Exhuming Conflict:


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TITLE OF THESIS/PROJECT/EXTENDED ESSAY

Exhuming Conflict: Some Recommendations for the Creation of a Series of Experimental Mass Grave and Mass Grave-Related Test Sites

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Abstract

This thesis examines how best to envisage a series of experimental models for the replication of mass grave and mass grave-related sites. It arises from the realization that the need for forensic bio-archaeologists to recover and interpret the physical evidence and context of the mass gravesites is increasing to prosecute perpetrators of war crimes, crimes against humanity and genocide. I discuss the historical background to forensic investigations of mass graves in relation to the simultaneous development of international humanitarian law, including case studies of regional conflicts from 1915 to present.

Following this, the nature of the mass grave as a unique archaeological phenomenon is evaluated. A new definition of “mass grave” is put forth and a typology developed to express archaeological differences among types of mass graves, including execution sites (grave or surface), surface deposition sites (temporary or permanent) and inhumation sites (primary, secondary or looted).

Next, the creation of a series of experimental mass gravesites is addressed in terms of their ability to improve the field methods employed and increase the scientific and legal validity of forensic bio-archaeological input for the International Criminal Courts. In order to organize deficient areas of knowledge in the discipline several classes of evidence are discussed in terms of the primary research questions currently affecting the study of mass gravesites.

Finally, a research design is formulated for each type of mass gravesite, with emphasis placed on the location, staff, key facilities and equipment, time and model required for the experiments. It will be necessary to replicate a similar experience upon the subjects as that of victims of war crimes, crimes against humanity or genocide so as to accurately simulate the various taphonomic processes affecting mass grave and mass grave-related sites. These experiments should provide the academic community with standards for percentage of information lost due to site formation processes. The overarching goal of the thesis, however, is to demonstrate that the creation of a series of experimental mass grave and mass grave-related sites is possible, and that they will prove worthwhile by increasing the shared body of knowledge employed by forensic bio-archaeologists.
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List of Terms

**Forensic bio-archaeology** - a discipline that combines the knowledge bases from both the biological sciences, including human osteology, botany, entomology and zoology, and archaeology, including site reconnaissance, excavation and taphonomy (Skinner et al. 2003).

**Crimes Against Peace** - namely planning, preparation, initiation or waging of a war of aggression or a war in violation of international treaties, agreements or assurances or participation in a common plan of conspiracy for the accomplishment of any of the foregoing (Jackson 1971:23).

**War crimes** - namely, violations of the laws or customs of war. Such violations shall include, but not be limited to, murder, ill-treatment or deportation to slave labor or for any other purpose of civilian population of or in occupied territory, murder or ill-treatment of prisoners of war or persons on the seas, killing of hostages, plunder of public or private property, wanton destruction of cities, towns or villages, or devastation not justified by military necessity (Jackson 1971:23).

**Crimes against humanity** - namely, murder, extermination, enslavement, deportation and other inhumane acts committed against any civilian population, before or during the war; or persecutions on political, racial or religious grounds in execution of or in connection with any crime within the jurisdiction of the Tribunal, whether or not in violation of domestic law of the country where perpetrated (Jackson 1971:23).

**Genocide** - the 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 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 1973:79).

**Mass grave** - any single burial unit containing two or more tightly packed, yet indiscriminately placed bodies representing victims who have died as a result of extra-judicial, summary or arbitrary executions, not including individuals who have died in combat or armed confrontations.

**Execution site** - a surface site or mass grave feature wherein individuals are executed as part of extra-judicial, summary or arbitrary execution is deposited.

**Surface deposition site** - a permanent or temporary location where a body mass resulting from an extra-judicial, summary or arbitrary execution is deposited.

**Inhumation site** - a grave or similar feature where two or more individuals who have died as a result of extra-judicial, summary or arbitrary executions have been interred.
List of Abbreviations


ICTR - International Criminal Tribunal for the Prosecution of Persons Responsible for Genocide and Other Serious Violations of International Humanitarian Law Committed in the Territory of Rwanda and Rwandan Citizens Responsible for Genocide and Other Such Violations Committed in the Territory of Neighboring States, Between 1 January 1994 and 31 December 1994.

ICC - International Criminal Court

EAAF - Argentine Forensic Anthropology Team

UN - United Nations

SES - Surface execution site

GES - Grave execution site

TDS - Temporary surface deposition site

PDS - Permanent surface deposition site

PIS - Primary inhumation site

SIS - Secondary inhumation site

LIS - Looted inhumation site

MIS - Multiple interment site
1.0 Introduction

Due to the recent increase of occurrences of war crimes, crimes against humanity and genocide, the exhumation of mass graves represents an area of great concern and interest on the part of the international forensic community. The last decade has seen extreme growth in the numbers of professionals and lay people involved in investigating mass gravesites. Perhaps the most immediate of these is the emerging discipline of "forensic bio-archaeology" (Skinner et al. 2003: 81), which is dedicated to providing mass grave exhumations with a thorough understanding of both the physical anthropological techniques for interpreting hard tissues and the archaeological field techniques necessary to recover the archaeological context of the mass grave as a distinct archaeological phenomenon.

That said, there are several problems currently emerging from the community of internationally active forensic bio-archaeologists. The first concerns the issue of publication. As most professionals are not associated with an educational institution, there is little motivation to publish the results of a given field season, even in the most cursory manner. This is further compounded by the politically sensitive nature of the work they are performing, which often requires total confidentiality until the appropriate legal venues have been informed of the site's relevance, if any, to ongoing cases. Likewise, few students are being formally trained in the discipline. These factors have resulted in several major gaps in the literature, affecting everything from the best methods of mass gravesite reconnaissance per site type to the recovery and preservation of paper documents recovered from within the interred body mass.

The second problem concerns the lack of internationally standardized field protocols that forensic bio-archaeologists should be applying in the field to ensure that the methods being used are valid from the perspective of both the discipline and the international legal community. At present, The United Nations "Manual on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Executions" (1996) is the standard to which mass grave exhumations are held (Haglund 2002). This is extremely idealized, however, and so the international community of forensic scientists is currently formulating a series of protocols for the exhumation of mass gravesites (INFORCE 2003). Nonetheless, it must be acknowledged that the exhumation of mass graves for legal purposes has been taking place for over fifty years. The fact that protocols are only emerging now suggests that perhaps the validity of the methods and evidence has been of lesser importance historically than simply going through the motions of subjecting alleged perpetrators to a trial.
The third problem concerns the lack of scientific research being undertaken by forensic bio-archaeologists. Internationally active forensic bio-archaeologists are functioning within a medicolegal paradigm rather than traditional anthropological paradigms, meaning that greater emphasis should be placed on testing our methods and interpretations with scientific rigor (Connor and Scott 2002). This is primarily due to the fact while traditional anthropology focuses on evidence that is representative of broad patterns of human behavior, forensic bio-archaeology requires the precise reconstruction of a single event or series of events to be applied to international humanitarian law (Connor and Scott 2002). Within the discipline, there is a steadily growing list of research questions that have yet to be addressed and only a few rising students in the discipline willing to focus on them in relation to mass grave exhumations. This thesis identifies some of these primary research questions with particular emphasis placed on their consideration in terms of a series of experimental mass grave and mass grave-related sites.

