) "Document and wrap surface remains in plastic that are most vulnerable to disturbance";
(g) Confirm the presence of remains by:
(i) Using a probe;
(ii) "Using an ice pick or screwdriver to examine soil compaction;"
(iii) Some contexts may require using "side-scanning sonar, ground-penetrating radar, proton-magnetometer, or electrical resistivity." p 59
(iv) If deemed useful, obtain aerial, or satellite photographs.
(h) Once the potential grave is located:
(i) Search the surrounding area for additional evidence;
(ii) Map the site with a simple sketch with paced or tape-measured distances, "include a north arrow, scale, grave location, relocatable features, notes on where the probes or other relevant techniques were used, vegetation, and topography."
(iii) Photograph the suspected site of the grave and surrounding area. P 64
(m) If remains are too commingled to be easily separated in the field, bag the remains together, assign a case number, and note this information on the master log. P 62

Recent Mass Graves, An Introduction (Haglund 2002:255-257)

"The term *removal unit* is used here to indicate remains or groups of remains that are packaged and numbered for removal from a particular site." p 255
"What comprises a removal unit is dependent upon the condition of the remains. Under various circumstances a removal unit could consist of complete remains, partial remains or include the remains of more than one individual." p 256
"It is necessary to be able to track removal units back to a relatively *in situ* location at particular sites. Attempts to allocate partial remains to a single individual should not be undertaken in the field, but are best accomplished under laboratory conditions with detailed supportive documentation regarding their recovery. This process may not be possible for weeks, months, or even years following the exhumation." p 256
"...false totals of the number of individuals can arise at one of several junctures during the numbering, removal, and storage of remains." p 256
"One staff member should be charged with giving out numbers for removal units...the more staff involved in numbering and extraction of bodies, the higher the potential for error." p 256
"Another pitfall is to assign a number to a body or skeleton prematurely, before it is ready to be removed....This can happen when one misinterprets the position of one or more limbs either assuming an unobservable limb would be no problem to extract or mistaking a freed and observable limb of a separate individual as belonging to the remains one wishes to remove... In these cases it is necessary to leave the 'numbered' remains in the grave until additional bodies or overburden can be removed in order to free the trapped part. The final freeing of the remains may not occur for hours or days and result in reassigning a different number to the same remains at a later period." p 256

3. Site Preparation, surface evidence, and clearing of ground cover
4. Initial overview site map
5. Establishment of grave boundaries
6. Exposure and removal of overburden
7. Delineation in preparation for removal
8. Documentation: photography, mapping, completion of field forms
9. Extraction
10. Storage/transport to location of examination
11. Clean-up" p 253

Forensic Anthropology and Human Rights Issues (Burns 1998:75-82)

(a) "When a preliminary excavation is deemed necessary, carryout a limited excavation, consisting of a small site or a restricted test trench in a large site." P 76

(b) Prepare a formal report of the exploratory mission, and the logistical requirements for the primary excavation and analysis of skeletal remains . P 76

A. "Begin planning the final report at the initiation of the case." p 258

3. Determine what transportation is available locally.
4. Develop a needs assessment for the safety of the staff and security of the evidence.
   a) Write a safety plan.
   b) Arrange for 24-hour security for the site, evidence and staff.
5. "Carryout a limited excavation" or a restricted test trench when a preliminary excavation is deemed necessary.
6. At a large site, locate the grave.
   a) Review witness testimony and news reports.
   b) Request local witnesses to pinpoint the location of the grave.
   c) "Determine differences in vegetation, soil, and microtopography that indicate a ground disturbance" in those cases where only the general location of the grave is known.
   d) Mark off the grave with flagging stakes.
   e) "Conduct a preliminary analysis of the human remains found on the ground surface around the" area.
   f) "Document and wrap surface remains in plastic that are most vulnerable to disturbance."
   g) Confirm the presence of remains.
      (1) Use a probe, pick or screwdriver to examine soil compaction,
      (2) Use, "Side-scanning sonar, ground-penetrating radar, proton-magnetometer, or electrical resistivity," when needed.
      (3) Obtain aerial, lasar scanning or satellite photographs.
7. Once the potential grave is located:
   a) Search the surrounding area for additional evidence.
   b) Map the site with a simple sketch with paced or tape-measured distances, "a north arrow, scale, grave location, features that can be relocated, notes on where the probes or other relevant techniques were used, vegetation, and topography."
   c) Photograph the suspected site of the grave and surrounding area.
8. Prepare a formal report of the exploratory mission and the logistical requirements for the primary excavations and analysis of skeletal remains.

D. "Begin planning for the final report:"
1. Design the logs needed for the project that are cross referenced, where appropriate, by a common case number.
2. Design a Master Case Log that tracks case numbers, investigators using each number, date assigned and brief description of the remains, and level of comingling.
3. Write a protocol that defines the removal unit and the requirements for tracking human remains.
   a) Assign an unique and unambiguous case number to the burial and to each set of remains, plot the remains on the site map, and photograph them.
   b) Require remains to be posted to a human remains inventory form that documents each set of remains or removal unit by:
      (1) Posting the case number.
      (2) Inventorying artifacts found with the remains;
      (3) Estimating age, sex, and race;
      (4) Recording any trauma seen on the remains with suggested probable cause of death to be confirmed during the autopsy and the skeletal examination by the pathologist and forensic anthropologist.
      (5) Define the removal unit as the complete remains of one individual and related artifacts for the individual. When that is not possible, the removal unit is either the remains of one individual or a group of individuals that are so comingled that they must be removed together with their related artifacts. In this case, one number assigned to the group.
      (6) Assign one individual responsible for issuing case

"The calculation of the total number of individuals exhumed is best done after the postmortem examinations are completed and after commingling and reattribution of parts has been accomplished to the greatest extent possible." p 257

Recent Mass Graves, An Introduction (Haglund 2002:255-257)

Evidence:

(a) Remove any material clearly associated with a single body by placing it in the body bag and log it under the case number of the body. Any evidence associated with a particular set of remains, such as eyeglasses, wallets, or other personal items, should be retained with those remains until the postmortem examination.

(b) Any material not associated with a single body should be:
  (i) Located on the excavation map and assigned a number that corresponds with the number placed on the map;
  (ii) Place the object in a bag labeled with the site, date, number, and initials of the person who collected it.

(c) To maintain a legal chain of custody all evidence should be entered into an evidence log and kept in a secured area until given to the investigators for further analysis. P 67

Management of Dead Bodies in Disaster Situations (PAHO 2004:41-43)

"Once corpses are recovered and transported to the holding site, other studies will be undertaken, the most important of which is identification…

"Regardless of the type of disaster, certain minimal conditions must be in place to carry out the examination and temporary deposit of the bodies." p 41

"The human remains will be placed in a holding area as they arrive from the recovery site. The holding site must bring together certain basic conditions ranging from privacy, which is essential, to a place out of the sun where corpses can be placed, thereby slowing

Mass Graves and the Collection of Forensic Evidence: Genocide, War Crimes, and Crimes Against Humanity (Schmitt 2002:284-286)

Labeling, Inventory, and Determining Minimum Number of individuals

"Each item should have a label that includes:
  (a) a short acronym for the site;…
  (b) a roman numeral for each mass grave at the site, and
  (c) an Arabic number for each anatomically articulated or associated set of remains," p 284
  (d) anatomically disassociated remains should be numbered individually but in a way that provides associative information. P 285
  (e) Number the crania first and number skeletal assemblages and artifacts according to the crania they are closest to, or according to the sector in which they were found. P 285
  (f) Create an inventory form for each label given, filling them out as remains are extracted from the grave and requiring a preliminary summary of what is present. P 285
  (g) Individually bag each individual, mark the bag with the appropriate label, and be sure there is a set of inventory forms to match each individual bag. P 285
  (h) Document each individual and associated artifacts *in situ* by photographs, sketching and mapping". P 285

The State of Florida, Fatality Management Response Plan of the Florida Medical Examiners Commission (Florida 2010:12-13 and 19-21)

"Funeral service personnel can be a valuable asset to provide, at a minimum, additional staff to serve as "trackers" to monitor custody and processing steps for each set of remains through the morgue process. Likewise, dental personnel, even if they possess no forensic experience, can assist forensic odontologists in a number of areas." p 12

"When implementing a tracking system for recovery, the Medical Examiner should consider where remains are found, how fragmented portions are tracked, how case numbers are correlated, and how ante-mortem data (obtained from family members) can be cross referenced with other case numbers assigned to recovered remains….Each set of remains processed will generate numerous items that need to be tracked by computer such as photographs, personal effects, tissue samples, etc…

"Whether FEMORS, DMORT or another fatality management support organization is activated to assist the Medical Examiner, a Victim Identification Program (VIP) or similar database can be used to track and search for potential matching indicators." p 13

"When processing has been completed, final disposition normally involves burial or cremation at the family's request. Aside from the question of mass disposition…a variety of tasks must be

numbers and maintaining the Master Case Log at the grave site.

(7) Assign case numbers to each body from a master log and include a brief description of the remains, associated evidence, and possible comingling noted in the log. Each item in the log should have a label that includes: "A short acronym for the site, a roman numeral for each mass grave at the site, and an Arabic number for each anatomically articulated or associated set of remains."
  (a) Number, "Anatomically disassociated remains… individually and in a way that provides associative information," if it can be determined at the grave site.
  (b) "Number the crania first and number skeletal assemblages and artifacts according to the crania they are closest to, or according to the sector in which they were found.
  (c) Create an inventory form for each label given, filling them out as remains are extracted from the grave," and provide a preliminary summary of what is present.
  (d) "Individually bag each individual," or removal unit, "… mark the bag with the appropriate label, and be sure there is a set of inventory forms," for each bag.
  (e) "Document each individual and associated artifacts *in situ* by photographing, sketching and mapping" each recovery unit.
  (f) Remove any material clearly associated with a single body by placing it in the body bag with the individual, and log it under the case number of the body. Any evidence associated with a particular set of remains, such as eyeglasses, wallets, or other personal items, should be retained with those remains until the postmortem examinations are completed.
  (g) Any material not associated with a single body should be:
    i) Located on the excavation map and assigned a number that corresponds with the number placed on the map;
    ii) Placed in a bag labeled with the site, date, number, and initials of the person who collected it;

c) Define the requirements for the transportation and storage of human remains as they are transported and stored in holding, viewing and examination areas.
  (1) Assign a "tracker" to each set of remains to monitor the custody and insure that the remains are moved through all of the different examination areas to their final destination.
    (a) Establish a tracking system, or use an existing one, for tracking each removal unit from the grave to release to family members for burial.
    (b) Ensure that the system can cross-reference antemortem data with postmortem information, and track items that are produced as the remains are processed. For example, the system should track all photographs, charts, transfer forms, x-rays and other medical imaging, and completed inventory forms for the body, related artifacts, and skeletal elements.
    (c) Program the system to produce completed forms that document the individual's identity, such as the Victim Identification Program (VIP) form that can be printed out to facilitate the tracking of the remains and the search for potential matching indicators (Florida 2010:12-13).
  (2) Establish a holding area that is refrigerated and secured

decomposition. In tropical countries or where temperatures are high it is advisable that this area be refrigerated to try to avoid decomposition, which is likely especially as a result of the injuries sustained." p 42

"It is important to have a viewing area for family members, friends, or others who can help in the identification. First, photographs of jewelry, clothing, or identifiable objects or features found in the examination of the human remains will be shown. During the second phase family members and others will view photographs of the bodies and especially of the face if there are features that can help with identification. In the third phase, objects and, finally, the remains themselves are shown directly to family members or associates to conclude the visual recognition phase and obtain the desired identification."

accomplished to authorize release of the human remains to a funeral service provider of the family's choice.

"Once remains have been identified and are ready for release, the Medical Examiner should certify the cause and manner of death on the death certificate.

"After the Medical Examiner portion of the death certificate has been completed, Medical Examiner staff typically notifies the funeral home selected by the family. The funeral service provider responds to transport the remains and complete filing of the death certificate with the Bureau of Vital Statistics.

"Medical Examiner staff and/or other involved agencies should confer with families and obtain documentation of the family wishes regarding notification when additional fragmentary remains are identified. Some families desire to be notified of every identified fragment while others have reached closure and do not desire to be notified at all.

"Provision may be made for how unclaimed and unidentified remains will be memorialized or disposed of at the conclusion of the processing effort . . .

"In disaster situations where there are no remains to recover for identification, or where scientific efforts to establish identity fail, the appropriate legal authority . . ." pp 19-21

to receive remains after they are removed from the grave.

(3) Establish a viewing area for family members and loved ones to see the body for identification purposes.
   (a) Initially, photographs of jewelry, clothing, or other items found with the remains are viewed.
   (b) Next, photographs of the body, including the face and distinguishing features are viewed.
   (c) Finally, the remains themselves are viewed (PAHO 2004:41-43).

(4) Establish a triage area that includes photography, initial examination, and determination of what examinations are required as the remains proceeds from intake to final release to the family or local authorities, who may perform additional identification activities before burial.

(5) Complete the steps necessary for release of the body once the individual has been identified.
   (a) Certify the cause and manner of death.
   (b) Complete a death certificate.
   (c) After consultation with the family, release identified remains to the family.
   (d) Make provisions with local authorities to receive unclaimed and unidentified remains. Determine the appropriate notification to local legal authorities when remains are unidentified, and determine the appropriate action to take for final disposition of these remains.

4 Design a Photographic Log and write a Photographic Protocol that specifies both standard and special shots to be taken

a) Maintain a Photographic Log documenting all photographs taken, and other visual media such as videos, lasar scans aerial and satellite images.
   (1) Include the following in the log: "... case number, date, name of photographer, number of shots, description of what appears in the photo, and comments on the distance of the camera to the artiele and its (directional) orientation."
   (2) Assign one individual responsible for issuing tracking numbers and posting descriptive information concerning all photographs and other visual media to the Photographic Log.
   (3) Where any missing or duplicate numbers are present, they must be documented and clearly explained.

b) Define photographic and tracking procedures in a Photographic Protocol.
   (1) All photographs should be full frame and contain the case number.
   (2) Take digital photographs when possible.
   (3) Photograph the scene of the grave site and surrounding area during the first visit to the site, when returning to excavate the grave, and before scene is altered in any way.
      (a) Photographs should be taken from eye-level.
      (b) Take a progression of overall, medium, and close-up views of the grave site.
      (c) Include photographs of landmarks in overall scene photographs to establish the location of the grave site.
      (d) Photograph all stages of the excavation and exhumation of the grave and human remains. This includes photographs of the grave site before investigators are on the scene each day and in the evening once all investigators have left the scene. If possible, also videotape the grave site at these times.
      (e) Photograph human remains and evidence at two levels and while *in situ*:

(m) Photograph and map the remains *in situ*. All photographs should include an identification number, the date, a scale and an indication of magnetic north;

Criminal Investigation (Swanson et al., 2006:84)

"The guidelines listed next are general ones, appropriate for photographing almost any scene:
- ▶ Photograph the crime scene as soon as possible.
- ▶ Prepare a photographic log that records all photographs and a description and location of evidence.
- ▶ Establish a progression of overall, medium, and close-up views of the crime scene.
- ▶ Photograph from eye level to represent the normal view.
- ▶ Photograph the most fragile areas of the crime scene first.
- ▶ Photograph all stages of the crime scene investigation, including discoveries.
- ▶ Photograph the condition of evidence before recovery.
- ▶ Photograph the evidence in detail and include a scale, the photographer's name and the date.
- ▶ Take all photographs intended for examination purposes with a scale. When a scale is used, first take a photograph without the scale.
- ▶ Photograph the interior crime scene in an overlapping series using a normal lens, if possible. Overall photographs may be taken using wide-angle lens.
- ▶ Photograph the exterior crime scene, establishing the location of the scene by a series of overall photographs including a

Skeletal Trauma: Identification of Injuries Resulting from Human Rights Abuse and Armed Conflict (Kimmerle and Baraybar 2008:85)

H. Photography:
   (a) Establish a photographic protocol that specifies both standard and special shots to be taken.
   (b) Maintain a photographic log documenting all photographs taken.
   (c) Include the following in the log: case number, date, name of photographer, number of shot, description of what appears in the photograph, and comments on the distance of the camera to the specimen and its orientation.

Criminalistics: An Introduction to Forensic Science (Richard Saferstein 2007:40-41)

Photograph the crime scene before it is altered in any way. P 40

"Overview photographs of the entire scene and surrounding area, including points of exit and entry, must be taken from various angles....If a crime scene includes a body, photographs must be taken to show the body's position and location relative to the entire scene. Close-up photos depicting injuries and weapons lying near the body are also necessary. After the body is removed from the scene, the surface beneath the body should be photographed.

"As items of physical evidence are discovered, they are photographed to show their position and location relative to the entire scene. After these overviews are taken, close-ups should be taken to record the details of the object itself. When the size of an item is of significance, a ruler or other measuring scale may be inserted near the object and included in the photograph as a point of reference." p41

Recent Mass Graves, An Introduction

(i) First photograph the entire burial, then focus on significant details so that their relation to the whole can be easily visualized;
(ii) Anything that seems unusual or remarkable should be photographed at close range. Careful attention should be given to evidence of trauma or pathological change, either recent or healed;
(iii) Photograph and map all associated materials (clothes, hair, offin, artifacts, bullets, casings etc.). The map should include a ugh sketch of the skeleton as well as any associated aterials." p 25

landmark. Photographs should have 360 degrees of coverage. Consider using aerial photography, when possible.
- ▶ Photograph entrances and exits from the inside and the outside.
- ▶ Photograph important evidence twice
  - ▶ A medium-distance photograph that shows the evidence and its position to the other evidence.
  - ▶ A close-up photograph that includes a scale and fills the frame
- ▶ Prior to entering the scene, acquire, if possible, prior photographs, blueprints, or maps of the scene.

INTERPOL: Disaster Victim Identification Guide (2009:33)

"General remarks regarding photographs:
- ▶ Photographs (digital wherever possible) should be made of each body.
- ▶ Every photograph should bear the PM number and, if necessary (for example: tattoos, scars, small effects) a reference scale.
- ▶ The subject of the photograph should fill the entire frame, if possible.
- ▶ Bodies should be photographed both clothed and unclothed.