In exploring these research questions, it becomes clear that the best means of dealing with them is to encourage scientific research and publication. Thus this thesis represents one effort towards performing a theoretical archaeological analysis of the various types of mass grave and mass grave-related sites so as to create an experimental model to test archaeological field techniques and advance scientific research into the site formation processes affecting their decomposition. The primary goal is to determine whether the creation of a series of mass grave and mass grave-related sites is truly relevant to the emerging discipline of forensic bio-archaeology.
2.0 The Historical Development of Mass Grave Exhumations Within International Criminal Law

The exhumation of mass graves for the purpose of holding perpetrators accountable for war crimes, crimes against humanity and genocide is a relatively recent development in international criminal law, in spite of a long international history of such human rights abuses. To a certain extent, this late development is explained by the questionable belief that human rights abuses were simply not an issue prior to World War II. Upon examining the history of international criminal law, however, it becomes clear that not only do war crimes and crimes against humanity have a long and well-documented past, but also that international criminal law has been making efforts towards addressing them in a legal arena for several hundred years.

2.1 The Origins of International Criminal Law

Historically, the philosophical concepts behind international criminal law date back to around 2100 BCE, with the rise of early Mesopotamian society (Shaw 1986). At this time, the primary function of international law was to (a) ritually demonstrate respect for each leader and their territory, (b) terminate past aggression or (c) form strategic alliances against a common enemy. In response to violations of international law, punishment was not formalized by the government in power, but rather imposed at a spiritual level, such that the punishment became the responsibility of a supernatural deity.

With the spread of Christianity in the Middle Ages, civilization observed the first mention of *jus gentium* or the “laws relating to war” according to two main, general principles: the principle of necessity and the principle of humanity (Neier 1998). Prior to the 19th Century, the use of bilateral treaties and national ordinances as determined by kings and their commanders-in-chief were the primary means of stabilizing international borders and creating strategic alliances (Meron 1998). The primary goal of such ordinances was to prevent abuses committed by soldiers both abroad and within their own nations, particularly with regards to the Holy Roman Church and its neutral civilian subjects (Meron 1998). In a definite departure from earlier legal tradition, courts were created within various European nations in order to punish perpetrators for their crimes. The first international trial took place during this period. In 1474, Peter van Hagenback was brought before the judges of the Holy Roman Empire for “violating the laws of God and man” when he allowed his troops to rape, murder and pillage citizens during times of war (Neier 1998). Van Hagenback was convicted by a panel of 27 judges.
from throughout the Holy Roman Empire and sentenced to death (Neier 1998). It should be noted, however, that in spite of this advance in international criminal law, concurrent episodes such as the crusades produced some of the worst war crimes and crimes against humanity witnessed to that point in history. These events were beyond the scope of international criminal law at this time, primarily because Muslims, Jews, and other religious groups targeted by crusaders were judged to be heathens unworthy of God's protection (Meron 1998).

It wasn't until Hugo Grotius published Du Jure Belli ac Pacis (Concerning the Laws of War and Peace) in 1635 that the international community began to advance the idea of creating a series of principles to govern the behavior of nations towards each other, regardless of the religious or ethnic identity of their citizens. Of particular importance was the fact that it represented the first discussion of humanitarian intervention (Grotius 1962). He imagined scenarios in which a state might have the right to wage war, such as in aiding an allied state or in defense of a national border (Grotius 1962; Meron 1998). Due to this contribution, Hugo Grotius is acknowledged to be the "Father of International Law" though the ideas presented as a result of his work have been altered significantly by more recent studies into the same issues.

Further significant contribution did not arise until the formation of the International Committee of the Red Cross in 1863 when the Geneva Society for Public Welfare held a special meeting in order to create an International Committee for Relief to the Wounded (Geneva Convention 2002). The purpose of this convention was to discuss the possibility of making warfare "more humane" (Geneva Convention 2002). The "Convention for the Amelioration of the Condition of the Wounded in Armies in the Field" was adopted on August 22, 1864 and provided neutrality for medical workers and other individuals who aided the wounded and sick of any nationality during times of conflict (Geneva Convention 2002; Neier 1998). It also formed policy for aiding the return of prisoners of war to their home country once having become incapable of further military service (Geneva Convention 2002).

The Geneva Conventions of 1949 would prove far more important from the perspective of the legal community, however. At this time, the existing Geneva Convention was elaborated upon and three new conventions adopted as a result of war crimes, crimes against humanity and genocides committed during World War II. As of 1949, therefore, the Geneva Conventions included:

1. The Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (August 22, 1864);
2. The Geneva Convention for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of Armed Forces at Sea (August 12, 1949);

3. The Geneva Convention relative to the Treatment of Prisoners of War (August 12, 1949);


The 1949 Geneva Conventions were updated once again in 1977 to include two protocols, including:

1. Protocol I relating to the Protection of Victims of International Armed Conflicts (June 8, 1977);

2. Protocol II relating to the Protection of Victims of Non-International Armed Conflicts (June 8, 1977) (Geneva Conventions 2002).

Following the Geneva Convention of 1864, the first Hague Convention in 1899 would prove to be the next major step towards establishing principles of customary law (Dinstein 1984; Neier 1998; Tusa and Tusa 1983). The work of Francis Lieber, a German born professor of law employed at Columbia University, was key in this advance. Lieber drafted a code entitled "Instructions for the Government of Armies of the United States in the Field" in 1863 consisting of 159 articles dedicated towards ensuring the humanity of the American army during times of war (Meron 1998; Neier 1998). Specifically, it disallowed such acts as discriminating against the enemy for religious, ethnic or racial reasons, and retaliation in any instance save that of protective retribution (Meron 1998). Perhaps most important, however, was the statement that all modern wars should be dedicated to renewing a state of peace (Meron 1998; Neier 1998).

In spite of the advances experienced to this point, however, the development of international criminal law came to a standstill following the first Hague Convention in 1899. A general assumption remained active, whereby the nations in which international crimes had been committed would take responsibility for summoning, trying and punishing those who were deemed guilty, regardless of whether the alleged perpetrators were nationals or foreigners (Tusa and Tusa 1983). It is thus important to note that while international attention was paid to studying the overall processes of war, no agreements resulted concerning appropriate penalties for perpetrators. And since it was widely acknowledged that there were no international courts in place to prosecute alleged perpetrators and no active international institutions to evaluate the
penalties allocated by national courts, there was very little motivation for agreeing nations to follow any newly acquired international law.

2.2 The Development of International Criminal Law During World War I

With the advent of World War I, meanwhile, international criminal law would suffer an extreme setback in terms of policy development. The international community failed to support its ideological stand against war crimes and crimes against humanity in terms of legal restitution for both Turkish Armenians and the victims of German war crimes and crimes against humanity. The primary reason for this failure was a lack of support for the emerging concept of "genocide" and its inclusion as an international crime for which perpetrators could be held accountable. The Allied nations involved in World War I found themselves in the difficult position of trying the offending nations of Germany and Turkey for war crimes and crimes against humanity without implicating themselves at the same time. As a result, half-hearted attempts were made to hold the Axis nations responsible for the atrocities they committed against their civilian populations and any trials that were conducted were simply for show, taking place in the local courts of the alleged perpetrating governments. Nonetheless, it is important to examine both the Armenian Genocide and the Leipzig trials separately in an attempt to better understand the pursuit of international criminal law during World War I.

2.2.1 The Armenian Genocide

"The aim of war is not to reach definite lines but to annihilate the enemy physically. It is by this means that we shall obtain the vital living space that we need. Who today still speaks of the massacre of the Armenians?"  