The following photographs are required:
- ▶ Photographs of all markings, labels and numbers on body bags
- ▶ Full-length photographs of each body
- ▶ Two overlapping photographs showing the upper and lower halves of the body, respectively
- ▶ A full-frame front view of the head
- ▶ An elevated view taken at a 90° degree angle to the body
- ▶ Images of all unique features, such as scars, tattoos, amputations, etc.
- ▶ Photographs of all articles of clothing and personal effects, photographed initially in situ, then cleaned and photographed with a macroscopic lens in front of a non-reflective background in order do display details, such as inscriptions and rings, etc
- ▶ Photographs of all identifying features, such as clothing labels and credit card numbers
- ▶ As a rule dental photographs are also taken: front view with teeth closed and lips retracted upper jaw, lower jaw, and lateral right and left dentition. The dentist should be consulted with regard to the specific dental photographs required, such as close-up photos of specific dental treatments or anomalies that are useful for identification purposes.
- ▶ Specific pathologies and abnormalities at the request of the forensic pathologists.

All photographs of a given body are to be stored on a CD and included in the PM file. P 33

(Haglund 2002:255-257)

Detailed shots may only require a scale and a case number. P 66

Skeletal Trauma: Identification of Injuries Resulting from Human Rights Abuse and Armed Conflict (Kimmerle and Baraybar 2008:85)

(d) Mount cameras on tripods and place it perpendicular to the object being photographed. P 85

Skeletal Trauma: Identification of Injuries Resulting from Human Rights Abuse and Armed Conflict (Kimmerle and Baraybar 2008:22-384)

H. Photography:
- (e) Standard photographs should be taken of every skull and innominate aging surfaces depicting each surface of the specimen.
  - Shots should be in anatomical position, and observe strict guidelines for position and angles of skeletal material to the camera.
    - i) Medium-distance that shows the remains and evidence within the context of the grave;
    - ii) Close-up including a scale and directional reference. When using a scale, take the close-up shot without the scale first then take the close-up with the scale.
  - (f) Include photographs of all points of entry and exit to and from the grave site.
- (4) Photograph and map the remains *in situ* showing the position of the body. All photographs should include an identification number, date, scale, and an indication of magnetic north.
  - (a) Photograph the entire burial, then focus on significant details so that their relation within the context of the grave can be easily visualized.
  - (b) Photograph the remains showing the position of the body and anything that seems unusual or remarkable at close range. Give careful attention to evidence of obvious trauma or pathological change that is either recent or healed, as well as tattoos or unusual clothing.
  - (c) Photograph and map all associated materials (clothes, hair, coffin, artifacts, bullets, casings etc.). Include a rough sketch as well as associated material.
- (5) Photograph bodies in the laboratory
  - (a) Require cameras to be mounted on tripods and placed so that the plane of the picture is parallel to the evidence photographed in the laboratory.
  - (b) Take photographs of human remains with the case number appearing in each photo. The following photographs should be taken of the body:
    - i) Clothed and unclothed
    - ii) Full-length of each body
    - iii) Two overlapping photographs showing the upper and the lower halves
    - iv) Full-frame front view of the head
    - v) An elevated view taken with the surface of the image parallel with the body.
    - vi) Detailed photographs of unique characteristics such as tattoos, scars, healed pathology, and bone fractures, all with a scale visible in the photograph.
  - (c) Photograph all markings, labels, and numbers on the body bag.
  - (d) Photography all articles of clothing and personal effects *in situ* and in front of a non-reflective surface in the laboratory including all identifying features such as labels and identity cards.
  - (e) Take the following photographs of dentition:
    - i) Front view with teeth closed and lips retracted
    - ii) Upper jaw, and lower jaw
    - iii) Lateral right and left dentition
    - iv) Specific dental photographs required by the dentist such as close-up photos of specific dental treatments or anomalies that are useful for identification purposes
  - (f) Take photographs of specific pathologies and abnormalities as requested by the forensic pathologist or dentist.
- (6) Take standard photographs of every skull and innominate aging surfaces depicting each surface of the specimen in accordance with the photographic protocol.
  - (a) Take shots in anatomical position, and observe strict guidelines for position and angles of skeletal material to the camera.

Recent Mass Graves, An Introduction (Haglund et al. 2001:63-64)

(f) Establish clear procedures that track all physical item-evidence, and rolls of film, memory cards, or data files with photographic evidence on them that maintains the chain of custody:
including who had access, when they had access, and for what purpose.
(ii) "If skeletal remains or artifacts are taken from the site, they need to be kept in a secured area." P 63

(iv) Append receipts "...to any resulting report to show that the material was turned over to the proper authorities." p 64

- Shots of the skull should include eight views - frontal, left lateral, right lateral, posterior, superior, inferior, maxillary occlusal, and mandibular occlusal.
- Shots of the *Os coxa* should include two views - articular surface and pubic symphyseal face for age estimation.
- Special shots should be taken of all fractures, injuries, skeletal and dental pathology, and cultural and medical modifications. Shots should include special angles, close-up views, and multiple views from oblique angles.
- A label containing the site, burial, and case number indicating where the subject is from should appear in at least one photograph for reference per case. P 85

Criminalistics: An Introduction to Forensic Science (Saferstein 2007:50-51

Insure chain of custody or continuity of possession.
1. Account for "every person who handled or examined the evidence."
2. Insure that all items of physical evidence has been "carefully packaged and marked upon their retrieval at the crime" scene.
3. Evidence containers must also be marked for identification, with the collector's initials, *in situ* location of the evidence and date of collection.
4. "If possible, the evidence itself should be marked for identification.... Collector's initials and date of collection should be inscribed on the article if" appropriate.
5. When "evidence is turned over to another individual for care, delivery to the laboratory, (or to local authorities for final disposition), this transfer must be recorded in notes and other appropriate forms," such as evidence logs. Pp 50-51

Criminal Investigation (Swanson et al. 2006:286)

"Before removal of any evidence, the costodian(s) of evidence, should be designated and should generate and maintain a chain of custody for all evidence collected...
- Document the location of the scene and the time of the death investigator's arrival at the scene;
- Determine the custodian(s) of evidence
- Determine which agencies are responsible for the collection of specific types of evidence, and determine evidence-collection priority;
- Identify, secure, and preserve evidence using proper containers, labels, and preservatives;
- Document the collection of evidence by recording its location at the scene, time of collection, and time and location of disposition;
- Develop personnel lists, witness lists, and documentation of times of arrival and departure of personnel." p 286

Forensic Anthropology and Human Rights Issues (Burns 1998:75-82)

C. The Major Excavation Mission: Data Collection, Initial Training and Formal Reports. Involves extensive data collection, victim identification, and determination of cause and manner of death. Pp76-77

(b) Take shots of the skull that, "Include eight views: frontal, left lateral, right lateral, posterior, superior, inferior, maxillary occlusal, and mandibular occlusal."
(c) Take shots "...of the *Os coxa* (that include) the articular surface and pubic symphyseal face for age estimation."
(d) Take special shots of all "... fractures, injuries, skeletal and dental pathology, and cultural and medical modifications. (Shots should include) special angles, close-up views, and multiple views from oblique angles."
(e) Show a label that contains the site, burial, and case number indicating where the subject is from in at least one photograph for reference per case.

5. Establish clear procedures or Evidence Protocol, and an Evidence Log that, "Tracks all physical evidence, rolls of film, memory cards, or data files with photographic and other evidence on them, and that maintains the chain-of-custody."
   a) Before removal of any evidence, designate the costodian(s) of evidence, and maintain an Evidence Log for all evidence to be collected.
   b) Determine who is, "Responsible for the collection of specific types of evidence, and evidence collection priority."
   c) Document the location of the grave site, who and when someone enters and exits the site, and their purpose for being on site.
   d) Document the locations where the evidence not associate with human remains have been found on the site map
   e) "Account for every person who handles or examines the evidence."
   f) Document who had access, when they had access, and the purpose for having access to evidence.
   g) Insure that skeletal remains and artifacts taken from the site are kept in a secured area.
   h) Insure all evidence is place in appropriate containers that are labeled with the site, date, number, and initials of the person who collected it, and the date and time of retrieval.
   i) Enter evidence into an Evidence Log and take it to a secured area for curation
   j) "If possible, the evidence itself should be marked for identification.... The collector's initials and date of collection should be inscribed on the article."
   k) Establish an evidence transfer form that documents the transfer of evidence to anyone including the investigators. All transfers must be done formally and documented with a receipt.
   l) When evidence is turned over to another individual for care, or analysis, delivered to the laboratory, or to local authorities for final disposition, this transfer must be recorded in notes, the Evidence Log, and other appropriate forms.
   m) Append receipts and or chain-of-custody forms to any resulting report to show that the material was turned over to the proper authorities.
6. Define the requirements for documenting field notes.
   a) Notes must be, "Court-admissible documents (with) no comments outside except those directly related to the excavation.
   b) Omit any language that contains implications beyond the (team member's) expertise."
   c) Omit references to such things as clothing color.
7. Determine the level of data processing support needed for:
   a) Systems management and maintenance.
   b) Design and development of databases and systems applications,
   c) Data processing and IT hardware

"(g) Establish a datum point, then block and map the burial site using an appropriate-sized grid and standard archaeological techniques. In some cases, it may be adequate simply to measure the depth of the grave from the surface to the skull and from the surface to the feet. Associated material can then be recorded in terms of their position relative to the skeleton;" p 25

C. Delineation of the grave, initial assessment:
(a) In large graves with tens or hundreds of bodies, determine the amount of overburden and the horizontal extent of the bodies before excavation begins to determine:
(i) excavation strategy;
(ii) logistical requirements;
(iii) scope of the project. Pp 64-65
(d) Prior to excavation, roles and responsibilities must be clearly established and known by all of the personnel on the site.
(i) Discuss the collection of evidence and the use of photographs.
(ii) Determine who will be allowed into the excavation. P 63
(e) Define requirements for field notes and documentation:
(i) Note must be, "Court-admissible documents (with) no comments outside those directly related to the excavation."
(ii) "Omit any language that contains implications beyond the (team member's) expertise."
(iii) Omit references to such things as clothing color.
(iv) Since, "Photograph and artifact logs are also evidence, admissible in court, numbering should be a... straightforward system, and missing numbers need to be clearly explained." P 63
B. "Before the soil is disturbed," thoroughly document the site:
(a) "Photograph the entire area."
(b) Create "a map showing the surface contours of the area of the grave."
(c) Search the area for surface evidence.
(d) Use a metal detector to locate "cartridge cases, bullets, and metal fixtures on clothing." P 64
(e) Document the site by "... walking transects parallel to the contours around the entire site area, placing flagging tape at all human remains and potential evidence found on the surface." p 60
(e) Create a small-scale topographic map of the site area and photographically document evidence in the area including any related buildings inside and outside, bodies of water, roads, all exposed human remains, and the known and potential grave areas. p 60
(f) Confirm the presence of human remains and their condition:
(i) Hand-excavate two trenches at right angles to each other and about one meter wide across any areas where a grave may be located. P 64
(ii) Trenches should "extend to the edges of the graves and to the depth of the top of the bodies." P 64
(v) Document the exposed remains as to location, cover with plastic, and refill the trenches. P 64
(vi) Draw a rough sketch map of the site area that includes the "... trenches, human remains, grave pit, and depth of the top layer of bodies." p 64
(vii) Photo-document the entire process, and establish a photographic log and an evidence log. P 64
(viii) Assess the logistical needs of grave excavation, as well as the condition of the bodies in the grave and the specialists needed to examine the remains and any related evidence. P 64
(g) "Remove the vegetation from around each skeletal assemblage until the extent of the scatter can be determined." P 60
(h) Assign a case number to each set of remains, plot the remains on onto the site map, and photograph them. P 60
(i) Post the remains to an inventory to document each set of

d) Nightly backup and recovery of data onsite and to secure internet locations;
e) Encryption of data to prevent unauthorized manipulation, theft or destruction;
f) Security measures that restricts access to data to only those authorized;
g) The review and approval of all standardized forms and charts to be used by the team to insure that automated forms function properly and are compatible with the software and hardware used by the team, and that hardcopy forms meet data entry requirements.

Stage III Excavation and Exhumation of the Grave

A. Delineate the grave, and conduct an initial assessment if not already done during Stage 2.
1. In large graves with tens or hundreds of bodies, determine the amount of overburden and the horizontal extent of the bodies before excavation begins to determine or refine the following:
a) Excavation strategy
b) Logistical requirements
c) Scope of the project
2. Establish roles and responsibilities prior to the start of excavation and confirm that all of the personnel on the site are informed on their roles and responsibilities.
a) Discuss the collection of evidence and the use of photographs.
b) Determine who will be allowed onsite at the excavation and when.
c) Discuss the extensive amount of data collection and the various logs and forms to be used to insure that all staff understands and follows the appropriate protocol for each step of the process.
d) Define and discuss the requirements for field notes and documentation.
3. Before the soil is disturbed, thoroughly document the site:
a) Ensure that no mines or unexploded ordnance are on the site in accordance with the Safety Plan.
b) Document the site by, "Walking transects parallel to surface contours around the entire site area, placing flagging tape at all human remains and potential evidence found on the surface."
c) "Establish a datum point, then block and map the burial site using an appropriate-sized grid and standard archaeological techniques."
d) Create a small-scale topographic map of the site area and photographically document evidence in the area including any related buildings, bodies of water, roads, exposed human remains, and the known and potential grave areas. All map should include a north arrow and scale. For known graves, include the depth of the top layer of bodies, any trenches that were dog, and surface remains and evidence that were located.
e) Use a metal detector to locate, "Cartridge cases, bullets, and metal fixtures on clothing."
f) Photo-document the entire process.
4. Confirm the presence of human remains and their condition:
a) Hand-excavate two trenches at right angles to each other and about one meter wide across any areas where a grave may be located.
b) Extend trenches, "To the edges of the graves and to the depth of the top of the bodies."
c) Halt trenching when human remains are found.
d) Document the exposed remains as to location, cover with plastic, and refill the trenches.
e) Reassess the logistical needs of grave excavation, as well as the condition of the bodies in the grave, the specialists needed to examine the remains and any related evidence.

B. Recovery and analysis of skeletal remains scattered on the surface:

remains by:
(i) inventorying artifacts found with the remains;
(ii) estimating age, sex, and race;
(iii) recording any trauma seen on the remains with suggested probable cause of death to be ratified later by the pathologist. p 60
(k) Collect the remains and place them in "either a labeled paper bag or in a labeled body bag." P 60
(l) Transport the bags of remains to the laboratory for detailed analysis. P 60

Grave Excavation:
(a) "Before excavation begins,...ensure that all documentation is complete", and compare the present condition of the site area "to the condition as mapped, photographed, and described when the site was located and/or tested." P 65
(b) "Videotape the grave 9each0 night and every morning to document problems that occur during the night (or) that no changes occurred." P 65
(c) Maintain a still photographic record of the progress of the excavation and maintain a detailed photographic log. P 65
(d) "If the site was tested,... relocate and empty the test trenches." p 65
(e) "If the site was not previously tested, then... cross-trench" as described above. P 65
(f) Remove the grave fill "to a depth of about 30 cm over the bodies This amount of protective covering over the bodies will allow people to walk on the grave without damaging the bodies " p 65
(g) Remove the overburden to the depth where the grave outline appears in the soil. P 65
(h) Excavate trenches around the outside of the grave to a depth that is deeper than the expected bottom of the grave. Construct the trenches in a way that allows workers to stand in the trenches and work from the edges of the grave without standing on the bodies, and in a way that allows for proper drainage from the grave. P 65

(h) Remove the overburden of earth, screening the dirt for associated materials. Record the level (depth) and relative co-ordinates of any such findings. The type of burial, especially whether primary or secondary, influences the care and attention that needs to be given to this step. Associated materials located at a secondary burial site are unlikely to reveal the circumstances of the primary burial but may provide information on events that have occurred after that burial; p 25

(j) Circumscribe the body, when the level of the burial is located, and, when possible, open the burial pit to a minimum of 30 cm on all sides of the body;
(k) Pedestal the burial by digging on all sides to the lowest level of the body (approximately 30 cm). Also pedestal any associated artifacts; p 25

(i) Once the body mass is exposed, document the profile of the grave by completing drawings and by photographing it. P 65

Body removal from the grave:
(a) Establish a generous perimeter by closing off the area in a way that excludes anyone not directly involved with the excavation. p 63
(b) Maintain a log of anyone entering the site. P 63
(c) Determine the depth and the horizontal extent of the grave. P 65
(d) Assign case numbers to each body from a master log. P 66

"(l) Expose the remains with the use of a soft brush or whisk broom. Do not use a brush on fabric, as it may destroy fiber evidence. Examine the soil found around the skull for hair. Place this soil in a bag for laboratory study. Patience is invaluable at this time. The remains may be fragile, and interrelationships of elements are important and may be easily disrupted. Damage can seriously reduce the amount of information available for analysis; p 25

Autopsy and examination phase:
(d) Prepare the bodies for removal by removing the soil from the top and from around the sides. If the bodies are clothed, gently pull the clothing tight and shake to dislodge the soil. When the remains are not clothed and/or where skin is exposed, take great care to avoid damaging the skin, especially around the face and hands. It may be necessary to package the head, facial, and pubic hair separately and include it with the remains to avoid loss during removal or transport. P 65-66
(e) Separate and remove commingled remains one at a time by:

1. "Remove the vegetation from around each skeletal assemblage until the extent of the scatter can be determined."
2. Post the remains to a human remains inventory form and document each set of remains by:
   a) Inventorying artifacts found with the remains;
   b) Estimating age, sex, and race;
   c) Recording any trauma seen on the remains with suggested probable cause of death to be confirmed or refuted by autopsy and skeletal examination.

C. Grave Excavations must be conducted using appropriate protocols for case management, evidence collection, photography, and note documentation by individuals specifically assigned to conduct exhumations

1. Before excavation begins, ensure that all documentation is complete, and compare the present condition of the site area to the condition as mapped, photographed, and described when the site was located and/or tested.
2. If the site was tested, relocate and empty the test trenches.
3. If the site was not previously tested, then cross-trench as described above.
4. Remove the grave fill to a depth of about 30 cm over the bodies.
5. Remove the overburden of earth, screening the dirt for associated materials. Record the level (depth) and relative co-ordinates of any such findings.
6. Remove the overburden to the depth where the grave-outline appears in the soil and screen the dirt for associated material.
7. Excavate trenches around the outside of the grave to a depth that is deeper than the expected bottom of the grave.
8. Construct the trenches in a way that allows workers to stand in the trenches and work from the edges of the grave without standing on the bodies, and in a way that allows for proper drainage from the grave.
9. Circumscribe the body, when the level of the burial is located, and, when possible, open the burial to a minimum of 30cm on all sides of the body mass.
10. Pedestal the burial by digging on all sides to the lowest level of the body (approximately 30 cm). Also pedestal any associated artifacts.
11. Once the body mass is exposed, document the profile of the grave by completing drawings and by photographing it.