Adolf Hitler

The Armenian Genocide\(^2\) of 1915 is perhaps one of the most remarkable instances of genocide witnessed during this century if for no other reason than the intense controversy it has sponsored in the decades since its occurrence (Dadrian 1999a). It is considered by many to represent the first of the "modern ideologically-motivated genocides" (Chalk and Jonassohn 1990:249; Libaridian 1987) brought about by a new understanding of nationalism consisting of a homogenous nation with one

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\(^2\) The term "genocide" is used intentionally in this instance to refer to the intentional massacre of over 1 million Armenian civilians in 1915 by order of the Turkish interior minister Mehmed Talaat.
language and religion and the rejection of minority rights and individual liberties (Dadrian 1995; Hartunian 1968; Jernazian 1990; Power 2002a).

The Armenians had a long and involved history in the region, tracing their origins in Turkey to Noah, whose ark is said to have come to a rest on Mount Ararat (Chalk and Jonassohn 1990; Dadrian 1995). Traditionally, the Armenians inhabited the lands between the Black, Caspian and Mediterranean Seas in what is today Eastern Anatolia and Transcaucasia. The Armenians have subsisted both independently and as the wards of neighboring empires, maintaining a distinctive cultural heritage consisting of a blend of Oriental and Occidental traditions and ideologies (Chalk and Jonassohn 1990). They adopted Christianity in the fourth century CE, and in doing so, brought a great deal of persecution upon themselves (Chalk and Jonassohn 1990). With the collapse of the last Armenian kingdom in the 14th century, and the decimation of most of the Armenian nobility, Turkish rule encompassed the western expanses of Armenian territory, while the east came first under the control of the Persians and then the Russians in the 19th century (Chalk and Jonassohn 1990).

With the rise to power of the Ottoman Empire, the Christian minority group was subjected to a tradition of official discrimination and second class-citizenship. In exchange for maintaining their religion and sense of community, Armenians had to accept special taxes, inadmissibility of legal testimony and prohibition on bearing arms. Likewise, they were forbidden to speak their native language. As a result, thousands converted to Islam in order to regain their rights and civil liberties, particularly during the sporadic episodes of violence that afflicted the Armenian peasantry. In spite of such restrictions, many Armenians became prosperous merchants, traders, artisans and professionals, serving a substantial role in international commerce (Chalk and Jonassohn 1990).

However, with the slow collapse of the Empire's administrative, financial and military structures due to internal corruption and external military pressures in the 18th century, cultural and political revival of the Armenian community became an issue. Petitions were put forth in an attempt to ensure the protection of their people and property from corrupt government officials. Many Armenians began traveling to Europe for higher education and returned home to set up networks of Armenian schools, newspapers and other avenues for spreading the contemporary social and political philosophies they had been exposed to in their travels (Chalk and Jonassohn 1990). In spite of this, however, no efforts were made to separate from the Ottoman Empire.
Violent measures imposed by Sultan Abdul-Hamid against the rebellious Balkan Christian communities dramatically increased the tribulations experienced by Armenian Christians. The leaders of the Armenian community attempted to secure assurances of protection from the Russian commander-in-chief following the Russo-Turkish War of 1877-1878, thus alienating the Ottoman government even further. Likewise, an Armenian delegation participated in the 1878 European Congress in Berlin to request a specific Armenian reform program including limited local self-government (Chalk and Jonassohn 1990). Unfortunately, the resulting Treaty of Berlin gave much of the Russian-occupied territory to Turkey and the Armenians remained an unprotected minority (Chalk and Jonassohn 1990). Many Armenians chose to depart with the retreating Russian troops, resettling in the Caucasus. Those who remained in Turkey were left to suffer within the increasingly intolerant legal framework of the Ottoman homeland.

Sensing that European powers had abandoned Armenians interests, therefore, self-defense groups that had formed in the 1880s gradually altered, taking on the structure of secret political structures intended to organize Armenian revolutionaries in favor of cultural freedom and regional autonomy, equality, freedom of speech, press, assembly, unhindered economic opportunity and the right to bear arms. In this atmosphere, the Sassun district of Bitlis was subjected to weeks of siege and combat by Kurdish Hamidiye cavalry and Ottoman regiments for refusing to pay protection taxes to the Kurdish chieftains in 1884 (Chalk and Jonassohn 1990). Ultimately, the Armenians were forced to lay down their arms in exchange for the promise of amnesty. The amnesty agreement was not honored, however, and Sassun was plundered and several thousand Armenian men, women and children executed as an example for the remainder of the Armenian community (Chalk and Jonassohn 1990).

The international community came together on behalf of the Armenians, demanding intercession on the grounds that the Armenians of Sassun had only taken up arms against the Turks in order to protect themselves from the cruelty of the sultan's troops (Chalk and Jonassohn 1990). In May 1895, a joint British, French and Russian plan proposed the consolidation of the Armenian provinces into a single administrative region, the release of all political prisoners and the repatriation of Armenian exiles, the making of reparations to the victims, the disarming of the Hamidiye corps and the creation of a permanent control commission to ensure that the reforms were met in full (Chalk and Jonassohn 1990).

This proposal only made matters worse for the Armenians, however. While Abdul-Hamid made motions to acquiesce to the reforms, systematic pogroms began in
Trebizond in October 1895 and quickly spread throughout every district of Turkish Armenia (Chalk and Jonassohn 1990). Between 100,000 and 200,000 Armenians were massacred in the following year, while in other areas forced religious conversions, plundering and coerced exile of entire Armenian villages occurred (Chalk and Jonassohn 1990; Dadrian 1999b).

When sultan Abdul-Hamid was overthrown by the Young Turks in 1908, the Armenians believed themselves to be safe under the protection of the liberal and egalitarian new government. Many Armenian youth took up arms and fought in the Balkan wars of 1912-1913 on behalf of their Ottoman homeland. Likewise, Armenian political parties were allowed to operate newspapers and vie for parliamentary seats allotted specifically to Armenians (Chalk and Jonassohn 1990). The popular Armenian political party Dashnaksutiun, even operated in alliance with the Young Turks, maintaining loyalty until the outbreak of World War I (Chalk and Jonassohn 1990).

Armenian peace of mind was short-lived, however, as what had promised to be a liberating political movement quickly transformed into a party of chauvinistic extremists, determined to create a new order within which the “Armenian question” would die with the extermination of the Armenian people. From 1908-1914, Armenian villages throughout Cilicia were plundered and approximately 20,000 Armenians massacred by armed marauding bands (Dadrian 1999b; Hovannisian 1998; Libaridian 1987). A new coup in 1913 brought the new Young Turks to power, an ultranationalistic faction of the earlier political movement led by Enver, Talaat and Jemal, the Ministers of War, Internal Affairs and Military Governor of Constantinople, respectively.

With Turkey’s decision to enter World War I in 1915 as Germany’s ally, the Turkish interior minister, Mehmed Talaat, took the opportunity to solve the “Armenian problem” (Power 2002a). As early as January 1915, Talaat told the New York Times that there was no room for Christians in Turkey (Power 2002a). In March, Talaat ordered the disarmament of all Armenian men serving in the Ottoman army (Power 2002a). With the Allied invasion of Turkey on April 25, 1915, Talaat ordered the capture and execution of 250 of Constantinople’s leading Armenian intellectuals (Dadrian 1999b; Hovannisian 1998; Power 2002a). This was immediately followed by the execution of influential Armenians in each of Turkey’s six eastern provinces and the desecration and destruction of Armenian churches, schools and homes (Power 2002a). The thousands of displaced Armenians resulting from these actions were then forcibly deported to non-existent internment camps in the Syrian desert (Power 2002a). They were marched on foot through exposed regions of the country without food or water and as a result, over
half the deported Armenians died from starvation, dehydration and exhaustion (Dadrian 1999b; Hovannisian 1998; Jernazian 1990; Power 2002a). Many also died from mistreatment as the Turkish gendarmes charged with protecting the convoys often raped, beat and even executed their Armenian wards along the trails (Dadrian 1999b; Hovannisian 1998; Jernazian 1990; Power 2002a).