D. Body removal, or exhumation, from the grave:

1. Determine the depth and the horizontal extent of the grave.
2. Determine the removal unit.
   a) Do not attempt to allocate partial remains to a single individual at the grave site. This must be done under laboratory conditions.
   b) When conditions require, leave 'numbered' remains in the grave until additional bodies or overburden can be removed to free trapped body parts.
   c) Calculate the total number of individuals exhumed after postmortem examinations are completed, commingling of remains has been resolved, and the rearticulation of disarticulated remains has been accomplished.
3. "Expose the remains ... with a soft brush or whisk broom. Do not use a brush on fabric, as it may destroy fiber evidence. Examine the soil found around the skull for hair. Place this soil in a bag for laboratory study."
4. Prepare the bodies for exhumation by removing the soil from the top and from around the sides.
   a) If the bodies are clothed, gently pull the clothing tight and shake to dislodge the soil.
   b) When the remains are not clothed and/or where skin is exposed, take great care to avoid damaging the skin, especially around the face and hands.
   c) Package the head, facial, and pubic hair separately and include it with the remains to avoid loss during removal or transport.

"(i) Search for items such as bullets or jewelry, for which a metal detector can be useful, particularly in the levels immediately above and below the level of the remains." p 25

"(n) Before displacing anything, measure the individual: p 25
(i) Measure the total length of the remains and record the terminal points of the measurement, e.g. apex to plantar surface of calcaneus (note: This is not a stature measurement).

(ii) If the skeleton is so fragile that it may break when lifted, measure as much as possible before removing it from the ground. p26

(o) Remove all elements and place them in bags or boxes, taking care to avoid damage. Number, date and initial every container; p 26

(p) Excavate and screen the level of soil immediately under the burial. A level of "sterile" (artifact-free) soil should be located before ceasing excavation and beginning to backfill." pp 26

"(c) Classify the burial as follows:
(i) Individual or commingled. A grave may contain the remains of one person buried alone, or it may contain the commingled

(i) Manipulate the bodies until they become exposed for removal.
(ii) Keep all of the parts of the body intact while manipulating it. When needed, the excavator should, "Slide their arm between bodies to the point where the end of the limb can be held and pushed back, freeing the limb from the mass." P 66
(iii) "Ensure that all the digits at the end of the limbs are held in place.... When the hands and feet are exposed, (place them) inside a bag then (tie) the bag to the nearest long bones to ensure that the digits or phalanges do not fall off as the body dries." P 66
(iv) A bag should be placed over the head to protect the cervical vertebra from coming loose and the head from becoming detached. p 66
(v) Once all parts are free, the body is ready for removal. P 12
(vi) Lift the body onto a stretcher, and assign a case number. P 12
(vii) At this point, "The documentation team begins photographing, mapping, and describing the body." P 66
(f) Photograph the remains showing the position of the body.
"Detailed shot of tattoos, obvious trauma, or unusual clothing."
All shots should include a north arrow, scale, and case number.
(g) Note the location of the crania on the site map.
(i) "At a minimum, the horizontal and vertical position of the (top) of the cranium should be plotted."
(ii) "Body outlines (may) also need to be plotted."
(h) A brief and accurate description of the body should be noted in the field notes. The pathologist is the final authority in describing a body, its clothing, associated evidence and the manner and cause of death. It is important that field notes do not conflict with the pathologist's description. Therefore, field descriptions should be as brief as possible.
(i) "Once the photographing, plotting, and documenting are complete, the body is ready for removal."
(i) Write the, "Case number and date of removal... on both ends of the body bag and on a sheet of paper place in an external envelope on the body bag." P66

(ii) "Remove and place the body in the body bag. ... If lifting is required, one excavator is placed at the head, one in the middle of the body, and one at the legs."
(iii) Once the body is placed inside the bag, "Examine the soil underneath the body to ensure that no body parts of associated evidence are left behind." P 66

(iv) Close the body bag and move it to a storage area. P 66
(l) Once the grave is emptied of human remains, use the following methods to ensure that the bottom of the grave has been reached and all additional material has been located:

(i) Scrape the bottom of the grave with trowels and bag any loose clothing or other items located in this process.

(ii) Use the metal detector along the bottom of the grave in an attempt to locate metal fixtures on clothing that may be associated with further human remains. P 66
(j) Determine the factors contributing to the dispersion of the remains, such as:
"(1) consumption and scattering by scavenging animals;
(2) scattering and burial through agricultural activity;
(3) disturbance by local foot traffic;

Disaster Victim Identification Guide INTERPOL (INTERPOL 2009:21-28)

"The following information and/or material should be gathered prior to the conclusion of the interview. If the interview is conducted by telephone, the police officer leading the DVI Ante Mortem Interview Team must arrange for materials to be collected by the nearest police officer and forwarded to the DVI Ante Mortem Coordination Centre:
- any original medical and/or odontological records, charts, treatment records, x-rays and mouth guards in the relative's or friend's possession;
- names and addresses of any medical practitioners consulted by the missing person/potential victim (e.g. Guthrie card data);
- names and addresses of dentists consulted by the missing person/potential victim;

5. Separate and remove comingled remains one at a time.
   a) Manipulate the bodies until they become exposed for removal.
   b) Keep all of the parts of the body intact while manipulating it.
   c) "Ensure that all the digits at the end of the limbs are held in place.... When the hands and feet are exposed, place them inside a bag then tie the bag to the nearest long bones to ensure that the digits or phalanges do not fall off as the body dries."
   d) Place a bag over the head and neck to protect the cervical vertebra from coming loose and the head from becoming detached.
   e) Free all body parts before removing the body.
   f) Lift the body onto a stretcher, and assign a case number.
   g) Photograph, map and describe the body.
6. Note the location of the crania on the site map.
   a) Plot the horizontal and vertical position of the top of the cranium.
   b) Plot the body outlines when needed.
7. Post a brief and accurate description of the body in field notes. Make field notes as brief as possible to avoid conflicts with autopsy and skeletal examination notes.
8. "Search for items such as bullets or jeweler using a metal detector, particularly in the levels immediately above and below the remains."
9. Exhume the body once all photographs, map notations, and documentation are complete.
   a) Write the, "Case number and date of removal on both ends of the body bag and on a sheet of paper placed in an external envelope on the body bag."
   b) Measure the individual before displacing anything.
      (1) "Measure the total length of the remains and record the terminal points of the measurement, e.g. apex to plantar surface of calcaneus (note: This is not a stature measurement)."
      (2) Measure as much as possible before removing the body from the ground when the skeleton is so fragile that it may break when lifted.
   c) Remove and place the body in a body bag. If lifting is required, one excavator is placed at the head, one in the middle of the body, and one at the legs.
   d) Examine the soil underneath the body to ensure that no body parts or associated evidence are left behind once the body is placed inside the bag.
   e) Remove all elements and place them in bags or boxes, taking care to avoid damage. Number, date, and initial every container.
   f) Close the body bag and move it to a storage area.
10. Use the following methods to ensure that the bottom of the grave has been reached and all additional material has been located and removed once the grave is emptied of human remains.
    a) Scrape the bottom of the grave with trowels and bag any loose clothing or other items located in this process.
    b) "Excavate and screen the level of soil immediately under the burial. A level of 'sterile' (artifact-free) soil should be located before ceasing excavation and beginning to backfill" the grave.
    c) Trench the bottom of the grave 40-80 cm below the last remains with two perpendicular trenches.
    d) "Use a metal detector along the bottom of the grave in an attempt to locate metal fixtures on clothing that may be associated with additional human remains."

E. Determine the factors contributing to the dispersion of remains, such as:
1. "Consumption and scattering by scavenging animals;
2. Scattering and burial through agricultural activity;
3. Disturbance by local foot traffic.

remains of two or more persons buried either at the same time or over a period of time;
(ii) Isolated or adjacent. An isolated grave is separate from other graves and can be excavated without concern about encroaching upon another grave. Adjacent graves, such as in a crowded cemetery, require a different excavation technique because the wall of one grave is also the wall of another grave;
(iii) Primary or secondary. A primary grave is the grave in which the deceased is first placed. If the remains are then removed and reburied, the grave is considered to be secondary;
(iv) Undisturbed or disturbed. An undisturbed burial is unchanged (except by natural processes) since the time of primary burial. A disturbed burial is one that has been altered by human intervention after the time of primary burial. All secondary burials are considered to be disturbed; archaeological methods can be used to detect a disturbance in a primary burial;" p 25

2. Laboratory analysis of skeletal remains
he following protocol should be followed during the laboratory
nalysis of the skeletal remains:
i) Record the date, location, starting and finishing times of the
eletal analysis, and the names of all workers;

) Radiograph all skeletal elements before any further cleaning:
(i) Obtain bite-wing, apical and panoramic dental X-rays, if possible;
(ii) The entire skeleton should be X-rayed. Special attention should be directed to fractures, developmental anomalies and the effects of surgical procedures. Frontal sinus films should be included for identification purposes;

(4) down-slope movement assisted by gravity and rain water; and
(5) incomplete collection and reburial by local residents."
p 60-61

Mass Fatality Incidents: A Guide for Human Forensic Identification (Justice 2005:20, 33, and 38)

"III. Establish a Forensic Identification Team
Procedure. Depending on the extent of the incident, consider the following forensic identification specialists for comparing antemortem to postmortem records—
A. Evidence technician.
B. Fingerprint examiner.
C. Forensic anthropologist.
D. DNA analyst.
E. Odontologists.
F. Forensic photographer.
G. Pathologist.
H. Radiologist and radiographic technicians.
I. Toxicologist." p 20
"A. Obtain a list (e.g., a passengers' manifest or employment records) and description (e.g., sex and date of birth) of possible victims:
1. Obtain antemortem prints and document their source.
2. Establish a log of antemortem prints.
3. Establish antemortem and postmortem print files." p33

"2. Consolidate individual antemortem dental information (e.g., medical and dental records, photographs, and radiographs/x-rays) into a single, comprehensive antemortem dental form/record using a standard charting format. This is perhaps the most important part of the dental identification operation." p38

Author's note: Stage IV; Intake and Autopsy is beyond the scopeof this thesis and not defined in this appendix.

- descriptions of jewellery and property worn by the missing person/potential victim;
- recent photograph/s (showing full face and/or teeth, tattoos etc);
- buccal smear or blood sample taken from the biological parents or children of the missing person/potential victim (refer to Appendix T, DNA Preference Table);
- descriptions and/or photographs of any tattoos or other the missing per[illegible]son/potential victim (refer to Appendix O, Possible Sources of DVI DNA Samples)." p 21

"In the aftermath of a disaster with significant numbers of victims, the local police office or other approved authorities will contact dentists that are identified as having treated specific missing persons. The following guidelines may be of assistance to police and dentists in obtaining corresponding ante mortem data....
- All of the victim's dental records that are on file in the dental office
- Conventional and/or digital radiographs of the teeth, jaws and/or skull
- Dental casts or models
- Dental prosthesis or other dental devices" p 22

"In order to achieve an optimum match, it is important to obtain samples from donors who are biologically related to the deceased. Proof of a direct biological relationship between the donor and the deceased is essential to the integrity of the process. Suitable donors are listed in order of preference below:...
- Monozygotic / identical twins...
- Biological mother or biological father of the victim and if possible a sibling
- Biological children and spouse of the victim
- Siblings of the victim (multiple)" p 27

"Another ideal situation, DNA reference samples are obtained from samples taken for medical examination or similar analysis prior to the deceased's death and stored in a bio[illegible]bank or other bio[illegible]medical source of DNA (such as hospitals, pathology units, and paternity and blood transfusion laboratories). A good example is the blood droplets obtained for neonatal screening of PKU (phenylketonuria). The search for AM DNA should therefore include consultation with the potential victim's family doctor in order to determine whether blood or biopsy samples from the potential victim are available in cases where close biological relatives can't be obtained." p 28
"It is also possible to get reference samples from objects that have been used by the deceased. However, if such victim reference samples are used, it is important to establish at the outset whether the objects processed belonged to and were used exclusively by the individual in question. If an object (e.g. a hair brush) was not used solely by the person in question, the identity of the second person must be determined, and a DNA sample must be taken from that person for purposes of comparison. As many objects as possible should be obtained for purposes of AM DNA collection, as it is entirely possible that individual items of evidence will not produce the desired analytical results." p 28

Resolution of Small-Scale Commingling: A Case Report from the Vietnam War (Adams and Byrd 2005:63-69)

Maintain provenience information collected during recovery during all of the following steps.
A. Determine element representation:
1. Conjoin fragmentary remains as much as possible
4. Down-slope movement assisted by gravity and rain water;
5. Incomplete collection and reburial by local residents."
F. Classify the burial as follows:
1. Individual or comingled.
2. Isolated or adjacent.,
3. Primary or secondary,
4. Undisturbed or disturbed.
G. Establish a forensic identification team.
1. Interview surviving family members and friends to obtain:
a) "Any original medical and/or odontological records, charts, treatment records, x-rays and mouth guards in the relative's or friend's possession;
b) Names and addresses of any medical practitioners consulted by the missing person/potential victim;
c) Names and addresses of dentists consulted by the missing person/potential victim;
d) Descriptions of jewellery and property worn by the missing person/potential victim;"
e) Recent descriptions of or photographs showing full face and/or teeth, tattoos, other significant physical characteristics, etc. of the person;
f) Buccal smear or blood sample taken from the biological parents or children of the missing person;
g) Any object that may contain the sole-prints fingerprints and/or DNA of the missing person/potential victim
2. Obtain a list and description of possible victims to determine if and where antemortem fingerprints can be obtained:
a) Obtain antemortem prints and document their source.
b) Establish a log of antemortem and postmortem print files.
3. Obtain and consolidate individual antemortem dental information into a single, comprehensive, antemortem dental form using a standard charting format for each individual. That information should include the following:
a) All of the victim's dental records that are on file,
b) Conventional and digital radiographs of the teeth, jaws and skull
c) Dental casts or models
d) Dental prosthesis or other dental devices.
4. Obtain DNA reference samples.
a) Obtain samples of DNA from a direct biological relative such as any of the following in order of preference:
(1) "Monozygotic/identical twins...
(2) Biological mother or biological father of the victim and if possible a sibling
(3) Biological children and spouse of the victim."
b) Obtain tissue and/or samples of blood withdrawn from the victim antemortem and develop a DNA profile. Such samples can be obtained from medical examinations, blood test, and biopsies.
c) Obtain DNA samples from objects used by the deceased. Use reference samples of DNA from all other individuals that may have used or touched the same objects to eliminate their DNA from any samples obtained.

Stage V: Skeletal Analysis

A. "Record the date, location, starting and finishing times of the skeletal analysis, and the names of all staff present during the analysis."
B. Radiograph all skeletal elements before any further cleaning.
1. "Obtain bite-wing, apical and panoramic dental x-rays, if possible."
2. Establish a medical imaging log and note all x-rays, CT scans, and MRIs taken of human remains.
a) Record date and name of person who made the image.
b) Document the case number of the victim.
c) Document the anatomical part imaged and the views taken.
3. X-ray the entire skeleton. Give special attention to fractures, developmental anomalies and evidence of

(c) Retain some bones in their original state; two lumbar vertebrae should be adequate. Rinse the rest of the bones clean but do not soak or scrub them. Allow the bones to dry.

2. Sort bones by element type, side, and size
3. Group elements by age criteria
4. Maintain articulated elements as a unit

B. Visual pair-matching - associate, "Homologous (i.e., left-right) elements based on similarities in morphology." p 64

C. Articulation - by comparing bone element to determine if the, "Bone forms a congruent joint or juncture with another element" p 65

D. Process of elimination - compare duplicated element with specific individuals to eliminate those that clearly are not consistent with the morphology of the individual p 66

E. Osteometric comparison - using statistical models, "Compare size and shape relationships between elements." p 66

F. Taphonomy:
   (a) Use, "Similarities and differences in preservation (e.g., color, staining, etc.). P 97
   (b) Use trauma by locating, "Perimortem fractures that could be used to associate several bones." 68

G. General requirements:
   (a) sorting procedures should be used in conjunction with each other, not in isolation
   (b) systematic procedures must be utilized and appropriately documented, pp 68-69

Approaches to the Study of Commingling in Human Skeletal Biology (Ubelaker 2002:331-351)

A. Create a detailed inventory listing bones by type and side. P332

B. Determine age at death, sex, general bone size, and other applicable information. P 332

C. "Assemble the remains into likely individuals, (considering) bone type, side, and age at death, (as well as) overall bone size and shape" when relatively few individuals. P 333

D. "Observe the morphological relationship of bones that articulate and determine if multiple individuals are represented... (known as) positive articulation." P 333

E. "Comparative morphology (- evaluate) age at death, sex, and ancestry." P 333

F. "Specific analytical techniques...
   (a) ultraviolet light analysis of florescence
   (b) radiographic approaches
   (c) blood-type study
   (d) neutron activation analysis " P 333

G. Use, "Sex, robusticity, age at death, bone color, surface preservation and bone density." P 333

H. Articulate bones originating from the same individual. Best results in areas of the skeletal anatomy where, "The relationship between articulating bones is especially close." P 333

I. "Observe epiphyseal union." P 334

J. Bone weight - determine, "Relationship between bone weight and body weight." 334

K. Trace Element Analysis - not good in mass grave situations. p 335

L. Consider taphonomic factors such as human behavior, mixed preservation of bone type, animal chewing, excavation factors, and curation practices Pp 340

M. Determine the minimum number of individuals:
   (a) Use computer applications to log, track, and analyze bone assemblage.
   (b) Use, "Sorting procedures that considers bone counts along with the size and age" of the individual.
   (c) Use the Lincoln/Peterson Index that, "Involves estimating the total population size by multiplying the number of bones of one side by the number of bones of the opposite side and dividing the product by the number of matched pairs of that bone." Pp 345-346

surgical procedures.
4. Take x-rays of the frontal sinuses to aid in the identification of the individual.

C. Retain two lumbar vertebrae in their original state
   1. "Rinse the rest of the bones clean but do not soak or scrub them."
   2. "Allow the bones to air-dry."

D. If there is small-scale comingling of remains, maintain provenience information collected during recovery and during all of the following steps.
   1. Conjoin fragmentary remains as much as possible.
   2. Sort bones by element type, side, and size
   3. Group elements by age criteria
   4. Maintain articulated elements as a unit.
   5. Pair-match visually by associating, "Homologous (i.e., left-right) elements based on similarities in morphology."
   6. Examine points of articulation by comparing bone element to determine if the, "Bone forms a congruent joint or juncture with another element."
   7. Eliminate skeletal elements by comparing duplicated elements to specific individuals to eliminate those that clearly are not consistent with the morphology of the individual.
   8. Conduct osteometric comparisons using statistical models to, "Compare size and shape relationships between elements" to determine consistency.
   9. Examine the taphonomy of elements to determine consistency.
      a) Use similarities and differences in preservation (e.g., color, staining, etc.).
      b) Use trauma by locating, "Perimortem fractures that could be used to associate several bones."
   10. General requirements:
      a) Use sorting procedures in conjunction with each other, not in isolation
      b) Use systematic procedures and document them.

E. If there is large-scale commingling of remains with disarticulation of body elementals, complete the following steps.
   1. Create a detailed inventory listing bones by type and side.
   2. Determine age at death, sex, general bone size, and other applicable information.
   3. Note observations on general morphology of bone fragments.
   4. "Assemble the remains into likely individuals, (considering) bone type, side, and age at death, (as well as) overall bone size and shape" when there are a relatively few individuals.
   5. "Observe the morphological relationship of bones that articulate and determine if multiple individuals are represented (positive articulation)."
   6. Compare morphology to determine if age at death, sex, and ancestry are consistent.
   7. Complete specific analytical techniques when needed, such as:
      a) "Ultraviolet light analysis of florescence
      b) Radiographic approaches
      c) Blood-type analysis
      d) Neutron activation analysis"
   8. Use, "Sex, robusticity, age at death, bone color, surface preservation and bone density," to determine consistency.
   9. Articulate bones to determine if they are from the same individual.
   10. "Observe epiphyseal unions."
   11. Determine bone weight relationships between bone weight and body weight.
   12. Consider taphonomic factors such as human behavior, mixed preservation of bone type, animal chewing, excavation factors, and curation practices.
   13. Determine the minimum number of individuals (MNI).
      a) Use computer applications to log, track, and analyze bone assemblage.

(d) Lay out the entire skeleton in a systematic way:
(i) Distinguish left from right;
(ii) Inventory every bone and record on a skeletal chart;
(iii) Inventory the teeth and record on a dental chart. Note broken, carious, restored and missing teeth;
(iv) Photograph the entire skeleton in one frame. All photographs should contain an identification number and scale;
(e) If more than one individual is to be analyzed, and especially if there is any chance that comparisons will be made between individuals, number every element with indelible ink before any other work is begun;" p 26

"(f) Record the condition of the remains, e.g. fully intact and solid, eroding and friable, charred or cremated;

"(t) Attempt to distinguish injuries resulting from therapeutic measures from those unrelated to medical treatment. Photograph all injuries:
(i) Examine the hyoid bone for cracks or breaks;
(ii) Examine the thyroid cartilage for damage;
(iii) Each bone should be examined for evidence of contact with metal. The superior or inferior edges of the ribs require particular scrutiny. A dissecting microscope is useful;" pp 26-27

Skeletal Trauma: Identification of Injuries Resulting from Human Rights Abuse and Armed Conflict (Kimmerle and Baraybar 2008:32-231)

"Common Epigenetic of Congenital Traits of the Skeleton.

Skeletal Trauma: Identification of Injuries Resulting from Human Rights Abuse and Armed Conflict (Kimmerle and Baraybar 2008:22-384)

Differential Diagnosis of Skeletal Injuries (pp 21-86)
A. "Reconstructing Skeletal Fractures to Identify Trauma" p 22
1. Radiograph and fluoroscope remains. p 22
2. Once "...skeletal remains are washed and laid out in anatomical order (. a)dherent tissues are removed by washing or boiling. p 22
3. "Reconstruct fractured bones so that the fracture type, pattern, and overall distribution of wounds are evident " p 22
(a) For cranial bones, reconstruct in two umts, facial and vault, then unite the two segments. P 22
(b) Examine fracture patterns to determine information concerning the type, mechanism and number of injuries. P 22
(c) Reconstruct the mandible and postcranial elements. Examine the outer cortex of the remaining bone to determine wound characteristics that identify the mechanism of injury p 25
(d) Reconstruct the largest fragments first, followed by smaller fragments added to units and combining units together. P 25
(e) Recover fragments that may be embedded in clothing or that becomes disarticulated following decomposition of the soft tissue. P 26
B."Differential Diagnosis of Skeletal Trauma
1. Inventory all affected bones.
2. List the location of specific affected areas on bone, including the side/region/aspect.
3. Provide a description of:
• The number and types of fractures or defects
• The presence of any abnormal bone shape, growth, or loss
• The severity, state, and distribution of abnormal bone changes
4. Documentation of any radiographic evidence (fractures or weaponry).
5. Analysis of clothing (defects, tears, burning, or weaponry).
6. Estimation of the timing of fractures based on:
• Presence of bone reaction (remodeling)
• Color of fractured edges
• Shape of defect or cut mark
• Size of affected area, defect, or cut mark
• Appearance of tissue bending
• Location of affected area
• Number of fractures or cut marks
7. Classification of skeletal pathology by disease category (i.e., infectious, nutritional) and the specific mechanism (i.e., periostitis versus osteomylitis or scurvy versus anemia).
8. Estimation of the mechanism of injury, class of weapon, distance of fire or blast, and victim's position relevant to the direction of the force in relation to the point of impact." p 31
C. "Rule Out Normal Skeletal Variation and Skeletal Pathology" p 32

D. Classify Fractures and Mechanisms of Injury - "General Bone and Fracture Classifications
(a) Flat (bones such as) cranial vault, scapula, ilium, ribs
• Depressed, radiating, linear, comminuted, blowout, basilar
(b) Long/ Short (bones such as) humerus, radius, ulna, femur, tibia, fibula, metacarpals, metatarsals
• Extra-articular: linear, comminuted, segmental
• Intra-articular: linear, comminuted, impacted
b) Use, "Sorting procedures that considers bone counts along with the size and age" of the individual.
c) Use the Lincoln/Peterson Index that "involves estimating the total population size by multiplying the number of bones of one side by the number of bones of the opposite side and divide the product by the number of matched pairs of that bone."
F. "Lay out the entire skeleton in a systematic way, (such as, in anatomical order).
1. Distinguish left from right
2. Inventory every bone and record on a skeletal chart
3. Inventory the teeth and record on a dental chart. Note broken, carious, restored and missing teeth."
4. Number every element with indelible ink before any other work is done, when more than one individual is to be analyzed, and especially if there is any chance that comparisons will be made between individuals.
G. "Reconstruct fractured bones so that the fracture type, pattern, and overall distribution of wounds are evident."
1. For cranial bones, reconstruct in two units, facial and vault, then unite the two segments
2. Examine fracture patterns to determine information concerning the type, mechanism and number of injuries.
3. Reconstruct mandible and postcranial elements. Examine the outer cortex of the remaining bone to determine wound characteristics that identify the mechanism of injury.
4. Reconstruct the largest fragments first, followed by smaller fragments that have been combined in units then fit the units together.
5. Recover fragments that may be embedded in clothing or that have become disarticulated following decomposition of the soft tissue.
H. Conduct an anthroposcopic examination of the skeletal injuries.
1. "Inventory all affected bones.
2. List the location of specific affected areas on bone, including the side, region, and aspect.
3. Provide a description of:
a) The number and types of fractures or defects
b) The presence of any abnormal bone shape, growth, or loss
c) The severity, state, and distribution of abnormal bone changes
4. (Document) any radiographic evidence of fractures or weaponry.
5. (Analyze) clothing (defects, tears, burning, or weaponry)
6. (Estimate) the timing of fractures based on:
a) Presence of bone reaction (remodeling)
b) Color of fractured edges
c) Shape of defect or cut mark
d) Size of affected area, defect, or cut mark
e) Appearance of tissue bending
f) Location of affected area
g) Number of fractures or cut marks
7. (Classify) skeletal pathology by disease category (i.e., infectious, nutritional) and the specific mechanism (i.e., periostits versus osteomylitis or scurvy versus anemia).
8. (Ascertain) the mechanism of injury, class of weapon, distance of fire or blast, and victim's position relevant to the direction of the force in relation to the point of impact."
9. "Record the condition of the remains, e.g. fully intact and solid, eroding and friable, charred or cremated."
10. "Rule out normal skeletal variation and skeletal pathology."
12. "Distinguish injuries resulting from therapeutic measures from those unrelated to medical treatment. Photograph all injuries.
a) Examine the hyoid bone for cracks or breaks.
b) Examine the thyroid cartilage for damage.
c) (Examine each bone) for evidence of contact with metal. The superior or inferior edges of the ribs require particular scrutiny."

that May be Confused with Skeletal Trauma:
(a) Transitional Vertebra
- Occipitalization of cervical (C1)
- Thoracization of cervical (C7)
- Lumbarization of thoracic (T12)
- Lumbarization first sacral (S1)
- Sacralized fifth lumbar (L5)
- Lumbar-sacral undetermined
- Fussed coccyx

(b) Bone Fusion
- Multiple vertebrae
- Sternum/manubrium/xiphoid process
- Sternum/ribs/costal cartilage
- Ilium/sacrum
- Tibia/fibula
- Hand or toe phalanges
- Carpals or tarsals

(c) Bone Nonunion
- Sternal body segments
- Bifurcated neural arches
- Acromion process unfused (*Os acrominale*)
- Spina bifida/occulta

(d) Abnormal shape
- Hemivertebra
- Talus *Os trigonon*
- Abnormally small nasal bones

(e) Accessory foramina
- Sternal aperture (humerus)
- Sternal foramen (sternal body)" p 32

Clothing Examination:
(a) Document strategy for handling clothing and guidelines to recover all associated evidence, preserve clothing artifacts, and curate the items for future reference in protocol for postmortem examinations.
(b) Determine the type, amount, whether the clothing was owned by the individual, and what it contained within pockets or folds of the clothing being worn by the individual at the time of burial.
(c) X-ray clothing separately from the body, and prior to washing.
(d) Inspect and photograph clothing prior to and after washing.
(e) Review and document all defects indicative of injuries, postmortem burning, and taphonomic changes.
(f) Document textile patters and colors to facilitate the identification of individuals, village of residency, and ethnic identity. P 80-85

Determine Type of Blast Injury:
(a) "Explosive Injuries Related to Grenades
- Pattern 1: Grenade Explodes within close range of victim:
  - Random pattern of wounds, concentrated greatest in an area near the blast
  - Deeply penetrating projectile trauma, comminuted skeletal fractures, projectiles embedded in tissue or bone

(c) Irregular bones (such as) sacrum, vertebrae, facial bones
- Extra-articular: linear, comminuted, segmental, radiating, linear, comminuted, depressed, crushing" p51

E. Determine Time of Trauma Based on Gross Inspection
(a) Antemortem Fractures:
- Determine level of healing such as remodeling or presence of characteristics associated with infection

(b) Perimortem Fractures:
- Determining that no healing has taken place
- Determine if the bone was wet or still encased in muscle periostium, skin, and other soft tissue when fractured.
- Examine the edges of the fractures to see if they are uneven and/or irregular, hoop fractures, radiating or concentric fracture lines, and angled or jagged fracture edges

(c) Postmortem Fractures:
- Occur during or following the decomposition process.
- May occur before the bone has become dry.
- Determine if fractures have straight and sharp edges with no evidence of bending.
- Determine if there is a difference in color between the fracture site and the rest of the bone.
- May have an absence of fractures such as radiating fractures.
- Determine if there are scavenger marks.
- Determine if fractures are related to the use of heavy equipment such as bulldozers or backhoes.
- Rule out injury from the exhumation process.
- Determine if the bone was burned and the timing (i.e., peri- or postmortem). P 54-65

F. "Radiography and Three-Dimensional Imaging…
(a) Locate physical evidence of weaponry such as lead wipe from a projectile or shrapnel fragments…." p 71
(b) Locate any live munitions that may be found in cloths.
(c) Determine fracture patterns, number of injuries, and sequence of injuries. P 71
(d) Identify antemortem injuries and skeletal pathology. P 74
(e) Determine the amount of epiphyseal union. P 74
(f) Compare to antemortem radiographs to identify the individual. P 74
(g) Use as an exhibit for courtroom presentation. P 75
(h) Use three dimensional imaging from CT scans, MRI, or 3D scanners to illustrate the trajectory of an injury or projectile p 79

I. Determine Type of Blast Injury: pp 111 and 231

J. Determine if Injury Is from Blunt Force Trauma
(a) To document skeletal wounds, record:
- "location
- length

I. Classify fractures and mechanisms of injury (i.e., general bone and fracture classifications).
1. Classify fractures of flat bones such as, "Cranial vault, scapula, ilium, ribs as: depressed, radiating, linear, comminuted, blowout, or basilar."
2. Classify fractures of long/short bones such as, "Humerus, radius, ulna, femur, tibia, fibula, metacarpals, metatarsals as:
   a) Extra-articular: linear, comminuted, segmental,
   b) Intra-articular: linear, comminuted, impacted."
3. Classify fractures of irregular bones such as, "Sacrum, vertebrae, facial bones as: extra-articular: linear, comminuted, segmental, radiating, linear, comminuted, depressed, or crushing."

J. Estimate the time of trauma based on gross inspection.
1. For antemortem fractures, determine level of healing such as remodeling or presence of characteristics associated with infection
2. For perimortem fractures determine:
   a) If there are any signs of healing that has taken place;
   b) If the bone was wet or still encased in muscle, periostium, skin, or other soft tissue;
   c) Examine the edges of the fractures to see if they are uneven and/or irregular, hoop fractures, radiating or concentric fracture lines, and angled or jagged fracture edges
3. Identify postmortem fractures that occur during or following the decomposition process.
   a) Determine if fracture occurred before the bone became dry.
   b) Determine if fractures have straight and sharp edges with no evidence of bending.
   c) Determine if there is a difference in color between the fracture site and the rest of the bone.
   d) Determine if there is an absence of fractures such as radiating fractures.
   e) Determine if there are scavenger marks.
   f) Determine if fractures are related to the use of heavy equipment such as bulldozers or backhoes.
   g) Rule out injury from the exhumation process.
   h) Determine if and when the bone was burned (i.e., perimortem or postmortem).

K. Use radiography and/or three-dimensional imaging to "locate physical evidence of weaponry such as lead wipe from a projectile or shrapnel fragments."
1. Locate any live munitions that may be found in cloths.
2. Delineate fracture patterns, number of injuries, and sequence of injuries.
3. Identify antemortem injuries and skeletal pathology.
4. Determine the amount of epiphyseal union.
5. Compare to antemortem radiographs to identify the individual.
6. Use three dimensional imaging from CT scans, MRI, or 3D scanners to illustrate the trajectory of an injury or projectile.

L. Examine clothing.
1. Document strategy for handling clothing and guidelines to recover all associated evidence, preserve clothing artifacts, and curate the items for future reference in a protocol for postmortem examinations as provided below.
2. Determine the type, amount and ownership by the individual wearing the clothing at the time of burial and the contents within pockets or folds of the clothing.
3. X-ray clothing separately from the body.
4. Inspect and photograph clothing prior to and after washing.
5. Review and document all defects indicative of injuries, postmortem burning, and taphonomic changes.
6. Document textile patters and colors to facilitate the identification of individuals, village of residency, and ethnic identity.

M. Determine if there was a blast injury and the type of blast injury.
1. Identify explosive injuries related to grenades by noting the pattern of injury.

° Skeletal fractures resulting from the shock wave, in an anatomical region near the epicenter of the blast
• Pattern 2: Grenade explodes within an intermediate to distant range of victim
° Random pattern of deeply penetrating shrapnel injuries, distribution of wounds varied but generally greater with increased distance from the blast
• Pattern 3: Victim holding the exploding grenade
° Patterned wounds to hands and face, including deeply penetrating shrapnel and projectile injuries, and traumatic amputation, p 111

(b) Differential Patterns of Explosive Shrapnel from Gunfire Projectile Trauma:
• Size:
Modifier - ranges from small to large defect
Shrapnel/Blast - highly variable
GSW - Patterned, generally consistent with diameter or cross section of bullet
• Shape.
Modifier - defect mimics shape of projectile
Shrapnel/Blast - Shrapnel tends to be irregular or asymmetrical
GSW - Projectiles tend to be symmetrical or regularly patterned
Modifier - trajectory
Shrapnel/Blast - generally lacks streaming
° GSW - streamlined
• Entrance wound:
Modifier - present of absent
Shrapnel/Blast - generally present
GSW - generally present
• Exit wound - present or absent
Modifier - present or absent
Shrapnel/Blast - rarely present
GSW - More often present than shrapnel
• Tendency of Projectile to Embed in Bone: weak-to-
Modifier - weak-to-strong association, presence of intermediate target, material construction of bullet or shrapnel
Shrapnel/Blast - varied
GSW - varied
• Number of Wounds:
Modifier - total number of wounds
Shrapnel/Blast - high
GSW - low
Modifier - number of wounds per projectile
Shrapnel/Blast - single
GSW - low
• Distribution of wounds
Modifier - wide or narrow
Shrapnel/Blast - wide
GSW - narrow

K. Document the skeletal evidence of torture by identifying the characteristics of BFT from torture cases.
(a) Chest/thorax
• Most Affected - sternum, ribs, lumbar spine
• Type of injury - skeletal fractures consistent with blunt force mechanisms
(b) Injury to the ribs
• Structures Affected - Fractures tend to be adjacent to costochondral joint, axillary or paravertebral line, especially in ribs 10-12
• Number of fractures - One to three fractures per rib - multiple fractures associated with multiple blows
(c) Sternum
• Structures Affected - Single or multiple fractures,
• width
• shape
• fracture type
• fracture patterns of the wounds" (page152)
(b) Take an impression of the suspected weapon and compare to skeletal defects to determine if the characteristics of the weapon match the injury on the bone. (pages 155-157)
(c) Establish the Number and Sequence of injuries:
• determine minimum number of injuries
• determine the sequence of injury by analysis of fracture lines and based on fracture lines arrested by previous occurrences of fractures p 157
(d) Cranial Fractures
• "primarily consist of depressed, radiating, comminuted, blowout, or basilar fractures…
• describe biomechanical properties of skeletal wounds such as inbending …at the point of impact, and outbending …along the parameter of" the wound, p 158
(e) Necessary evidence to support the claims of torture
• timing of injuries
• pathological findings consistent with detainment
• corroboration of physical findings with multiple forms of evidence p 203
(f) Attribute skeletal injuries to torture by determining
• "Mechanism of injury
• Location, type, distribution/pattern, and recurrence of wounds
• Estimation of whether or not the wound present contributed to the cause of death
• Approximate timing of injuries
• …circumstances surrounding injuries
• (Whether injuries were from) accidents and (estimate) the manner of injuries as intentional, interpersonal violence p 204

L. Document sharp force trauma (SFT).
(a) Documentation needed:
• Number of injuries per individual
• Cause and manner of death
• Number of people killed and proportion that sustained specific injuries
• Nature of fatal injuries
• Prevalence of body regions targeted
• Demographic patterns of victims
• Evidence of torture, p 264
(b) Identify sharp injuries by the:
• "Shape of cut mark, whether linear of irregular
• Cross section of cut mark - V, semi-V, or U shape
• Characteristics of walls of the defect, smooth or serrated
• Characteristics of 'floor' of the defect, smooth or serrated
• Depth of the feature, particularly whether consistent throughout the cut mark
• Presence of hilt (more common in knife wounds)
• Presence and shape of defect
• Presence of associated fractures with defect
• Presence of crushing associated with cut mark of defect" p 268

M. Identify gunfire injuries.
(a) Reconstruct fragmentary skeletal tissue
(b) Based on morphology of skeletal defects and fractures, interpret the injury as to:
• direction of fire
• bullet trajectory
• number of wounds
• shot sequence

2. Identify the differential patterns of explosive shrapnel from gunfire projectile trauma by noting
a) Size
b) Shape
c) Presence or absence of entrance and exit wounds
d) Tendency of the projectile to imbed in bone.
e) Number of wounds
f) Distribution of wounds

N. Determine if injury was from blunt force trauma.
1. Record the following to document skeletal wounds:
a) "Location
b) Length
c) Width
d) Shape
e) Fracture type
f) Fracture patterns of the wounds."
2. Take an impression of the suspected weapon and compare to skeletal defects to determine if the characteristics of the weapon matches the injury on the bone.
3. Establish the number and sequence of injuries.
a) Determine minimum number of injuries.
b) Determine the sequence of injury by analyzing fracture lines and consider when fracture lines are arrested by previous fractures.
c) "Describe biomechanical properties of skeletal wounds such as in-bending … at the point of impact, and out-bending … along the parameter of this area."