The international community was well aware of the offenses at the time and media reports in Britain and France were particularly vocal, publishing photographs of massacre victims and accounts of refugees as they fled from Turkey (Power 2002a). However, since their governments were already at war with Turkey, they took the position that the most efficient way of ending the Armenian genocide was to defeat the German-Austrian-Turkish alliance (Power 2002a).

Meanwhile, Henry Morgenthau Sr., the US ambassador to the Ottoman Empire, was made aware of the Armenian situation by intelligence received from ten American consuls posted in various locations throughout the Ottoman Empire and accounts of Armenian “race murder” provided by Armenian refugees and missionaries (Power 2002a). In a cable sent on July 10, 1915, Morgenthau advocated that his government provide diplomatic intervention on behalf of the vulnerable minority in order to stop what he described as a:

“...systematic attempt to uproot peaceful Armenian populations and through arbitrary arrests, terrible tortures, whole-sale expulsions and deportations from one end of the empire to the other accompanied by frequent instances of rape, pillage and murder, turning into massacre, to bring destruction and destitution on [the Armenians]” (Power 2002a: 6).

Furthermore, Morgenthau distinguished between wartime violence and the atrocities inflicted upon the Armenian population, stating that:

“these measures are not in response to popular or fanatical demand but are purely arbitrary and directed from Constantinople in the name of military necessity, often in districts where no military operations are likely to take place” (Power 2002a: 6).

The Wilson administration, determined to maintain its neutrality in the war, refused to join the Allied declaration lest public opinion shift in favor of US involvement (Power 2002a). Morgenthau ensured that some information reached the American public by means of his friend and New York Times publisher Adolph Ochs (Power 2002a; 2002b). Beginning in March 1915, the New York Times began publishing accounts by Armenians, missionaries, Red Cross officials and local religious authorities of Turkish “massacres,” “slaughter,” and “atrocities” committed against Armenians.
(Power 2002a). By December 1915, the paper stated that one million Armenians had been killed or exiled, constituting the “annihilation of a whole people” (Power 2002a: 9).

With the conclusion of World War I, steps were taken to determine guilt in the Armenian massacre. On May 24 1915, Britain, France and Russia had issued a joint declaration that all members of the Ottoman government would be held personally liable for “crimes committed by Turkey against Christianity and civilization” (Robertson 1999: 17). This was later revised by the British to refer to “crimes against humanity” instead of Christianity in order to avoid making an anti-Muslim statement. This declaration is the first official use of the phrase in reference to charges against government officials who were to be tried, regardless of sovereign immunity, for committing what today would be defined as genocide (Power 2002a; Robertson 1999).

In 1918, however, the issue of war guilt was brought to the Paris Peace Conference with Britain, France and Russia demanding that state authorities in Germany, Austria and Turkey be held responsible for their violations of the laws of war and the laws of humanity (Power 2002a). Thus began the century’s first international war crimes tribunal in which Mehmed Talaat and his fellow perpetrators were to be tried. Five of the eight Ottoman leaders accused of leading Turkey to war against the Allies were apprehended, and while the local military tribunal, established in Constantinople in April 1919 (Power 2002a) was inefficient and ineffective, its one substantial success was the finding that:

“the disaster visiting the Armenians was not a local or isolated event. It was the result of a premeditated decision taken by a central body;... and the immolations and excesses which took place were based on oral and written orders issued by that central body” (Bass 2000:103).

However, while it was therein acknowledged that Armenian women, children and other neutral civilians had been forced into deportation caravans destined for the Syrian desert and Armenian men, women and children murdered with premeditated intent, a disproportionate handful of Turkish officials were deemed responsible for the otherwise extensive task of committing genocide. Two senior district officials were convicted for deporting Armenians and acting “against humanity and civilization” (Power 2002a). Talaat and several of his employees were tried in absentia and found guilty for their command responsibility in the slaughter (Power 2002a). Turkish nationalists were incensed by the courts’ inquiries, especially when Talaat’s memoir downplayed the genocide and stated that any abuses experienced by the Armenians were little more than the typical features of war as carried out by uncontrollable actors (Power 2002a; Robertson 1999). As a result, the Turkish government was able to
literally write the Armenian Genocide out of its history. It wasn't until the assassination of Mehmed Talaat on March 14, 1921 by an Armenian genocide survivor named Soghomon Tehlirian in the name of the Boston-based Operation Nemesis that the Ottoman Armenian community felt real justice had been served.

The Turkish government, meanwhile, continues to deny that the Armenian Genocide ever occurred (Dadrian 1999). Throughout the massacres, the Turkish government blocked access to the areas where the Armenians were under attack, such that news reporters, governmental and non-governmental officials alike were often forced to rely on rumors emerging in Constantinople (Dadrian 1999; Power 2002a). Meanwhile, Turkish representatives in the US were actively denying that the atrocities inflicted upon the Armenians were anything other than retribution against individuals of a:

"rebellious element who were caught red-handed or while otherwise committing traitorous acts against the Turkish government, and not women and children, as some of these fabricated reports would have the Americans believe" (Power 2002a: 10).

Today, a general lack of information and primary sources from within the Turkish government makes referral to the Armenian Genocide of 1915 a controversial subject whose validity rests largely with survivor testimonies and second-hand documentation of eye-witness accounts as collected by American and Allied sources.

Modern day forensic bio-archaeologists are interested in investigating deportation routes and internment camp sites in Syria, to determine whether the archaeological record contains any proof of a mass exodus and extermination of Armenians in the desert (Mierzwinska 2003). There are many problems with this, however. Survivor testimony suggests that inhumation sites do not exist, though execution sites and deposition sites may be possible to locate. The majority of the victims' bodies were cremated throughout the Syrian Desert (Mierzwinska 2003). Meanwhile, because of the harsh desert environment that constitutes most of the deportation routes, little material culture will likely remain for archaeologists to find. Furthermore, it may be extremely difficult to prove that any material culture recovered is evidence of an Armenian exodus from Turkey. Human remains alone would likely not be distinctive enough to ascertain an Armenian heritage from that of Turkish or Syrian, for example. Furthermore, it is unlikely that any human remains would have survived a century in the Syrian Desert, particularly when considering that the majority of Armenian victims of the genocide were either burned or left exposed to scavengers and the elements after their execution along the trails. Clothing specific to various Armenian communities, Christian artifacts and other indicators of a distinctive cultural presence
could be useful, however, once again it appears that such possessions were often taken by their Turkish wards prior to starting the exodus into Syria. The majority of archaeological work could only be substantiated by survivor and informant testimony, a source of information that is only as reliable as the human memory and never without controversy due to the biased perspective of the informant. Thus it could prove extremely difficult to ever verify the Armenian genocide from a scientific or legal perspective.