O. Identify skeletal evidence of torture by region of the body.
1. Document the, "Necessary evidence to support the claims of torture:…
a) Timing of injuries;
b) Pathological findings consistent with detainment;…
c) Corroboration of physical findings with multiple forms of evidence."
2. Attribute skeletal injuries to torture by documenting:
a) "Mechanism of injury;
b) Location, type, distribution/pattern, and recurrence of wounds;
c) Estimation of whether or not wounds present contributed to death;
d) Approximate timing of injuries,
e) Reconstruction of the circumstances surrounding injuries.
f) Ruling out accidents and estimating the manner of injuries as intentional, interpersonal violence."

P. Identify sharp force trauma by documenting:
1. General information such as:
a) "The number of injuries per individual;
b) The cause and manner of death;
c) Number of people killed and proportion that sustained specific injuries;
d) Nature of injuries that are fatal;
e) Prevalence of body regions targeted in the attack;
f) Demographic patterns or victims;
g) Possible evidence of torture."
2. Specific information concerning the sharp force injuries:
a) "Shape of cut mark, whether linear or irregular;
b) Cross section of cut mark - V, semi-V, or U shape;
c) Characteristics of walls of the defect, smooth or serrated;
d) Characteristics of 'floor' of the defect, smooth or serrated;
e) Depth of the feature, particularly whether consistent throughout the cut mark;
f) Presence of hilt (more common in knife wounds),
g) Presence and shape of defect;
h) Presence of associated fractures with defect,
i) Presence of crushing associated with cut mark of defect."

Q. Identify gunfire injuries.
1. Reconstruct fragmentary skeletal tissue.
2. Based on morphology of skeletal defects and fractures,

"(j) If the remains are to be reburied before obtaining an identification, retain the following samples for further analysis:
(i) A mid-shaft cross-section from either femur, 2 cm or more in height;
(ii) A mid-shaft cross-section from either fibula, 2 cm or more in height;
(iii) A 4-cm section from the sternal end of a rib (sixth, if possible);
(iv) A tooth (preferably a mandibular incisor) that was vital at the time of death;
(v) Several molar teeth for possible later deoxyribonucleic acid fingerprinting for identification;
(vi) A cast of the skull for possible facial reconstruction;
(vii) Record what samples have been saved, and label all samples with the identification number, date and name of the person who removed the sample." p 27

(i) Determine age, sex, race and stature;
(ii) Record the reasons for each conclusion (e.g. sex identity based on skull and femoral head);
(iii) Photograph all evidence supporting these conclusions;
(h) Individual identification:
(i) Search for evidence of handedness, pathological change, trauma and developmental anomalies;
(ii) Record the reasons for each conclusion;
(iii) Photograph all evidence supporting these conclusions;" p 26

Mass Fatality Incidents: A Guide for Human Forensic Identification (Justice 2005:23-24)

"Procedure. The forensic anthropologist is expected to—
A. Evaluate and document the condition of the remains, including:
1. Complete remains.
2. Fragmented remains.
3. Burned remains.
4. Decomposed remains.
5. Commingled remains.
Any combination of the above.
B. Separate obviously commingled remains to calculate the minimum number of individuals, while ensuring continuity of the numbering system.
C. Analyze the remains to determine sex, age at death, stature, and other distinguishing characteristics.
D. Assist in determining the need for additional analysis by other forensic identification disciplines (e.g., radiology, odontology).
E. Maintain a log of incomplete remains to facilitate future reassociation.

displaced or undisplaced fracture of sternal body
• Number of fractures - One to two fractures - one fracture likely to occur above the point of impact, two fractures result from a broader impact
(d) Lumbar vertebrae
• Structures Affected - Complete on incomplete fractures,
• Number of fractures - typically a unilateral fracture to the transverse process. p 231

Mass Fatality Incidents: A Guide for Human Forensic Identification (Justice 2005:16-24)

"Procedure. The medical examiner/coroner is expected to—
A. Document where the remains were found and where death occurred.
B. Control and document how the remains are transported from the scene to the morgue.
C. Ensure that all remains are properly photographed.
D. Document the presence or absence of clothing and personal effects.
E. Diagram/describe in writing items of evidence and their relationship to the remains (with necessary measurements).
F. Document general physical characteristics.
G. Document the presence or absence of specific marks, scars, tattoos, and external prostheses:
1. Ensure total body radiographs/x-rays are made (if indicated).
2. Provide anthropological consultation (if indicated).
H. Document the presence or absence of injury/trauma.
• projectile characteristics
• class of weapon (page 325)
• medium velocity rounds - handguns - minimal damage
• high velocity rounds - rifles - wounds and fractures are slightly larger (page 327)
(c) Differentiate entry from exit wounds by determining the direction of beveling, pp 328-329
(d) Determine classification of entry wounds "based on their shape:
• "circular,
• keyhole,
• gutter,
• tangential,
• eccentric,
• irregular,
• sideways,
• tandem,
• double tap," p 329
(e) Determine if the wounds are ante- peri- or postmortem p 353
(f) Estimate range of fire:
• contact of close range,
• intermediate range,
• intermediate targets or distant range (pages 372-376)
• shotgun injuries - distance estimated from size and severity of defects and spread or diameter of pellet injuries p 377
(g) Estimate number of shooters - order of shots and pattern and shape of defects p 384

Disaster Victim Identification Guide INTERPOL (2009:15-21)

"4.1 Individual methods of identification:
Forensic Odontology:
DNA analysis:
Personal descriptions/medical findings:
Evidence/ Evidence/clothing": pp 17-18
"5.4 Collection of personal victim data through interview with relatives, friends, etc." p 15
"The following information and/or material should be gathered prior to the conclusion of the interview. If the interview is conducted by telephone, the police officer leading the DVI Ante Mortem Interview Team must arrange for materials to be collected by the nearest police officer and forwarded to the DVI Ante Mortem Coordination Centre:
▶ any original medical and/or odontological records, charts, treatment records, x□rays and mouth guards in the relative's or friend's possession;
▶ names and addresses of any medical practitioners consulted by the missing person/potential victim (e.g. Guthrie card data);
▶ names and addresses of dentists consulted by the missing person/potential victim;
▶ descriptions of jewellery and property worn by the missing person/potential victim;

interpret the injury as to:
a) "Direction of fire,
b) Bullet trajectory,
c) Number of wounds,
d) Shot sequence,
e) Projectile characteristics,
f) Class of weapon:"
(1) Medium velocity rounds - handguns - minimal damage,
(2) High velocity rounds - rifles - wounds and fractures are slightly larger.
3. Differentiate entry from exit wounds by examining the direction of beveling.
4. Determine classification of entry wound:
a) "Circular
b) Keyhole
c) Gutter
d) Tangential
e) Eccentric
f) Irregular
g) Sideways
g) Tandem
h) Double tap."
5. Determine if the wounds are antemortem perimortem or postmortem.
6. Estimate range of fire:
a) Contact or close range,
b) Intermediate range,
c) Distant range,
d) For shotgun blasts, distance estimates based on size and severity of defects and spread or diameter of pellet injuries
7. Estimate number of shooters, order of shots, and pattern and shape of defects.
R. "If the remains are to be reburied before obtaining an identification, retain the following samples for further analysis:
1. A mid-shaft cross-section from either femur, 2 cm or more in height,
2. A mid-shaft cross-section from either fibula, 2 cm or more in height,
3. A 4-cm section from the sternal end of a rib, sixth, if possible,
4. A tooth, preferably a mandibular incisor, that was vital at the time of death,
5. Several molar teeth for possible later deoxyribonucleic acid (DNA) fingerprinting for identification,
6. A cast of the skull for possible facial reconstruction,
7. Record the samples saved that have been labeled with the identification number, and date and name of the person who collected the sample."

Stage VI: Conclusion, Review and Final Report

A. Once all analysis is completed and the exhumation is concluded, identify as many individuals as possible, if not already done.
1. "Document where remains were found and, (when possible), where death occurred.
2. Control and document how the remains were transported from the scene," where they were buried, and how they were transported to the morgue.
3. Ensure that all remains are photographed in a way consistent with the photographic protocol.
4. Document the presence or absence of clothing and any associated artifacts including a description of their physical relationship to the remains *in situ*.
5. Document the general physical characteristics including:
a) Completeness
b) Level of fragmentation
c) Evidence of damage from burning
d) Level of decomposition
e) Commingling with other remains
6. Separate any commingled remains and determine the minimum number of individuals present.

F. Document, remove, and save nonhuman and/or nonbiological materials for proper disposal. . . .

"Procedure. The forensic anthropologist is expected to evaluate, when possible, the following—

A. Sex.
B. Age at death.
C. Race.
D. Stature.
E. Antemortem pathological conditions (e.g., diseases or healed fractures).
F. Anomalies/abnormalities (including surgical hardware and prosthetic devices).
G. Perimortem trauma.

Summary. The forensic anthropologist is expected to use skeletal features to develop a biological profile.

IV. Additional Forensic Procedures

Principle. The forensic anthropologist is expected to assist in other procedures and use additional information from other forensic identification specialists in the analysis of remains.

Procedure. The forensic anthropologist is expected to assist with the following—

A. Obtaining DNA samples from soft tissue and bone.
B. Taking and interpreting radiographs/ x-rays.
C. Interpreting trauma (with the medical examiner/coroner).
D. Obtaining and isolating dental evidence.
E. Comparing antemortem and postmortem records.

Summary. The multidisciplinary approach to the identification process is vital to the successful response to and outcome of a mass fatality incident." pp23-24

V. Model Protocol for Disinterment and Analysis of Skeletal Remains, from the United Nations 2010, Manual on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Execution (UN 2010:24-27)

"4. Repository for evidence

In cases where the body cannot be identified, the exhumed remains or other evidence should be preserved for a reasonable time. A repository should be established to hold the bodies for 5-10 years in case they can be identified at a later time." p 27

I. Document fingerprints (and handprints, toe prints, or footprints if indicated).
J. Document the presence or absence of any items or objects that may be relevant (including internal prostheses, implants, etc.).
K. Document the dental examination (see "Section 4.6 Identification of Human Remains—Odontology" for procedures).
L. Collect appropriate DNA and toxicology samples (see "Section 4.4. Identification of Human Remains— DNA Analysis" for procedures).
M. Conduct a complete autopsy (if indicated)." pp16-17

"Procedure. The medical examiner/coroner is expected to ensure that all property and evidence is collected, inventoried, protected, and released as required by law according to the following functions—

A. Photograph the evidence (include an identification number with each photograph), including:
   1. Remains.
   2. Physical characteristics (e.g., tattoos, scars, or marks).
   3. Wounds.
   4. Personal effects (e.g., clothing and jewelry).
B. Collect associated physical evidence (e.g., explosives residue or other trace material).
C. Collect, inventory, and safeguard money at the scene and the morgue (with a witness present).
D. Collect, inventory, and safeguard personal valuables/property (e.g., clothing and jewelry) at the scene and the morgue:
   1. Collect and store personal effects in paper bags (for airing and drying).
   2. Clean each personal item removed from the remains (especially jewelry) and preserve with an appropriate identification number.
      Take DNA samples from personal effects before cleaning and cataloging them.
   3. Use photographs when applicable for viewing and recognition by family members." p 17

"Procedure. The medical examiner/coroner is responsible for establishing the identity of the deceased using the following methods—

A. Presumptive:
   1. Direct visual or photographic identification of the deceased if visually recognizable.
   2. Personal effects (e.g., wallets, jewelry), circumstances, physical characteristics, tattoos, and anthropological data.
B. Confirmatory:
   1. Fingerprints (including handprints, toe prints, and footprints if indicated).
   2. Odontology.
   3. Radiology. . .,
   4. DNA analysis.
   5. Forensic anthropology." pp 17-18

Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives (Haglund and Sorg (2002:20)

"Updated Forensic Anthropology Report Format

Part 1: Introduction
• Background and chain of custody

Part 2: Taphonomy
• Document microenvironment at scene
• Document remains *in situ*
• Document recovery process
• Inventory remains
• Describe condition, including an assessment of taphonomic modifications due to transport, burial, decomposition, savaging, and weathering

► recent photograph/s (showing full face and/or teeth, tattoos etc);
► buccal smear or blood sample taken from the biological parents or children of the missing person/potential victim (refer to Appendix T, DNA Preference Table);
► descriptions and/or photographs of any tattoos or other significant physical characteristics;
any object that may contain the sole fingerprints and/or DNA of the missing per . son/potential victim (refer to Appendix O, Possible Sources of DVI DNA Samples)." P 21

Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives (Haglund and Sorg 2002:20)

Part 4: Individuation and Identification
• Combined pattern of anomalies, pathological conditions, or other traits known or documented for this individual.
• Compare remains and antemortem records of possible matches
• Dental records
• Radiographs
• Medical history
• Photographs
• Facial imaging
• DNA analysis

Forensic Anthropology Training Manual (Burns 2007:258-265)

Keeping Records:

A. "Begin planning the final report at the initiation of the case." p 258
B. "Background Information
• Name and person responsible for the report
• Title, address, telephone number
• Name of the agency or party to receive the report" p 258
C. "Significant Dates:
• Date of initial contact
• Date(s) of recovery
• Date(s) of entry into official records for each piece of evidence
• Date(s) of examination
• Date of report" p 259
D. "Chain of Custody:
• Who gave the evidence to you? When and where?
• Did you sign for it? Do you have the record?
• To whom did you release it? When and where?
• Did the recipient sign for it? Do you have the record?" p 259

7. "Document the presence or absence of specific marks, scars, tattoos, and external prostheses."
8. Take fingerprints, handprints, toe-prints and footprints when possible.
9. Determine the age, sex, stature, race and other distinguishing characteristics of the remains.
10. Determine the need for analysis by other specialists such as forensic odontologists or radiologists.
11. Identify any antemortem pathological conditions such as healed fractures, implants, or unique abnormalities.
12. Identify any perimortem and postmortem trauma.
13. Obtain DNA and dental evidence for evaluation by others.
14. Document all findings.
15. Collect associated physical evidence such as:
    a) Trace evidence
    b) Valuables including money and jewelry.
    c) Clothing.
    d) DNA evidence from these articles.
16. Establish, "The identity of the deceased using the following methods:
    a) Presumptive:
       (1) Direct visual or photographic identification of the deceased if visually recognizable.
       (2) Personal effects (e.g., wallets, jewelry), circumstances, physical characteristics, tattoos, and anthropological data.
    b) Confirmatory:
       (1) Fingerprints (including handprints, toe prints, and footprints if indicated)
       (2) Odontology.
       (3) Radiology. . .
       (4) DNA analysis."
       (5) Skeletal analysis.
       (6) Comparison with antemortem medical records and photographs of the individual when living.
17. "In cases where the body cannot be identified, the exhumed remains or other evidence should be preserved for a reasonable time. A repository should be established to hold the bodies for 5-10 years in case they can be identified at a later time."

B. During Stage 1, begin planning the final report and insure the information needed for the final report is well documented.
1. Provide, "Background Information, such as:
   a) Name and person responsible for the report (and contact information)
   b) Name of the agency or party to receive the report"
2. Document the following, "Significant dates:
   a) Date of initial contact
   b) Dates of recovery
   c) Dates of entry into official records for each piece of evidence
   d) Dates of examination
   e) Date of report"
3. Chain of Custody requirements:
   a) Document who retrieved the evidence, and date and name of every person who handled the evidence in an Evidence Log.
   b) Include the Evidence Log in the Final Report as an appendix
4. Report on the taphonomy present in the grave.
   a) "Document microenvironment at (the grave).
   b) Document remains *in situ*. .
   c) Describe condition, including an assessment of taphonomic modifications due to transport, burial, decomposition, scavenging, and weathering." Also estimate the postmortem interval (PMI).
5. Document recovery process and include in the Final Report as an appendix. Also, incorporate reports from other disciplines such as entomology, botany, and geology.
6. Inventory remains and include inventory sheets and charts as an

• Incorporate reports from other disciplines such as entomology, botany, and geology.
• Estimate postmortem interval.

Part 3: Biological Profile
• Develop biological profile (individual and population characteristics).
• Age
• Sex
• Stature
• Discrete traits and anomalies (inherited and acquired)
• Population ancestry
• Pathology and evidence of medical history…

Part 5: Reconstruction of Death Event
• Trauma: type, location and patterning, trajectories, sequences, and potential weapon classes
• Document process of differentiating perimortem trauma from postmortem changes"

author's notes:
(a) Using the master list of case numbers, ensure that all remains are either autopsied or examined;

Human Remains - Exhumation Process - Forensic Medicine - 2001 - The Archaeology of Contemporary Mass Graves, published by the International Committee of the Red Cross (Haglund and Sorg 2002:20)

(b) Ensure that the photographic log includes all photographs of the remains.

(c) Confirm that all inventories, logs, and evidence transfer forms are properly documented in appropriate listings.

• Apply additional specialty analyses from other sources, e.g., tool marks, fracture biomechanics, trace evidence, histology, and radiography." p 20

3. Final report
The following steps should be taken in the preparation of a final report.

"(a) Prepare a full report of all procedures and results;
(b) Include a short summary of the conclusions;" p 27

E. Inventory remains and associated evidence by using standard forms and diagrams.
• Keep human remains together with basic descriptive information with skeletal diagrams of pertinent areas
• Keep teeth with basic descriptive including dental charts or diagrams
• Inventory all items receive including hair, nails, clothing, shoes, bullets, casings, plant life, insects, etc …, p 260

F. Provide an anthropological description that includes:
• sex,
• race,
• age at death,
• stature,
• handedness. P 260

G. Document other observations such as:
• evidence of antemortem disease and injury
• perimortem trauma
• postmortem trauma, e.g. effects of burial, reburial, disinterment, carnivore activity, and any other modification to the remains. P 260-261

H. Report Writing
1. "The forensic report is written for investigators, attorneys, judges, and other nonscientific specialists." p 259
2. "Use language that communicates with the intended audience." p 259
3. "If technical vocabulary and jargon are necessary, explain the terms." p 259
6. Cover Page:
   • case number
   • name of the case, if appropriate
   • date
   • name, title and address of the recipient
   • all contact information for the person who signed the report p 259
7. Case Background.

appendix.
7. Develop skeletal population features, such as:
   a) The minimum number of individuals (MNI) located at the site;
   b) Average age and/or range of ages.
   c) Sex ratio between men and women.
   d) Shared inherited or acquired physical traits and anomalies;
   e) Shared pathology or trauma;
   f) Classification, if possible, by national, ethnic, religious, or racial group.
   g) Common means or manner of death;
   h) Common postmortem treatment and disposal of the remains.
8. Reconstruct the events that caused the deaths
   a) Document, "Trauma: type, location and patterning, trajectories, sequences of injuries, and potential weapons class used.
   b) Document process of differentiating perimortem trauma from (antemortem and) postmortem changes."
   c) Document the postmortem interval.
   d) Obtain reports from additional specialized analyses from other sources, "E.g., tool marks, fracture biomechanics, trace evidence, histology, and radiography."
9. Once the autopsy and skeletal examination stages have been completed, verify master list of case numbers and other logs. Using the Master Case Log, ensure that all remains exhumed have been autopsied and examined by the forensic anthropologist
   a) Ensure that each case number has completed forms for the inventory of human remains and associated artifacts, skeletal inventory and dental chart.
   b) Determine that all *in situ* and laboratory photographs have been taken of the remains, evidence obtained from the remains' associated artifacts, and all other evidence in a manner consistent with the photographic protocol.
   c) Insure that all disarticulated remains are re-associated with the body; any numbers assigned to those disarticulated remains are cancelled; and explanatory notes are placed in the Master Case Log and Photographic Log.
   d) Ensure that the location of the remains in the grave or on the surface is documented.
   e) Ensure that the chain-of-custody for the remains, associated artifacts, and all other evidence has been properly maintained.
10. Ensure that the Photographic Log includes all photographs of taken of the remains and associated artifacts, other evidence, and overview and contextual view. All other visual media must also be confirmed as being listed in the Log.
   a) Confirm that all visual media such as video tapes, site maps, aerial photographs, and other visual imaging are included in the Photographic Log.
   b) Ensure that all diagnostic images such as x-rays, CT Scans, and MRIs are inventoried in a Medical Imaging Log and properly curated.
11. Ensure that all inventories, logs, and evidence transfer forms are properly documented in appropriate listings.
   a) All tracking numbers must be reconciled to their respective logs and any duplicate numbers or gaps in numbering must be fully explained.
   b) Supporting documentation must be reconciled with various logs to be sure that there are no inconsistencies.

C. Write the Final Report.
1. Since "the forensic report is written for investigators, attorneys, judges, and other nonscientific specialists, (the report should) use language that communicates information clearly."
2. When "technical vocabulary and jargon are necessary, explain the terms."
3. Include the following sections in the report:

"(e) Sign and date the report." p. 24

- Provide a brief history of the case.
- Differentiate between first-hand and second-hand information

8. Pre-Processing Appearance of the Condition of the Evidence
   - Narrative description of condition of the evidence when received.
   - When describing bony evidence include:
     - Describe bone as intact, broken, fragmented, etc.
     - Describe if it is wet, dry, greasy, etc .., and its smell.
     - Determine if it is well-calcified and strong, demineralized and friable, or etc ..
     - Determine if the bone been sun-bleached, stained, or a combination of both.
     - Determine if it is clean or dirty and the kind of dirt present p 260
11. Include the following in the conclusion:
   - summary of the description of the individual including possible time of death, possible cause of death, and other significant findings.
   - If additional tests are needed, indicate recommendations for the tests clearly.
   - Document the disposition of the remains by stating where remains have been deposited, with whom and when. P 261
12. Sigh and date the report and initial each page if requested. p 261
13. Provide the following in the Appendix:
   - Number and initial all diagrams, drawings, maps, and photographs referenced in the report. P 261

a) Cover Page:
   (1) Case number
   (2) Name of the case
   (3) Date
   (4) Name, title and address of the recipient
   (5) All contact information for the person who signed the Final Report
b) Case Background (should include):
   (1) Provide a brief history of the case
   (2) Differentiate between first-hand and second-hand information.
c) Document the overall pre-processing appearance and condition of the evidence when received.
d) Report all procedures and results.
e) Document conclusions. Provide a summary of the time of death, cause of death, and other significant findings for each individual.
f) Document any recommendations. If additional tests are needed, provide recommendations for the needed tests that are clear and precise.
g) Document the disposition of the remains by stating to whom the remains where released, their final location, and when they were released and placed in the final location

4. Sign and Date the report, and initial each page if requested....
5. "Number and initial all diagrams, drawings, maps, and photographs that are referenced in the report."
6. Include an appendix for each of the following:
   a) Evidence Log.
   b) Master Case Log.
   c) Photographic Log.

APPENDIX E: PROTOCOL FOR THE EXCAVATION, EXHUMATION AND EXAMINATION OF MASS GRAVES AND THEIR CONTENTS

Stage I Planning and Logistical Analysis

A. Determine what approvals are needed, and obtain all required approvals from local authorities for conducting the investigation.
B. Obtain funding and develop a budget for the project (Burns 1998:75).
C. Contact any NGOs and local authorities that may be actively involved during the project. Determine the level of input to be expected from those groups, as well as the community outreach activities that they can provide during the project, such as obtaining antemortem information on the deceased (Burns 2007:287).
D. Determine the appropriate composition of the investigation team, and identify potential team members including specialists. Those team members may include forensic anthropologists, human osteologists, archaeologists, pathologists, odontologists, criminalists, photographers, skilled interviewers, and other specialists needed for unique situations (Hanson 2008:24; Burns 2007:287).
E. Identify specific staff that can participate in the project, and develop the organization structure as suggested below:
    1. "Three-tiered structure:
        a) Tier 1 – Project Director
        b) Tier 2 – Field Director
        c) Tier 3 – Core Unit of subject matter experts
    2. Field Operations Team:
        a) Field archaeologists
        b) Evidence managers
        c) Unexploded ordinance and safety officers
        d) Osteological technicians
        e) Heavy equipment operators
        f) Field photography specialists
        g) GIS mapping and survey specialists
        h) Geomorphology specialists
    3. Laboratory Team:
        a) Forensic anthropologists and forensic analysts
        b) Osteological technicians
        c) IT and database applications specialists
        d) Intake and archives specialists
        e) Cultural objects analysts
        f) Digital and photographic imaging specialists
        g) Radiologic technologists
        h) Evidence management specialists
        i) Administrative staff including logistical management staff and support staff to assist the Project Director with day-to-day management activities (Anson and Trimble 2008:55-59)"
F. Arrange an Exploratory mission and feasibility study.

Stage II Exploratory Mission and Feasibility Study

A. Visit local people and the site to evaluate the probability for success.

B. Select the sites to be evaluated and locate space for processing and storing remains, artifacts, and evidence (Burns 1998:76).
C. Complete preliminary logistical and planning activities such as:
    1. Plans for establishing laboratory and other facilities including:
        a) "Cultural Object Laboratory
        b) Digital Imaging (and Film Processing Facility)
        c) Main Office
        d) Document Stabilization Laboratory and Archives
        e) Forensic Anthropology Laboratory
        f) Pathology" and Autopsy Laboratory
        g) Medical Imaging and Radiology Facility
        h) "Archaeology and GIS Mapping (Facility)
        i) Intake (Unit)
        j) Administration and Evidence Control" Facilities (Anson and Trimble 2008:59)
    2. Locate housing and food for all staff on the team (Haglund et al. 2001:61).
    3. Determine what transportation is available locally (Burns 1998:76).
    4. Develop a needs assessment for the safety of the staff and security of the evidence.
        a) Write a safety plan.
        b) Arrange for 24-hour security for the site, evidence and staff (Haglund et al. 2001:61).
    5. "Carryout a limited excavation," or a restricted test trench when a preliminary excavation is deemed necessary (Burns 1998:76).
    6. At a large site, locate the grave.
        a) Review witness testimony and news reports.
        b) Request local witnesses to point out the location of the grave.
        c) "Determine differences in vegetation, soil, and microtopography that indicate a ground disturbance," in those cases where only the general location of the grave is known.
        d) Mark off the grave with flagging stakes (Haglund et al. 2001:64).
        e) "Conduct a preliminary analysis of the human remains found on the ground surface around the" area.
        f) "Document and wrap surface remains in plastic that are most vulnerable to disturbance (Haglund et al. 2001:59)."
        g) Confirm the presence of remains.
            (1) Use a probe, pick or screwdriver to examine soil compaction.
            (2) Use, "Side-scanning sonar, ground-penetrating radar, proton-magnetometer, or electrical resistivity," when needed.
            (3) Obtain aerial, laser scanning or satellite photographs (Haglund et al. 2001:64; UN 2010:24).
    7. Once the potential grave is located:
        a) Search the surrounding area for additional evidence.
        b) Map the site with a simple sketch with paced or tape-measured distances, "A north arrow, scale, grave location, features that can be relocated, notes on where the probes or other relevant techniques were used, vegetation and topography."
        c) Photograph the suspected site of the grave and surrounding area (Haglund et al. 2001:64).
    8. Prepare a formal report of the exploratory mission, and the logistical requirements for the primary excavation and analysis of skeletal remains (Burns 1998:76).

D. "Begin planning for the final report: (Burns 1998:258)"
   1. Design the logs needed for the project that are cross-referenced, where appropriate, by a common case number.
   2. Design a Master Case Log that tracks case numbers, investigators using each number, date assigned and brief description of the remains and level of comingling.
   3. Write a protocol that defines the removal unit and the requirements for tracking human remains.
      a) Assign an unique and unambiguous case number to the burial and to each set of remains, plot the remains on the site map, and photograph them.
      b) Require remains to be posted to a human remains inventory form that documents each set of remains or removal unit by
         (1) Posting the case number;
         (2) Inventorying artifacts found with the remains;
         (3) Estimating age, sex, and race;
         (4) Recording any trauma seen on the remains with suggested probable cause of death to be confirmed during autopsy and the skeletal examination by the pathologist and forensic anthropologist.
         (5) Define the removal unit as the complete remains of one individual and related artifact for the individual. When that is not possible, the recovery unit is either the remains of one individual or a group of individuals that are so comingled that they must be removed together with their related artifacts. In this case, one number is assigned to the group.
         (6) Assign one individual responsible for issuing case numbers and maintaining the Master Case Log at the grave site (Haglund 2002:255-257, UN 2010: 25, and).
         (7) Assign case numbers to each body from the master case log and include a brief description of the remains, associated evidence, and possible comingling noted in the log. Each item in the log should have a label that includes: "a short acronym for the site, a roman numeral for each mass grave at the site, and an Arabic number for each anatomically articulated or associated set of remains (Schmitt 2002:284)."
            (a) Number, "Anatomically disassociated remains … individually but in a way that provides associative information," if it can be determined at the grave site.
            (b) "Number the crania first and number skeletal assemblages and artifacts according to the crania they are closest to, or according to the sector in which they were found.
            (c) Create an inventory form for each label given filling them out as remains are extracted from the grave," and provide a preliminary summary of what is present in the recovery unit.
            (d) "Individually bag each individual," or removal unit, "… mark the bag with the appropriate label, and be sure there is a set of inventory forms" for each bag.
            (e) "Document each individual and associated artifact *in situ* by photographing, sketching and mapping," each recovery unit (Schmitt 2002:285).
            (f) Remove any material clearly associated with a single body by placing it in the body bag with the individual, and log it under the case number for the

body. Any evidence associated with a particular set of remains, such as eyeglasses, wallets or other personal items, should be retained with those remains until the postmortem examinations are completed.

(g) Any material not associated with a single body should be
   i) Located on the excavation map and assigned a number that corresponds with the number placed on the map;
   ii) Placed in a bag labeled with the site, date, number, and initials of the person who collected it (Haglund et al. 2001:67).

c) Define the requirements for the transportation and storage of human remains as they are transported and stored in holding, viewing and examination areas.

(1) Assign a 'tracker' to each set of remains to monitor the custody and insure that the remains are moved through all of the different examination areas to their final destination.

(a) Establish a tracking system, or use an existing one, for tracking each removal unit from the grave to release to family members for burial.

(b) Ensure that the system can cross-reference antemortem data with postmortem information, and track items that are produced as the remains are processed. For example, the system should track all photographs, charts, transfer forms, x-rays and other medical imaging, and completed inventory forms for the body, related artifacts, and skeletal elements.

(c) Program the system to produce completed forms that document the individual's identity, such as the Victim Identification Program (VIP) form that can be printed out to facilitate the tracking of the remains and the search for potential matching indicators (Florida 2010:12-13).

(2) Establish a holding area that is refrigerated and secured to receive remains after they are removed from the grave.

(3) Establish a viewing area for family members and loved ones to see the body for identification purposes.

(a) Initially, photographs of jewelry, clothing, or other items found with the remains are viewed.

(b) Next, photographs of the body, including the face and distinguishing features are viewed.

(c) Finally, the remains themselves are viewed (PAHO 2004:41-43).

(4) Establish a triage area that includes photography and initial examination. Determine the examinations that are required as the remains proceeds from intake, through all of the examination areas, to finally releasing to the family or local authorities. Complete the steps necessary for release of the body once the individual has been identified.

(a) Certify the cause and manner of death.

(b) Complete a death certificate.

(c) After consultation with the family, release identified remains to the family.

(d) Make provisions with local authorities to receive unclaimed and unidentified remains. Determine the appropriate notification to local legal authorities when remains are unidentified, and determine the appropriate action to take for final disposition of these remains (Florida 2010:19-21).

4. Design a Photographic Log and write a Photographic Protocol that specifies both standard and special shots to be taken.

a) Maintain a Photographic Log documenting all photographs to be taken and other visual media such as videos, laser scans, aerial and satellite images.
   (1) Include the following in the log: "… case number, date, name of the photographer, number of shots, description of what appears on the photo, and comments on the distance of the camera to the article photographed and its (directional) orientation (Kimmerle and Baraybar 2008:85)."
   (2) Assign one individual responsible for issuing tracking numbers and posting descriptive information concerning all photographs and other visual media to the Photographic Log.
   (3) Where any missing or duplicate numbers are present, they must be documented and clearly explained.

b) Define photographic and tracking procedures in a Photographic Protocol.
   (1) All photographs should be full-frame and contain the case number.
   (2) Take digital photographs when possible.
   (3) Photograph the scene of the gravesite and surrounding area during the first visit to the site, when returning to excavate the grave, and before the scene is altered in any way.
      (a) Photographs should be taken from eye-level.
      (b) Take a progression of overall, medium, and close-up views of the grave site.
      (c) Include photographs of landmarks in overall scene photographs to establish the location of the grave site.
      (d) Photograph all stages of the excavation and exhumation of the grave and human remains. This includes photographs of the grave site before investigators are on the scene each day and in the evening when all investigators have left the scene. If possible, also videotape the grave site at these times.
      (e) Photograph human remains and evidence at two levels and while *in situ*:
         i) Medium-distance that shows the remains and evidence within the context of the grave;
         ii) Close-up including a scale and directional reference. When using a scale, take the close-up shot without the scale first then take the close-up shot with the scale.
      (f) Include photographs of all points of entry and exit to and from the grave site (Swanson et al. 2006:84 and Saferstein 2007:40-41).
   (4) Photograph and map the remains *in situ* showing the position of the body. All photographs should include an identification number, date, scale, and an indication of magnetic north:
      (a) Photograph the entire burial and then focus on significant details so that their relationship within the context of the grave can be easily visualized.
      (b) Photograph the remains showing the position of the body and anything that seems unusual or remarkable at close range. Give careful attention to evidence of obvious trauma or pathological change that is either recent or healed, as well as tattoos or unusual clothing.
      (c) Photograph and map all associated materials (clothing, hair, coffin, artifacts, bullets, casings, etc.). Include a rough sketch of the remains as well as any associated materials (UN 2010:25; Haglund et al. 2001:66).
   (5) Photograph bodies in the laboratory.

(a) Require cameras to be mounted on tripods and placed so that the plane of the picture is parallel to body photographed in a laboratory.
(b) Take photographs of human remains with the case number appearing in each photo. The following photographs should be taken of the body:
    i) Clothed and unclothed,
    ii) Full-length of each body
    iii) Two overlapping photographs showing the upper and lower halves,
    iv) Full-frame from front view of the head,
    v) An elevated view taken with the surface of the image parallel with the body,
    vi) Detailed photographs of unique characteristics such as tattoos, scars, healed pathology, and bone fractures, all with a scale visible in the photograph.
(c) Photograph all markings, labels, and numbers on the body bag,
(d) Photograph all articles of clothing and personal effects *in situ* and in front of a non-reflective surface in the laboratory including all identifying features such as labels and identity cards.
(e) Take the following photographs of dentition:
    i) Front view with teeth closed and lips retracted
    ii) Upper jaw, and lower jaw
    iii) Lateral right and left dentition
    iv) Specific dental photographs required by the dentist such as close-up photos of specific dental treatments or anomalies that are useful for identification purposes
(f) Take photographs of specific pathologies and abnormalities as requested by the forensic pathologist or dentist (INTERPOL 2009:33; Kimmerle and Baraybar 2008:85).