2.2.2 Germany During World War I

At the same time as news of the Armenian genocide in Turkey was coming to the attention of the Allied nations, the public in these nations was also being overwhelmed with stories of German brutality issued by the press in an attempt to create a hateful image of the primary enemy. With the end of the war, therefore, there was a public demand for the prosecution of German war criminals and military leaders. The Bryce committee was formed in France in December 1914 to determine which of the alleged war criminals were worth charging with international war crimes (Tusa and Tusa 1983). Meanwhile, the British took a first step towards establishing a military tribunal by indicting Kaiser Wilhelm and other prominent German leaders (Netter 1998; Tusa and Tusa 1983). The United States, however, opposed the establishment of a tribunal on the grounds that international law should not take precedence over the domestic laws of individual nations (Tusa and Tusa 1983). U.S opposition resulted in the dissolution of the Bryce Committee in 1915 and the general understanding that Germany would continue efforts towards prosecuting its own war criminals (Tusa and Tusa 1983). The German Supreme Court met in Leipzig in 1922 for the purpose of trying and convicting a selection of the worst war criminals identified by the international community (Tusa and Tusa 1983). However, lack of support from the German press and public, and the resulting weakness of the political atmosphere surrounding the trials, meant that minimal sentences were passed and a number of convicted war criminals were permitted to escape without sentencing (Tusa and Tusa 1983).

The primary reason for Germany’s unwillingness to comply with Allied requests, particularly regarding the indictment of German war criminals, can be traced back to the formation of the Versailles Treaty, completed on June 28, 1919. The purpose of this document was to create and define the terms of Germany’s unconditional surrender. It contained an article that addressed the formation of an international tribunal with representation from the United States of America, Great Britain, France, Italy and Japan (Versailles Treaty Article 229). A multinational committee of lawyers was
established with the goal of drawing up charges against over 900 German nationals accused of war crimes and crimes against humanity, two charges that would remain relatively undefined until World War II. The possibility of adding a further charge -- waging an aggressive war -- was also considered, but it was ultimately rejected on the grounds that it could not carry enough weight to be a crime under international law (Tusa and Tusa 1983). Ultimately, the committee believed that it would be difficult to prove that the war was the sole responsibility of German leaders and thus, the charge could implicate the Allied forces as well (Tusa and Tusa 1983). As a result, the charge of causing an aggressive war was removed from the early drafts of international criminal law and the focus at Versailles shifted away from assigning blame for the war to forcing the complete disarmament and retreat of German forces.

Nonetheless, the German public felt that they were being unfairly punished for their participation in the war, particularly when faced with such international statements of German guilt as having committed a "supreme offense against international morality and the sanctity of treaties"3 as expressed in the Versailles Treaty (Versailles Treaty Article 229). Another common criticism was that the processes of indictment and jurisdiction were biased in favor of the Allied nations (Nowak 1928; Tusa and Tusa 1983). While Germany was forced by means of the Versailles Treaty to indict and charge alleged war criminals, no plans were made to indict Allied nationals who had committed similar atrocities against German nationals (Nowak 1928).

In spite of such weaknesses, however, the events of World War I greatly influenced the formation of the League of Nations. For example, earlier efforts on the part of the international community introduced the idea of dealing with war criminals, particularly the concept of charging leaders for promoting policies which resulted in criminal acts (Tusa and Tusa 1983). Likewise, two distinct paths of illegal behavior had emerged, distinguishing between (a) war crimes against and by the military and (b) crimes against civilian populations (The Avalon Project 1996; Tusa and Tusa 1983). Over the course of World War I, several countries began devising plans for a permanent international organization whose purpose was to secure international peace and security through efficient and legally binding policies (Cede 2001a). On January 8, 1918, US President Wilson submitted a proposal to the United States Senate containing 14 proposals for the new international institution (Cede 2001a). In a further show of support for the formation of such an international organization, the US-led Paris Peace Conference agreed upon the Statute of the League of Nations, thus forming a significant

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portion of the Paris peace treaties (Cede 2001a). The new world organization was established in Geneva and became active in 1920. Its goals and principles focused on its ability to secure peace among nations through a system of collective security; a focus identical to that of the modern United Nations (Cede 2001a).

The League of Nations was a short-lived international institution, primarily because it failed to fulfill its main mandate whereby the different organs functioned together to secure world peace and prevent future wars (Cede 2001a; The League of Nations 1938). The reasons for its failure are cited as being (a) its structural weakness, (b) deficient regulation of the use of military force and (c) the lack of universal membership (Cede 2001a). One prime example of structural weakness was the League of Nations' inability to act because of a unanimity clause that required unanimous agreement on all plans of action by both the Council and the Assembly (Cede 2001a; Joyce 1978). Similarly, members of the League often clashed over its policy prohibiting the use of military force that would prove both misleading and weakly enforced. In its most definitive form, this policy allowed the use of force in interstate relations only after all other avenues of discourse had failed and a "cooling off period" of three months had passed without any infraction of the rules prescribed by the Statute (Cede 2001a; Joyce 1978). Finally, the lack of universal membership politically isolated several important countries on the international plain, including the United States, Germany, Italy, the Soviet Union and Japan (Cede 2001a; Joyce 1978). Similarly, there was the significant absence of Third World countries due to colonial rule throughout Asia and Africa that prevented these nations from meeting the League's sovereignty requirement (Cede 2001a; Joyce 1978).

In spite of its many failures, the League of Nations did manage to create a forum for the discussion of many key international concerns. It was the first platform for international cooperation and dialogue on issues concerning economics and politics, and in many ways serves as the political, legal and social grandparent for the present-day United Nations (UN). As a result of its significant shortcomings and the political agendas of some of its key supporters, however, the League of Nations was disbanded at the beginning of the Second World War (Cede 2001a; Joyce 1978).

2.3 Raphael Lemkin and The Emergence of Genocide as an International Crime

From a theoretical perspective, one of the most important advances in international criminal law was the development of the concept of "genocide" as coined
by the Polish jurist Raphael Lemkin. Lemkin had personal experience with persecution because he was Jewish and grew up in Russian-occupied Poland during World War I. Historical instances of mass slaughter were a familiar subject of interest throughout his youth. Inspired by the assassination of Mehmed Talaat, however, Lemkin found himself turning away from historical events and more towards the legality of modern episodes of mass slaughter, questioning the justice of a system that would try a man for murdering a perpetrator of genocide while failing to try the perpetrator for the one million deaths for which he had been responsible. Talaat's assassin, Soghomon Tehlirian, was acquitted on grounds similar to present-day "temporary insanity," a decision that Lemkin accepted with reservation and with the realization that retribution, in such instances, had to be legalized (Power 2002a).

In 1933, Lemkin arranged to speak before an international criminal law conference in Madrid and asserted a link between Hitler's ascent to power in Germany and the recent slaughter of Armenians in Turkey (Power 2002a). His purpose was to convince European leaders that if such atrocities could happen once, they could easily happen again, especially given Hitler's attitude towards "undesirables." Lemkin proposed that the only way to prevent future mass slaughter similar to that inflicted upon Armenians in World War I would be to have the world's states unite in a campaign to ban such practices. He presented a draft law that prohibited the "barbarity" and "vandalism" that led to the destruction of nations, races and religious groups (Power 2002a). He defined barbarity as "the premeditated destruction of national, racial, religious and social collectivities" (Power 2002a:21) while vandalism referred to the "destruction of works of art and culture, being the expression of the particular genius of these collectivities" (Power 2002a:21). Under the draft law, instigators and perpetrators of these acts could be punished in any country they resided in, regardless of where their crimes had been committed, their nationality, or official status (Power 2002a). Unfortunately, Lemkin found few supporters for his draft law, primarily due to the general misconception that instances of mass slaughter occurred too seldom to require legislation (Power 2002a). Furthermore, the conference was reluctant to believe that Hitler was the apocalyptic figure that international reports were beginning to suggest. Thus while the conference agreed that they could not stand idly by while innocent civilians were being massacred, they refused to approve a motion to allow for even diplomatic intervention across borders (Power 2002a).