(6) Take standard photographs of every skull and innominate aging surfaces depicting each surface of the specimen in accordance with the photographic protocol.
(a) Take shots in anatomical position, and observe strict guidelines for position and angles of skeletal material to the camera.
(b) Take shots of the skull that "Include eight views: frontal, left lateral, right lateral, posterior, superior, inferior, maxillary occlusal, and mandibular occlusal."
(c) Take shots, "… of the *Os coxa* (that include) the auricular surface and pubic symphyseal face for age estimation."
(d) Take special shots of all "… fractures, injuries, skeletal and dental pathology, and cultural and medical modifications. (Shots should include) special angles, close-up views, and multiple views from oblique angles."
(e) Show a label that contains the site, burial, and case number indicating where the subject is from in at least one photograph for reference per case (Kimmerle and Baraybar 2008:85).

5. Establish clear procedures or Evidence Protocol, and an Evidence Log that "tracks all physical evidence, rolls of film, memory cards or data files with photographic and other evidence on them, and that maintains the chain-of-custody (Haglund et al. 2001:63)."

a) Before the removal of any evidence, designate the custodians of evidence, and maintain an Evidence Log for all evidence collected.
b) Determine who is, "Responsible for the collection of specific types of evidence, and evidence collection priority."
c) Document the location of the grave site, who and when someone entered and exited the site, and their purpose for being on the site.
d) Document the locations where evidence not associated with human remains has been found on the site map.
e) "Account for every person who handles or examines the evidence (Swanson et al. 2006:286)."
f) Document who had access, when they had access, and the purpose for having access to the evidence.
g) Insure that skeletal remains and artifacts taken from the site are kept in a secured area.
h) Insure all evidence is placed in appropriate containers that are labeled with the site, date, number, and initials of the person who collected it, and the date and time of retrieval.
i) Enter the evidence into an Evidence Log and take it to a secured area for curation (Haglund 2001:63-64; Saferstein 2007:50-51).
j) "If possible, the evidence itself should be marked for identification…. (The) collector's initials and date of collection should be inscribed on the article (Saferstein 2007:51)."
k) Establish an evidence transfer form that documents the transfer of evidence to anyone including the investigators. All transfers must be done formally and documented with a receipt (Haglund et al. 2001:63; Saferstein 2007:50).
l) When evidence is turned over to another individual for care or analysis, delivered to a laboratory, or to local authorities for final disposition, this transfer must be recorded in notes, the Evidence Log, and other appropriate forms (Saferstein 2007:51).
m) Append receipts and or chain-of-custody forms to any resulting report to show that the material was turned over to the proper authorities (Haglund 2001:64).

6. Define the requirements for documenting field notes.
   a) Notes must be, "Court-admissible documents (with) no comments outside those directly related to the excavation.
   b) Omit any language that contains implications beyond the (team member's) expertise."
   c) Omit references to such things as clothing color (Haglund et al. 2001:63).
7. Determine the level of data processing support needed for
   a) Systems management and maintenance;
   b) Design and development of databases and systems applications;
   c) Data processing and IT hardware;
   d) Nightly backup and recovery of data onsite and to secure internet locations;
   e) Encryption of data to prevent unauthorized manipulation, theft or destruction;
   f) Security measures that restricts access to data to only those authorized;
   g) The review and approval of all standardized forms and charts to be used by the team to insure that automated forms function properly and are compatible with the software and hardware used by the team, and that hardcopy forms meet data entry requirements.

Stage III Excavation and Exhumation of the Grave

A. Delineate the grave, and conduct an initial assessment, if not already done during Stage 2.
   1. In large graves with tens of hundreds of bodies, determine the amount of overburden and the horizontal extent of the bodies before excavation begins to determine or refine the following:
      a) Excavation strategy
      b) Logistical requirement
      c) Scope of the project (Haglund 2001:64-65)
   2. Establish roles and responsibilities prior to the start of excavation and confirm that all of the personnel on the site are informed on their roles and responsibilities.
      a) Discuss the collection of evidence and the use of photographs.
      b) Determine who will be allowed onsite at the excavation, and when (Haglund et al. 2001:63).
      c) Discuss the extensive amount of data collection and the various logs and forms to be used to insure that all staff understands and follows the appropriate protocol for each step of the process (Haglund et al. 2001:63; Burns 1998:76-77).
      d) Define and discuss the requirements for field notes and documentation (Haglund et al, 2001:63).
   3. Before the soil is disturbed, thoroughly document the site.
      a) Ensure that no mines or unexploded ordinance are on the site in accordance with the Safety Plan.
      b) Document the site by, "Walking transects parallel to surface contours around the entire area, placing flagging tape at all human remains and potential evidence found on the surface (Haglund et al. 2001:60)."
      c) "Establish a datum point, then block and map the burial site using an appropriate-sized grid and standard archaeological techniques (UN 2010:25)."
      d) Create a small-scale topographic map of the site area and photographically document the evidence in the area including any related buildings, bodies of water, roads, exposed human remains, and the known and potential grave areas. All maps should include a north arrow and scale. For known graves, include the depth of the top layer of bodies, any trenches that were dug, and surface remains and evidence that were located (Haglund et al. 2001:60).
      e) Use a metal detector to locate, "Cartridge cases, bullets, and metal fixtures on clothing."
      f) Photo-document the entire process (Haglund et al. 2001:64).
   4. Confirm the presence of human remains and their condition.
      a) Hand-excavate two trenches at right angles to each other and about one meter wide across any areas where a grave may be located.
      b) Extend trenches, "To the edges of the graves and to the depth of the top of the bodies."
      c) Halt trenching when human remains are found.
      d) Document the exposed remains as to location, cover with plastic, and refill the trenches.
      e) Reassess the logistical needs of grave excavation, as well as the condition of the bodies in the grave, the specialists needed to examine the remains and any related evidence (Haglund et al. 2001:64).

B. Recovery and analysis of skeletal remains scattered on the surface.

1. "Remove the vegetation from around each skeletal assemblage until the extent of the scatter can be determined."
2. Post the remains to a human remains inventory and document each set of remains by
    a) Inventorying artifacts found with the remains;
    b) Estimating age, sex, and race;
    c) Recording any trauma seen on the remains with suggested probable cause of the death to be confirmed or refuted by autopsy and skeletal examination (Haglund et al. 2001:60).

C. Grave excavations must be conducted using appropriate protocols for case management, evidence collection, photography, and note documentation by individuals specifically assigned to conduct exhumations.
    1. Before excavation begins, ensure that all documentation is complete, and compare the present condition of the site area to the condition as mapped, photographed, and described when the site was located and/or tested.
    2. If the site was tested, relocate and empty the test trenches.
    3. If the site was not previously tested, then cross-trench, as described above.
    4. Remove the grave fill, to a depth of about 30cm over the bodies.
    5. Remove the overburden of earth, screening the dirt for associated materials. Record the level (depth) and relative co-ordinates of any such findings.
    6. Remove the overburden to the depth where the grave-outline appears in the soil and screen the dirt for associated material.
    7. Excavate trenches around the outside of the grave to a depth that is deeper than the expected bottom of the grave.
    8. Construct the trenches in a way that allows workers to stand in the trenches and work from the edges of the grave without standing on the bodies, and in a way that allows for proper drainage from the grave (Haglund et al. 2001:65).
    9. Circumscribe the body mass, when the level of the burial is located, and, when possible, open the burial to a minimum of 30cm on all sides of the body mass.
    10. Pedestal the burial by digging on all sides to the lowest level of the bodies (approximately 30cm). Also, pedestal any associated artifacts.
    11. Once the body mass is exposed, document the profile of the grave by completing drawings and by photographing it (UN 2010:25).

D. Body removal, exhumation, from the grave:
    1. Determine the depth and the horizontal extent of the grave (Haglund et al. 2001:65).
    2. Determine the removal unit.
        a) Do not attempt to allocate partial remains to a single individual at the grave site. This must be done under laboratory conditions.
        b) When conditions require, leave 'numbered' remains in the grave until additional bodies or overburden can be removed to free trapped body parts.
        c) Calculate the total number of individuals exhumed after postmortem examinations are completed, commingling of remains has been resolved, and the rearticulation of disarticulated remains has been accomplished (Haglund 2002:257).
    3. "Expose the remains … with a soft brush or whisk broom. Do not use the brush on fabric, as it may destroy fiber evidence. Examine the soil found around the skull for hair. Place this soil in a bag for laboratory study (UN 2010:25)."
    4. Prepare the bodies for exhumation by removing the soil from the top and around the sides.

a) If the bodies are clothed, gently pull the clothing tight and shake to dislodge the soil.
b) When the remains are not clothed and/or where skin is exposed, take great care to avoid damaging the skin, especially around the face and hands.
c) Package the head, facial hair, and pubic hair separately and include it with the remains to avoid loss during removal or transport (Haglund 2001:65-66).

5. Separate and remove comingled remains one at a time.
   a) Manipulate the bodies until they become exposed for removal.
   b) Keep all of the parts of the body intact while manipulating them.
   c) "Ensure that all the digits at the end of the limbs are held in place. When the hands and feet are exposed, place them inside a bag then tie the bag to the nearest long bone to ensure that the digits or phalanges do not fall off as the body dries (Haglund 2001:66)."
   d) Place a bag over the head and neck to protect the cervical vertebra from coming loose and the head from becoming detached.
   e) Free all body parts before removing the body.
   f) Lift the body onto a stretcher and assign a case number.
   g) Photograph, map and describe the body (Haglund et al. 2001:66).
6. Note the location of the crania on the site map.
   a) Plot the horizontal and vertical position of the top of the cranium.
   b) Plot the body outlines when needed (UN 2010:25).
7. Post a brief and accurate description of the body in field notes. Make field notes as brief as possible to avoid conflicts with autopsy and skeletal examination notes.
8. "Search for items such as bullets or jewelry using a metal detector, particularly in the levels immediately above and below the remains."
9. Exhume the body once all photographs, map notations, and documentation are complete.
   a) Write the, "Case number and date of removal on both ends of the body bag and on a sheet of paper placed in an external envelope on the body bag (Haglund et al. 2001:66)."
   b) Measure the individual before displacing anything.
      (1) "Measure the total length of the remains and record the terminal points of the measurement, e.g., apex to plantar surface of the calcaneous (note: This is not a stature measurement)."
      (2) Measure as much as possible before removing the body from the ground when the skeleton is so fragile that it may break when lifted (UN 2010:25-26).
   c) Remove and place the body in a body bag. If lifting is required, one excavator is placed at the head, one in the middle of the body, and one at the legs.
   d) Examine the soil underneath the body to ensure that no body parts or associated evidence are left behind once the body is placed in the bag (Haglund et al. 2001:66).
   e) Remove all elements and place them in bags or boxes, taking care to avoid damage. Number, date and initial every container (UN 2010:26).
   f) Close the body bag and move it to a storage area (Haglund et al. 2001:66).
10. Use the following methods to ensure that the bottom of the grave has been reached and all additional material has been located and removed once the grave is emptied of human remains.

a) Scrape the bottom of the grave with trowels and bag any loose clothing or other items located in this process (Haglund et al. 2001:66).
b) "Excavate and screen the level of soil immediately under the burial. A level of 'sterile' (artifact-free) soil should be located before ceasing excavation and beginning to backfill" the grave (UN 2010:26).
c) Trench the bottom of the grave 40-80cm below the last remains with two perpendicular trenches.
d) "Use a metal detector along the bottom of the grave in an attempt to locate metal fixtures on clothing that may be associated with additional human remains (Haglund et al. 2001:66)."

E. Determine the factors contributing to the dispersion of remains, such as
1. "Consumption and scattering by scavenging animals;
2. Scattering and burial through agricultural activity;
3. Disturbance by local foot traffic;
4. Down-slope movement assisted by gravity and rain water;
5. Incomplete collection and reburial by local residents (Haglund et al. 2001:60-61)."

F. Classify the burial as follows:
1. Individual or comingled
2. Isolated or adjacent
3. Primary or secondary
4. Undisturbed or disturbed (UN 2010:25)

G. Establish a forensic identification team.
1. Interview surviving family members and friends to obtain:
a) "Any original medical and/or odontological records, charts, treatment records, x-rays and mouth guards in the relative's or friend's possession;
b) Names and addresses of any medical practitioners consulted by the missing person/potential victim;
c) Names and addresses of dentists consulted by the missing person/potential victim;
d) Descriptions of jewelry and property worn by the mission person/potential victim;"
e) Recent descriptions of or photographs showing full face and/or teeth, tattoos, other significant physical characteristics, etc. of the person/potential victim;
f) Buccal smear or blood sample taken from the biological parents or children of the missing person;
g) Any object that may contain the sole-prints, fingerprints, and/or DNA of the mission person/potential victim (INTERPOL 2009:21; DOJ 2005:20).
2. Obtain a list and description of possible victims to determine if and where antemortem fingerprints can be obtained.
a) Obtain antemortem prints and document their source.
b) Establish a log of antemortem and postmortem print files.
3. Obtain and consolidate individual antemortem dental information into a single, comprehensive, antemortem dental form using a standard charting format for each individual (Justice 2005:38). That information should include the following:
a) A the victim's dental records that are on file;
b) Conventional and digital radiographs of the teeth, jaws and skull;
c) Dental casts or models;
d) Dental prosthesis or other dental devices (INTERPOL 2009:22).
4. Obtain DNA reference samples.

a) Obtain samples of DNA from a direct biological relative such as any of the following in order of preference:
   (1) "Monozygotic/identical twins …
   (2) Biological mother or biological father of the victim, and if possible, sibling
   (3) Biological children and spouse of the victim"
b) Obtain tissue and/or samples of blood withdrawn from the victim antemortem and develop a DNA profile. Such samples can be obtained from medical examinations, blood tests, and biopsies.
c) Obtain DNA samples from objects used by the deceased. Use reference samples of DNA from all other individuals that may have used or touched the same objects to eliminate their DNA from any samples obtained (INTERPOL 2009:28).

Stage IV Intake and Autopsy. This stage is beyond the scope of this thesis and is not defined.

Stage V Skeletal Analysis

A. "Record the date, location, starting and finishing times of the skeletal analysis, and the names of all staff present during the analysis."
B. Radiograph all skeletal elements before any further cleaning.
   1. "Obtain bite-wing, apical and panoramic dental x-rays, if possible (UN 2010:26)."
   2. Establish a medical imaging log and note all x-rays, CT scans, and MRIs taken of human remains.
      a) Record date and name of person who made the image.
      b) Document the case number of the victim.
      c) Document the anatomical part imaged and the views taken.
   3. X-ray the entire skeleton. Give special attention to fractures, developmental anomalies and evidence of surgical procedures.
   4. Take x-rays of the frontal sinuses to aid in the identification of the individual (UN 2010:26).
C. Retain two lumbar vertebrae in their original state.
   1. "Rinse the rest of the bones clean but do not soak or scrub them.
   2. Allow the bones to air-dry (UN 2010:26)."
D. If there is small-scale comingling of remains, maintain provenience information collected during recovery and during all of the following steps.
   1. Conjoin fragmentary remains as much as possible.
   2. Sort bones by element type, side, and size.
   3. Group elements by age criteria.
   4. Maintain articulated elements as a unit.
   5. Pair-match visually by associating, "Homologous (i.e., left-right) elements based on similarities in morphology (Adams and Byrd 2005:64)."
   6. Examine points of articulation by comparing bone element to determine if the, "Bone forms a congruent joint or juncture with another element (Adams and Byrd 2005:65)."
   7. Eliminate skeletal elements by comparing duplicated elements to specific individuals to eliminate those that clearly are not consistent with the morphology of the individual.
   8. Conduct osteometric comparisons using statistical models to, "Compare size and shape relationships between elements" to determine consistency (Adams and Byrd 2005:66).

9. Examine the taphonomy of elements to determine consistency.
    a) Use similarities and differences in preservation (e.g., color, staining, etc.).
    b) Use trauma by locating perimortem fractures that could be used to associate several bones (Adams and Byrd 2005:67-68).
10. General requirements:
    a) Use sorting procedures in conjunction with each other, not in isolation.
    b) Use systematic procedures and document them (Adams and Byrd 2005:68-69.

E. If there is large-scale comingling of remains with disarticulation of body elements complete the following steps.
1. Create a detailed inventory listing bones by type and side.
2. Determine age at death, sex, general bone size, and other applicable information.
3. Note observations on general morphology of bone fragments (Ubelaker 2002:332).
4. "Assemble the remains into likely individuals, (considering) bone type, side, and age at death, (as well as) overall bone size and shape" when there are a relatively few individuals.
5. "Observe the morphological relationship of bones that articulate and determine if multiple individuals are represented" (positive articulation).
6. Compare morphology to determine if age at death, sex, and ancestry are consistent.
7. Complete specific analytical techniques when needed, such as:
    a) "Ultraviolet light analysis of florescence
    b) Radiographic approaches
    c) Blood-type analysis
    d) Neutron activation analysis"
8. Use, "Sex, robusticity, age at death, bone color, surface preservation and bone density," to determine consistency.
9. Articulate bones to determine if they are from the same individual (Ubelaker 2002:333).
10. "Observe epiphyseal unions."
11. Determine bone weight relationships between bone weight and body weight (Ubelaker 2002:334).
12. Consider taphonomic factors such as human behavior, mixed preservation of bone type, animal chewing, excavation factors, and curation practices (Ubelaker 2002:340).
13. Determine the minimum number of individuals (MNI).
    a) Use computer applications to log, track, and analyze bone assemblage.
    b) Use, "Sorting procedures that considers bone counts along with the size and age of" the individual.
    c) Use the Lincoln/Peterson Index that "involves estimating the total population size by multiplying the number of bones of one side by the number of bones of the opposite side and divide the product by the number of matched pairs of that bone (Ubelaker 2002:332-346)."

F. "Lay out the entire skeleton in a systematic way, (such as, in anatomical order).
1. Distinguish left from right.
2. Inventory every bone and record on a skeletal chart.
3. Inventory the teeth and record on a dental chart. Note broken, carious, restored, and missing teeth."

4. Number every element with indelible ink before any other work is done, when more than one individual is to be analyzed, and especially if there is any chance that comparisons will be made between individuals (UN 2010:26).

G. "Reconstruct fractured bones so that the fracture type, pattern, and overall distribution of wounds are evident (Kimmerle and Baraybar)."
   1. For cranial bones, reconstruct in two units, facial and vault, then unite the two segments.
   2. Examine fracture patterns to determine information concerning the type, mechanism and number of injuries.
   3. Reconstruct mandible and postcranial elements. Examine the outer cortex of the remaining bone to determine wound characteristics that identify the mechanism of injury.
   4. Reconstruct the largest fragments first, followed by smaller fragments that have been combined in units then fit the units together.
   5. Recover fragments that may be embedded in clothing or that have become disarticulated following decomposition of the soft tissue (Kimmerle and Baraybar 2008:22-26).