With the Nazi invasion of Poland in 1939, Lemkin fled first to Sweden and then America, intent on proselytizing about Hitler's crimes which would eventually result in the deaths of forty-nine of his family members (Power 2002a). Even in America,
however, Lemkin’s efforts met with mild interest, reluctance and disbelief. He continued to lobby for intervention against Germany throughout the US, and as an increasing number of reports began to surface expressing the brutal repercussions of life in Nazi Germany for the Jewish population caught within, the world began to take notice. In his public address in August 1941, British Prime Minister Winston Churchill made reference to the crimes against humanity being committed by Nazi Germany with the statement “we are in the presence of a crime without a name” (Power 2002a: 29). This simple statement would greatly alter the direction that Lemkin’s future work would take. He came to realize that the focus of his work should not be to overwhelm people with shocking stories of massacre. Instead, he strove to distinguish the exact nature of the massacres from all other acts of brutality during times of conflict and capture it with a single word that expressed its full implications as experienced by its victims (Power 2002a).

The term “genocide” first appeared in Lemkin’s work *Axis Rule in Occupied Europe* which he published in November 1944 in an attempt to combat the widespread disbelief and despondency that characterized the North American response to massacres. Genocide was defined as:

“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 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 1973: 79).

The term is derived from the Greek work *genos* meaning race and Latin word *cide* meaning killing (Lemkin 1973). Lemkin acknowledged that genocide had two phases, including the destruction of the national pattern of the oppressed group and the imposition of the national pattern of the oppressor (Lemkin 1973). The key to understanding genocide, however, was identifying the intent of the perpetrators, including (a) the total or near destruction of victim groups or nations as seen during the Middle Ages, (b) the destruction of a culture without an attempt to physically destroy its bearers and (c) selected annihilation of some groups while others were designated for genocidal assimilation (Chalk and Jonassohn 1990; Lemkin 1973). In promoting the use of the new term, Lemkin hoped that the international community would come to appreciate the full horror of the crime and so, be forced to take measures to prevent
and suppress their occurrence. Should preventive efforts fail, the emphasis was then to be placed on punishing the perpetrators (Lemkin 1973; Power 2002). Lemkin considered genocide as an event that would continue to occur with "biological regularity" and that international political leaders would inevitably fail to ensure that such crimes were severely discouraged and punished (Lemkin 1973; Power 2002a).

There were many problems with the initial definition of genocide, many of which were identified by Lemkin as he was preparing the first drafts. For example, he recognized that the term failed to "connote the destruction of the biological structure" (Lemkin 1973: 80). Likewise, he knew that in specifying the destruction of one national pattern, he had failed to "connote the imposition of the national pattern of the oppressor" (Lemkin 1973: 80). Furthermore, he recognized that the process of denationalization was commonly used by scholars to refer to the process of depriving citizenship and so, did not necessarily constitute a crime (Lemkin 1973).

As a result of his efforts and the slow blossoming reality of the Holocaust, the international community took notice of genocide as a serious threat to international security, and began working towards banning the crime. The height of this movement occurred with the International Military Tribunal at Nuremberg. For the purpose of the military tribunal, war crimes, crimes against humanity and crimes against peace were all discussed. Lemkin, however, was determined to see genocide included in the proceedings as a crime unto itself, and not simply included as a crime against humanity (Paust et al. 2001; Power 2002a; Ratner and Abrams 2001). The tribunal accepted his definition of genocide and the term was used casually in reference to one of the types of crimes against humanity committed by various Nazi German perpetrators (Power 2002a). Genocide was not accepted as one of the charges, however, and thus Lemkin was forced to continue proselytizing to the General Assembly in New York.

New York, however, would prove an excellent location for Lemkin to renew his efforts to have genocide deemed an international crime. He wrote a draft resolution that was then circulated in a special UN committee. At this time, it was decided that the term genocide should continue to be employed as it best summarized the various types of destruction inflicted upon its victims and would require states to take action before a given group had been completely exterminated. In 1946, the UN General Assembly unanimously passed a resolution that condemned genocide as "the denial of the right of existence of entire human groups" (Power 2002a: 54). Furthermore, the General Assembly affirmed that
"genocide is a crime under international law which the civilized
world condemns, and for the commission of which principals and
accomplices — whether private individuals, public officials or
statesmen, and whether the crime is committed on religious, racial,
political or any other grounds — are punishable" (UN General
Assembly 1946).

Finally, the General Assembly decided that a special UN committee would be
formed and charged with the task of drafting a full-fledged UN treaty banning the crime.
Once this draft was ratified by two-thirds of the UN member states, it became an
international law.

As a result of Lemkin's efforts, the Genocide Convention was adopted on
December 9, 1948. This event was the first major advance in international criminal law
in the 20th century. Article 96 was passed unanimously, formally acknowledging
genocide as a crime under international criminal law, implying individual responsibility
(Ratner and Abrams 2001). Furthermore, the Genocide Convention requested that
member states take measures to prevent and punish this crime and motivated the
Economic and Security Council to undertake studies of genocide in order to prepare a
draft convention on the subject (Ratner and Abrams 2001). A formal convention was
formed on January 12, 1951 and has since come to be recognized as the authoritative
codification of the basic legal principles relating to genocide. Under this convention,
genocide was defined as:

Any of the following acts committed with intent to destroy, in
whole or in part, a national, ethnical, racial or religious groups, as
such:

(a) Killing members of a group;
(b) Causing serious bodily or mental harm to members of the
groups;
(c) Deliberately inflicting on the group conditions of life
calculated to bring about its physical destruction in whole or
in part;
(d) Imposing measures to prevent births within the group;
(e) Forcibly transferring children of the group to another group
(UN Genocide Convention 1951).

While this new definition dealt with the issue in much greater detail, many non-
governmental organizations believe the definition is more limited than necessary and
that it limits the legal powers of international courts tribunals. At the time it was
formulated, however, international opinion was such that a broader definition may have
impeded the Convention's ratification and stalled this important political step. In
leaving the definition so open to interpretation, however, several important terms
remained undefined. For example, the concepts of "serious bodily or mental harm" and
"conditions of life" were undefined, creating a great deal of debate within the legal community as to the definition's usefulness. In addition, the Convention failed to consider "ethnic cleansing" and other acts of genocide that occur as part of forced migration movements (Ratner and Abrams 2001). This omission would become a serious problem in the 1990s with the many episodes of ethnic cleansing throughout the Former Yugoslavia and Rwanda.

Nonetheless, the Convention led to the recognition of the act of genocide as a delict or fundamental wrong under international criminal law (Greenberg 1984; Harff 1984). In the first few decades following WWII, however, there were no formal sanctions to impose on nations where genocide was occurring. In her study entitled "Genocide and Human Rights: International Legal and Political Issues," Barbara Harff (1984) identifies several reasons for this lack of formal sanctions. First, it must be considered that the United Nations General Assembly lacked consensus on how to determine which cases constitute genocide (Harff 1987; 1984; Meron 1986). Second, there is the issue of nonintervention which even today serves as the central principle around which all organs within the UN function, and which contradicts and disempowers humanitarian intervention (Detter 2000; Harff 1984; Meron 1986; Trauttmansdorff 2001). In theory, this policy of nonintervention may only be violated when a governing power is found to be completely uncooperative with the UN and of danger to its civilians or surrounding nations (Detter 2000). In practice, meanwhile, it would seem that intervention occurs only when the offending nation is threatening the national interests and national security of powerful states (Ignatieff 2003; Power 2003b). Thus, only in very extreme circumstances would force or the threat of force be used and then only so as to minimize the loss of life on the part of intervening nations (Detter 2000). This policy has led to a criticism regarding the element of inexperience within the UN, for while there are many instances of genocide in the world, there are few instances of successful intervention (Harff 1984).

Since the conclusion of the Genocide Convention, however, the issue has been continuously explored by academics and related organizations (Bauer 1984; Harff 1984; Kuper 1981; Savon 1972; Smith 1987; for example). Beginning in 1972 with his book entitled *Du Cannibalisme au Genocide*, Herve Savon voiced skepticism regarding the utility of the UN definition for sociologists due to the lack of time depth expressed. He nonetheless focused on creating a typology that would allow for the description of three categories of actual genocide including (a) substitution, (b) devastation and (c) elimination according to their eventual outcome (Chalk and Jonassohn 1990; Savon 1972). This work was generally dismissed, however, due to its inability to illuminate the
events leading up to genocide and potential methods for preventing its occurrence (Chalk and Jonassohn 1990).

In 1975, Vahakn Dadrian revisited the concept and defined genocide as:

"The successful attempt by a dominant group, vested with formal authority and/or with preponderant access to the overall resources of power, to reduce by coercion or lethal violence the number of a minority group whose ultimate extermination is held desirable and useful and whose respective vulnerability is a major factor contributing to the decision for genocide" (Dadrian 1975: 202).

Dadrian’s definition was intended to draw attention upon the disparity between the power of the perpetrating group and its victims. He established five categories of genocide including (a) cultural genocide resulting in assimilation, (b) latent genocide whereby the perpetrator’s activities have an unintended outcome, (c) retributive genocide based on punishing a challenging minority, (d) utilitarian genocide involving mass killings to obtain control of resources and (e) “optimal” genocide in which the perpetrator’s goal is the total annihilation of a group (Chalk and Jonassohn 1990; Dadrian 1975). Once again, this typology was dismissed, primarily due to the inclusion of instances of “ethnocide” and unintended genocide (Chalk and Jonassohn 1990).

Leo Kuper further expanded upon Dadrian’s typology with his 1981 work entitled Genocide: Its Political Use in the Twentieth Century. After extensive analysis, he identifies three types of genocide based on the motives of the perpetrator. These include (a) genocides designed to settle religious, racial and ethnic differences, (b) genocides intended to terrorize a people conquered by a colonizing empire and (c) genocides perpetrated to enforce or fulfill a political ideology (Kuper 1981; 1982). His primary concern centers on the association between the increased risk of modern genocide occurring in nation-states with pluralistic societies and the creation of new multiethnic states as a result of decolonialization. In The Prevention of Genocide (1985) Kuper revises this typology, recognizing two forms of genocide, including (a) domestic genocides arising from internal divisions within a society and (b) genocides resulting from international warfare (Kuper 1985). Within the larger heading of domestic genocide, he identifies four types including (a) genocide against indigenous peoples, (b) genocide against hostage groups, (c) genocide following decolonization or a two-tiered political structure and (d) genocide resulting from internal struggles for power between ethnic, racial or religious groups (Kuper 1985). International genocide, meanwhile, refers to events such as America’s nuclear destruction of Hiroshima and Nagasaki and the Indonesian occupation of East Timor, for example. Finally, he discusses political mass murder as a separate phenomenon whereby despotic governments use political
formulas and legitimating ideologies to massacre ethnic, religious and racial minorities as seen in nations such as the Soviet Union, Nazi Germany and Uganda (Kuper 1985). It is important to note, however, that there are several weaknesses in Kuper’s work. For example, any massacres committed against a class or social group remain beyond the scope of his typology (Chalk and Jonassohn 1990; 1987). Furthermore, intervention as seen against Serbian forces in Bosnia, for example, could qualify as international genocide even though it was never the intention of the United States to annihilate all Serbs.

Helen Fein, meanwhile, redefined genocide in 1984 such that the term came to represent:

“the calculated murder of a segment or all of a group defined outside the universe of obligation of the perpetrator by a government, elite, staff or crowd representing the perpetrator in response to a crisis or opportunity perceived to be caused by or impeded by the victim” (Fein 1984:4).

She also promoted a sociological definition in 1993 whereby genocide came to embody:

“a series of purposeful actions by a perpetrator(s) to destroy a collectivity through mass or selective murders of group members and suppressing the biological and social reproduction of the collectivity. This can be accomplished through the imposed proscription or restriction of reproduction of group members, increasing infant mortality, and breaking the linkage between reproduction and socialization of children in the family or group of origin. The perpetrator may represent the state of the victim, another state or another collectivity” (Fein 1993: 24).

In addition, Fein proposed a four-part typology for characterizing genocide, including (a) developmental genocide whereby the perpetrator intentionally or unintentionally destroys a group of people who stand in the way of the economic exploitation of resources, (b) despotic genocide or the elimination of perceived opposition, (c) retributive genocide, including the destruction of a real opponent by the perpetrator and (d) ideological or the destruction of groups identified as enemies by the state’s hegemonic myth of absolute evil (Chalk and Jonassohn 1990; 1987; Fein 1984). Fein’s work manages to fix some of the problems seen in Kuper’s earlier work in that her definition of genocide includes political and social groups as potential victims of genocide (Fein 1984). Furthermore, she states a separation between genocide and acts of warfare on the part of an intervening nation (Fein 1984).

Yehuda Bauer, however, departs dramatically from other scholars of genocide. He considers the UN definition of genocide too broad and argues that two different
Crimes have traditionally been included in the term. Thus, Bauer identifies two crimes—genocide and holocaust. He defines genocide as:

"the planned destruction, since the mid-nineteenth century, of a racial, national or ethnic group as such, by the following means: (a) selective mass murder of elites or parts of the population; (b) elimination of a national (racial, ethnic) culture and religious life with the intent of "denationalization"; (c) enslavement, with the same intent; (d) destruction of national (racial, ethnic) economic life, with the same intent; (e) biological decimation through the kidnapping of children, or the prevention of normal family life, with the same intent (Bauer 1984)."

Under this definition, atrocities such as Nazi policies against Czechs, Poles and Gypsies can be referred to as genocide (Bauer 1984). Holocaust, meanwhile, is defined as:

"the planned physical annihilation, for ideological or pseudo-religious reasons, of all the members of a national, ethnic, or racial group" (Bauer 1984).

To date, this definition includes only the attempted annihilation of Jews by the Nazis, though it has the potential to represent future atrocities (Bauer 1984). Nonetheless, in stipulating two separate crimes and definitions, Bauer is advocating a much narrower view of genocide that can be of greater use to academics that study the phenomenon.

In 1987, Roger W. Smith promoted a new five-part typology of genocide based on the motive of the perpetrator(s). The five categories are (a) retributive genocide, (b) institutional genocide, (c) utilitarian genocide, (d) monopolistic genocide and (e) ideological genocide (Chalk and Jonassohn 1990; Smith 1987). In doing so, he exposed an interesting change in the historical pattern in the motives of the perpetrators. The victims of early genocides were targeted because of where they were and what they possessed whereas the victims of modern genocides are targeted because of who they are (Smith 1987).

Frank Chalk and Kurt Jonassohn, meanwhile, thoroughly reviewed the works of each of the preceding scholars and come to the conclusion that the previous definitions of genocide were too broad and so, diminished the importance of episodes of real genocide. They redefined genocide in 1990 as:

"a form of one-sided mass killing in which a state or other authority intends to destroy a group, as that group and membership in it are defined by the perpetrator" (Chalk and Jonassohn 1990: 23).

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This definition is purposefully restrictive in order to focus the study of genocide on extreme cases and promote the use of the term ethnocide in reference to instances where a group disappears without mass killings (Chalk and Jonassohn 1990).