H. Conduct an anthroposcopic examination of the skeletal injuries.
   1. "Inventory all affected bones.
   2. List the location of specific affected areas on bone, including the side, region, and aspect.
   3. Provide a description of:
      a) The number and types of fractures or defects,
      b) The presence of any abnormal bone shape, growth, or loss.
      c) The severity, state, and distribution of abnormal bone changes.
   4. (Document) any radiographic evidence of fractures or weaponry.
   5. (Analyze) clothing (defects, tears, burning, or weaponry).
   6. (Estimate) the timing of fractures based on:
      a) Presence of bone reaction (remodeling);
      b) Color of fractured edges;
      c) Shape of defect of cut mark;
      d) Size of affected area, defect, or cut mark;
      e) Appearance of tissue banding;
      f) Location of affected area;
      g) Number of fractures or cut marks.
   7. (Classify) skeletal pathology by disease category (i.e., infections, nutritional) and the specific mechanism (i.e., periostits versus osteomylitis or scurvy versus anemia).
   8. (Ascertain) the mechanism of injury, class of weapon, distance of fire or blast, and victim's position relevant to the direction of the force in relation to the point of impact (Kimmerle and Baraybar 2008:31)."
   9. "Record the condition of the remains, e.g., fully intact and solid, eroding and friable, charred or cremated (UN 2010:26)."
   10. "Rule out normal skeletal variation and skeletal pathology (Kimmerle and Baraybar 2008:32)."
   11. "Distinguish injuries resulting from therapeutic measures from those unrelated to medical treatment. Photograph all injuries.
      a) Examine the hyoid bone for cracks or breaks.
      b) Examine the thyroid cartilage for damage.

c) (Examine each bone) for evidence of contact with metal. The superior or inferior edges of the ribs require particular scrutiny (UN 2010:26-27)."

I. Classify fractures and mechanisms of injury (i.e., general bone and fracture classifications).
   1. Classify fractures of flat bones such as, "Cranial vault, scapula, ilium, ribs as: depressed, radiating, linear, comminuted, blowout, or basilar."
   2. Classify fractures of long/short bones such as, "Humerus, radius, ulna, femur, tibia, fibula, metacarpals, metatarsals as:
      a) Extra-articular – linear, comminuted, segmental,
      b) Intra-articular – linear, comminuted, segmental."
   3. Classify fractures of irregular bones such as, "Sacrum, vertebrae, facial bones as linear, comminuted, segmental, radiating, linear,… depressed, or crushing (Kimmerle and Baraybar 2008:51)."

J. Estimate the time of trauma based on gross inspection.
   1. For antemortem fractures, determine the level of healing such as remodeling or presence of characteristics associated with infection.
   2. For perimortem fractures determine:
      a) If there are any signs of healing that has taken place;
      b) If the bone was wet or still encased in muscle, periostium, skin, or other soft tissue;
      c) Examine the edges of the fractures to see if they are uneven and/or irregular, hoop fractures, radiating or concentric fracture lines, and angled or jagged fracture edges.
   3. Identify postmortem fractures that occur during or following the decomposition process.
      a) Determine if fracture occurred before the bone became dry.
      b) Determine if fractures have straight and sharp edges with no evidence of bending.
      c) Determine if there is a difference in color between the fracture site and the rest of the bone.
      d) Determine if there is an absence of fractures such radiating fractures.
      e) Determine if there are scavenger marks.
      f) Determine if fractures are related to the use of heavy equipment such as bulldozers of backhoes.
      g) Rule out injury from the exhumation process.
   4. Determine if and when the bone was burned (i.e., perimortem or postmortem) (Kimmerle and Baraybar 2008:54-65).

K. Use radiography and/or three-dimensional imaging to "locate physical evidence of weaponry such as lead wipe from a projectile or shrapnel fragments (Kimmerle and Baraybar 2008:71)."
   1. Locate any live munitions that may be found in cloths.
   2. Delineate fracture patterns, number of injuries, and sequence of injuries.
   3. Identify antemortem injuries and skeletal pathology.
   4. Determine the amount of epiphyseal union.
   5. Compare to antemortem radiographs to identify the individual.
   6. Use three dimensional imaging from CT scans, MRI, or 3D scanners to illustrate the trajectory of an injury or projectile (Kimmerle and Baraybar 2008:71-79).

L. Examine the clothing.

1. Document the strategy for handling clothing and guidelines to recover all associated evidence, preserve the clothing artifacts, and curate the items for future reference in a protocol for postmortem examinations as provided below.
2. Determine the type, amount, and ownership by the individual wearing the clothing at the time of burial, and the contents within pockets or folds of the clothing.
3. X-ray clothing separately from the body.
4. Inspect and photograph clothing prior to and after washing.
5. Review and document all defects indicative of injuries, postmortem burning, and taphonomic changes.
6. Document textile patterns and colors to facilitate the identification of individuals, village of residency, and ethnic identity (Kimmerle and Baraybar 2008:80-85).

M. Determine if there was a blast injury and the type of blast injury.
1. Identify explosive injuries related to grenades by noting the pattern of injury.
2. Identify the differential patterns of explosive shrapnel from gunfire projectile trauma by noting:
   a) Size
   b) Shape
   c) Presence or absence of entrance and exit wounds
   d) Tendency of the projectile to imbed in bone
   e) Number of wounds
   f) Distribution of wounds (Kimmerle and Baraybar 2008:11 and 231)"

N. Determine if the injury was from blunt force trauma.
1. Record the following to document skeletal wounds:
   a) "Location
   b) Length
   c) Width
   d) Shape
   e) Fracture type
   f) Fracture patterns of the wounds (Kimmerle and Baraybar 2008:152)
2. Take an impression of the suspected weapon and compare to skeletal defects to determine if the characteristics of the weapon matches the injury on the bone.
3. Establish the number and sequence of injuries.
   a) Determine the minimum number of injuries.
   b) Determine the sequence of injuries by analyzing fracture lines and consider when fracture lines are arrested by previous fractures.
   c) "Describe biomechanical properties of skeletal wounds such as in-bending … at the point of impact, and out-bending … along the parameter of this area (Kimmerle and Baraybar 2008:155-157)."

O. Identify skeletal evidence of torture by region of the body.
1. Document the, "Necessary evidence to support the claims of torture;
   a) Timing of injuries;
   b) Pathological findings consistent with detainment …;
   c) Corroboration of physical findings with multiple forms of evidence (Kimmerle and Baraybar 2008:203)."
2. Attribute skeletal injuries to torture by documenting:
   a) "Mechanisms of injury;
   b) Location, type, distribution/pattern, and recurrence of wounds;
   c) Estimation of whether or not wounds present contributed to death;

d) Approximate timing of injuries;
e) Reconstruction of the circumstances surrounding injuries;
f) Ruling out accidents and estimating the manner of injuries as intentional, interpersonal violence (Kimmerle and Baraybar 2008:204)."

P. Identify sharp force trauma by documenting
1. General information such as:
a) "The number of injuries per individual;
b) The cause and manner of death;
c) Number of people killed and proportion that sustained specific injuries;
d) Nature of injuries that are fatal;
e) Prevalence of body regions targeted in the attack;
f) Demographic patterns of victims;
g) Possible evidence of torture (Kimmerle and Baraybar 2008:264)."
2. Specific information concerning the sharp force injuries:
a) "Shape of cut marks, whether linear or irregular;
b) Cross section of cut mark – V, semi-V. or U shape;
c) Characteristics of walls of the defect, smooth or serrated;
d) Characteristics of 'floors' of the defects, smooth or serrated;
e) Depth of the feature, particularly whether consistent throughout the cut mark;
f) Presence of hilt (more common in knife wounds);
g) Presence and shape of defect;
h) Presence of associated fractures with defect;
i) Presence of crushing associated with cut mark of the defect (Kimmerle and Baraybar 2008:268)."

Q. Identify gunfire injuries.
1. Reconstruct fragmentary skeletal tissue.
2. Based on morphology of skeletal defects and fractures, interpret the injury as to:
a) "Direction of fire
b) Bullet trajectory
c) Number of wounds
d) Shot sequence
e) Projectile characteristics
f) Class of weapon (Kimmerle and Baraybar 2008:325),"
1. Medium velocity rounds – handguns – minimal damage;
2. High velocity rounds – rifles - wounds and fractures are slightly larger (Kimmerle and Baraybar 2008:327).
3. Differentiate entry from exit wounds by examining the direction of beveling.
4. Determine the classification of the entry wound:
a) "Circular
b) Keyhole
c) Gutter
d) Tangential
e) Eccentric
f) Irregular
g) Sideways
h) Tandem
i) Double tap (Kimmerle and Baraybar 2008:329)."

5. Determine if the wounds are antemortem, perimortem or postmortem (Kimmerle and Baraybar 2008:53).
6. Estimate the range of fire
    a) Contact or close range;
    b) Intermediate range;
    c) Distant range;
    d) For shotgun blasts, distance estimates based on size and severity of defects and spread or diameter of pellet injuries (Kimmerle and Baraybar 2008:372-377).
7. Estimate the number of shooters, order of shots, and pattern and shape of defects (Kimmerle and Baraybar 2008:384).

R. "If the remains are to be reburied before obtaining an identification, retain the following samples for future analysis:
1. A mid-shaft cross-section from either femur, 2cm or more in height;
2. A mid-shaft cross-section from either fibula, 2cm or more in height;
3. A 4cm section from the sternal end of a rib, sixth, if possible;
4. A tooth, preferably a mandibular incisor, that was vital at the time of death;
5. Several molar teeth for possible later deoxyribonucleic acid (DNA) fingerprinting for identification;
6. A cast of the skull for possible facial reconstruction;
7. Record the samples saved that have been labeled with the identification number, and date and name of the person who collected the sample (UN 2010:27)."

Stage VI Conclusion, Review and Final Report

A. Once all analysis is completed and the exhumation is concluded, identify as many individuals as possible, if not already done.
1. "Document where remains were found and, (when possible), where death occurred.
2. Control and document how the remains were transported from the scene," where they were buried, and how they were transported to the morgue (Justice 2005:16).
3. Ensure that all remains are photographed in a way consistent with the photographic protocol.
4. Document the presence or absence of clothing and any associated artifacts including a description of their physical relationship to the remains *in situ*.
5. Document the general physical characteristics including:
    a) Completeness
    b) Level of fragmentation
    c) Evidence of damage from burning
    d) Level of decomposition
    e) Commingling with other remains
6. Separate any commingled remains and determine the minimum number of individuals present (Justice 2005:16 and 23).
7. "Document the presence or absence of specific marks, scars, tattoos, and external prostheses (Justice 2005:16)."
8. Take fingerprints, handprints, toe-prints and footprints when possible.
9. Determine the age, sex, stature, race and other distinguishing characteristics of the remains.
10. Determine the need for analysis by other specialists such as forensic odontologists or radiologists.

11. Identify any antemortem pathological conditions such as healed fractures, implants, or unique abnormalities.
12. Identify any perimortem and postmortem trauma.
13. Obtain DNA and dental evidence for evaluation by others (Justice 2005:16-18 and 24).
14. Document findings.
15. Collect associated physical evidence such as
    a) Trace evidence
    b) Valuables including money and jewelry
    c) Clothing
    d) DNA evidence from these articles
16. Establish, "The identity of the deceased using the following methods:
    a) Presumptive
        (1) Direct visual or photographic identification of the deceased if visually recognizable;
        (2) Personal effects (e.g., wallets, jewelry), circumstances, physical characteristics, tattoos, and anthropological data.
    b) Confirmatory
        (1) Fingerprints (including handprints, toe prints, and footprints if indicated)
        (2) Odontology
        (3) Radiology …
        (4) DNA analysis (Justice 2005:17-18)"
        (5) Skeletal analysis
        (6) Comparison with antemortem medical records and photographs of the individual when living (Haglund and Sorg 2002:20).
17. "In cases where the body cannot be identified, the exhumed remains or other evidence should be preserved for a reasonable time. A repository should be established to hold the bodies for 5-10 years in case they can be identified at a later time (UN 2010:27)."

B. During Stage 1, begin planning the final report and insure the information needed for the final report is well documented.
    1. Provide, "Background information such as:
        a) Name and person responsible for the report (and contact information)
        b) Name of the agency or party to receive the report"
    2. Document the following, "Significant dates:
        a) Date of initial contact
        b) Dates of recovery
        c) Dates of entry into official records for each piece of evidence
        d) Dates of exhumations
        e) Date of report (Burns 2007:58)"
    3. Chain-of-Custody requirements
        a) Document who retrieved the evidence, and date and name of every person who handled the evidence in an Evidence Log.
        b) Include the Evidence Log in the Final Report as an appendix (Burns 2007:259).
    4. Report on the taphonomy present in the grave.
        a) "Document the microenvironment at (the grave)
        b) Document the remains *in situ* …

c) Describe conditions, including an assessment of taphonomic modifications due to transport, burial, decomposition, scavenging, weathering (Haglund and Sorg 2002:20)." Also, estimate the postmortem interval (PMI).

5. Document the recovery process and include in the Final Report, as an appendix. Also incorporate reports from other disciplines such as entomology, botany, and geology.
6. Inventory remains and include inventory sheets and charts as an appendix.
7. Develop skeletal population features as follows:
   a) The minimum number of individuals (MNI) located at the grave site;
   b) Average age and/or range of ages;
   c) Sex ratio between men and women;
   d) Shared inherited or acquired physical traits and anomalies;
   e) Shared pathology or trauma;
   f) Classification, if possible, by national, ethnic, religious, or racial group;
   g) Common means or manner of death;
   h) Common postmortem treatment and disposal of the remains (Haglund and Sorg 2002:20; Burns 2007:260).
8. Reconstruct the events that cause the deaths.
   a) Document, "Trauma type, location and patterning, trajectories, and sequences of injuries, and potential weapons class used.
   b) Document the process of differentiating perimortem trauma from (antemortem and) postmortem changes.
   c) Document the postmortem interval.
   d) Obtain reports from additional specialized analyses from other sources, "E.g., tool marks, fracture biomechanics, trace evidence, histology, and radiography (Haglund and Sorg 2002:20; Burns 2007:260-261)."
9. Once the autopsy and skeletal examination stages have been completed, verify the master list of case numbers and other logs. Using the Master Case Log, ensure that all remains exhumed have been autopsied and examined by the forensic anthropologist.
   a) Ensure that each case number has completed forms for the inventory of human remains and associated artifacts, skeletal inventory, and dental chart.
   b) Determine that all *in situ* and laboratory photographs have been taken of the remains, evidence obtained from the remains' associated artifacts, and all other evidence in a manner consistent with the photographic protocol.
   c) Insure that all disarticulated remains are re-associated with the body; any numbers assigned to those disarticulated remains are cancelled; and explanatory notes are placed in the Master Case Log and Photographic Log.
   d) Ensure that the location of the remains in the grave or on the surface is completely documented.
   e) Ensure that the chain-of-custody for the remains, associated artifacts, and all other evidence has been properly maintained (Burns 2007:260).
10. Ensure that the Photographic Log includes all photographs taken of the remains, associated artifacts, other evidence, and overview and contextual views. All other visual media must also be confirmed as being listed in the Log (Haglund and Sorg 2002:256-257).
    a) Confirm that all visual media such as video tapes, site maps, aerial photographs, and other visual imaging are included in the Photographic Log.

b) Ensure that all diagnostic images such as x-rays, CT scans, and MRIs are inventoried in a Medical Imaging Log and properly curated.

11. Ensure that all inventories, logs, and evidence transfer forms are properly documented in appropriate listings.
    a) All tracking numbers must be reconciled to their respective logs and any duplicate numbers or gaps in numbering must be fully explained.
    b) Supporting documentation must be reconciled with various logs to be sure that there are no inconsistencies.

C. Write the Final Report.
1. Since "the forensic report is written for investigators, attorneys, judges, and other nonscientific specialists, (the report should) use language that communicates information clearly."
2. When "technical vocabulary and jargon are necessary, explain the terms (Burns 2007:259)."
3. Include the following sections in the Final Report:
    a) Cover Page:
        (1) Case number
        (2) Name of the case
        (3) Date
        (4) Name, title and address of the recipient
        (5) All contact information for the person who signed the Final Report
    b) Case Background:
        (1) Provide a brief history of the case.
        (2) Differentiate between first-hand and second-hand information.
    c) Document the overall pre-processing appearance and condition of the evidence when received (Burns 2007:259-260).
    d) Report of all procedures and results (UN 2010:27).
    e) Document all conclusions. Provide a summary of the time of death, cause of death and other significant findings for each individual.
    f) Document any recommendations. If additional tests are needed, provide recommendations for the needed tests that are clear and precise.
    g) Document the disposition of the remains by stating to whom the remains were released, their final location, and when they were released and placed in their final location.
4. Sign and Date the report, and initial each page if requested.
5. "Number and initial all diagrams, drawings, maps, and photographs that are referenced in the report (Burns 2007:2002261)."
6. Include an appendix for each of the following:
    a) Evidence Log
    b) Master Case Log
    c) Photographic Log

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BIOGRAPHICAL SKETCH

Jean M. Morgan is a retired Federal Government manager and senior executive with over 26 years of extensive experience in managing accounting operations and major projects for the US Department of Energy. She has a Bachelor of Science degree in Business and Management from the University of Maryland. During her career, she was required to develop complex operating protocols and user requirements documentation that often included narratives addressing procedures and flowcharts to demonstrate the interconnectedness of operations. As a result of streamlining the annual process of closing the financial records for the Department, Ms. Morgan was recognized by Vice President Al Gore with a Hammer Award. This award was given to federal employees that successfully designed, initiated, and completed projects that streamlined major processes resulting in the more efficient operation of the Government and significant reductions in cost. Also, she led a taskforce that successfully preparing the Department's first audited financial statement. Key to Ms. Morgan's success during this project was the development of an extensive database that documented the processes that needed to be completed and the timeline for the project. The database needed to relate objectives for over seventy offices within the Department to the primary objective of producing the financial statements on-time and with a clean opinion from the financial auditors.

When Ms. Morgan retired from Federal service, she returned to school to pursue her interest in anthropology. She has a Bachelor of Arts degree from the University of South Florida. She has applied her management experience and skills obtained from developing complex procedure and databases to the development of the Protocol for the Excavation, Exhumation, and Analysis of Mass Graves and Their Contents.