Thus the concept of genocide has altered greatly since its inception in 1944 and has inspired a great deal of commentary from a number of disciplines, including sociology, anthropology, political sciences, comparative law and international relations. Nonetheless, the term has a very particular meaning for the general public, often evoking images of the Holocaust and other instances of massacres centered on identity. That said, the creation of a term and the multiple definitions that have accompanied it have thus far failed to stop the occurrence of genocide in an international setting. Thus, it remains to be seen, if the entrance of this term into the common lexicon of the international community will serve to encourage intervention in areas where genocide still has the potential to occur.

2.4 The United Nations and the Development of International Criminal Law During World War II

In spite of the dissolution of the League of Nations, the pursuit of international criminal law took a significant step forward during World War II, specifically with regards to the exhumation of mass graves. Throughout the course of WWII, a number of war crimes were committed by various nations engaged in the conflict. In this instance, however, the international community was motivated to ensure that if war crimes were committed, the perpetrators would be made to answer for them before an international court. This aim was achieved via the formation of two major international institutions: The United Nations (UN) and the International Military Tribunal in Nuremberg, Germany.

The United Nations (UN) was formed on January 1, 1942 as a result of the Atlantic Charter of August 1941 which formed the foundation for creating a universal security system (Cede 2001a). Twenty-six Allied States issued the "Declaration of the United Nations" whereby they committed themselves to reaffirming “faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small...” (Preamble of the Charter of the United Nations 1941) It is important to note that at its formation, the UN was intended to be dissolved as soon as the threat presented by the Axis nations had been neutralized (Cede 2001a). Furthermore, the term “United Nations” referred not to an
international organization, but rather served as a label for the Allied alliance against all Axis powers (Cede 2001a).

At the same time as the formation of the United Nations, several efforts were being made on behalf of the international legal community to address the growing list of grievances against the Nazi regime. In January 1942, representatives from nine countries in occupied Europe held a conference in St. James, London in order to discuss a means of channeling the need for justice into a controlled international action. (Bloxham 2001; Taylor 1992; Tusa and Tusa 1983). The St. James Declaration was released on January 13, 1942 and stated that “international solidarity is necessary to avoid the repressing of these acts of violence simply by acts of vengeance on the part of the general public and in order to satisfy the sense of justice of the civilized world” (St. James Declaration 1942). The declaration affirmed that the punishment of war crimes was a principle aim of the governments at the conference, targeting not only those who personally perpetrated the crimes, but also those who ordered them (Tusa and Tusa 1983). As a direct result of these ambitious events, a first step was taken towards the formation of a legitimate international institution that would have the power to collect evidence to identify criminal activity and begin the legal preparations for trials.

Thus, in 1943 the United Nations War Crimes Commission (UNWCC) was created in London with the express purpose of collecting and collating information on war crimes and alleged criminals (Tusa and Tusa 1983). In many ways, this commission was a less than ideal means of broaching the issue. For example, while it comprised representatives from seventeen nations, several key nations, such as Russia, were absent (Tusa and Tusa 1983). The commission was further compromised by the fact that the nature of the designated task meant that the commission had to rely heavily on cooperation from the represented governments, a commodity that often was not forthcoming (Tusa and Tusa 1983). While in its initial stages a number of damning accusations were made, little effort was dedicated to substantiating the claims. Many of the governments were operating in exile and so, were quite isolated from the crime scenes and witness accounts they were supposed to be documenting. Another limiting factor was that the commission was designed to address war crimes only. The primary concern to the exiled governments of occupied Europe, however, was incidents of terrorizing and murdering civilian populations within their home nations (Tusa and Tusa 1983).

Finally, and perhaps of greatest importance, was the violation of the ancient legal principle “nullum crimen sine lege, nulla poena sine crimen” (no crime without law,
no penalty without crime) according to which individuals cannot be charged and penalized for committing a crime if it was not legally defined as such when it was committed (Beres 1982; Neier 1998; Paust et al. 2001). This would prove the greatest challenge of the Nuremberg Trials due to the fact that the three charges eventually brought before the tribunal at Nuremberg had not been in existence during WWII, thus presenting a direct violation of traditional criminal law and its reliance on domestic jurisdiction (Beres 1982). As a result of these significant problems, the UNWCC's mission altered such that its primary concern became that of amassing evidence and names of suspected perpetrators of international crimes with no attention paid to the process of defining the different types of crimes committed or the designation of alleged perpetrators as major or minor criminals under these terms (Tusa and Tusa 1983).

The Moscow Conference of Foreign Ministers in November 1943 proved important with regards to the pursuit of justice for international crimes committed during WWII. It was here that Britain, the United States and the Soviet Union issued a joint declaration condemning Nazi atrocities in occupied Europe (Sainsbury 1985; Tusa and Tusa 1983). The declaration ultimately stated that:

"Those German officers and men and members of the Nazi Party who have been responsible for or who have taken part in the ... atrocities, massacres and executions, will be sent back to the countries in which their abominable deeds were done in order that they may be judged and punished according to the laws of those liberated countries and of the Free Governments which will be erected therein" (Moscow Declaration 1943).

The next stage of the Moscow Declaration, meanwhile, would prove a far more challenging task. The foreign ministers had to tackle the issue of how to deal with war criminals from WWII and how to establish international solidarity in seeking just punishments (Tusa and Tusa 1983). The process involved categorizing war criminals and creating different classes of criminal leaders. The result was the delineation of two official types of war criminals and two methods of treatment. The first method of treatment prescribed national action for localized offenses, while the second method prescribed international action for those perpetrators whose crimes had affected multiple countries (Tusa and Tusa 1983). It is important to note, however, that the Moscow Declaration failed to mention the use of trials in determining a means of punishment for the alleged perpetrators. Instead, it was implied that a "joint declaration" of guilt would override the need for a trial for major criminals (Tusa and Tusa 1983). This was primarily due to the controversy that had arisen over whether a traditional trial was necessary in order to bring about the speedy execution of all Nazi leaders and their collaborators. This outcome was generally demanded by the
international community at the time when a “show trial” could serve to give the illusion of a fair trial without the uncertain outcome (Tusa and Tusa 1983). Still other representatives felt that the perpetrators should go unpunished, drawing on the familiar parable of “people in glass houses shouldn’t throw stones” to express the fact that certain military leaders among the Allied nations could also be called upon to answer to international law for their actions during WWII (Tusa and Tusa 1983). As a result, the issue of administering punishment by means of an international trial was abandoned over the next few months.

The Moscow Conference of Foreign Ministers similarly influenced the formation of the United Nations by proposing that the UN become a permanent universal organization for the purpose of maintaining international peace and security (Cede 2001a). Based on the groundwork laid at the Moscow Conference of Foreign Ministers and the Teheran Conference in 1943, a conference of Chinese, Soviet, American and British experts took place in the following summer at Dumbarton Oaks in Washington D.C. to establish the legal foundation of the new organization (Cede 2001a). The resulting proposals were then submitted to the Yalta Summit Conference that took place from December 4 to 11, 1944, wherein the heads of State from Britain, the U.S. and the Soviet Union met to formulate the definitive legal powers of the United Nations (Cede 2001a). Here it was agreed that all powers holding a permanent seat in the Security Council of the UN would have a right of veto for all voting procedures (Cede 2001a). This issue proved the most controversial but was nonetheless ratified in the Yalta Formula of 1945. At the end of WWII, the UN Conference on International Organization (UNCIO) took place from April 25 to June 16, 1945. Government representatives from 50 States attended and took part in the formation of the UN Charter signed on June 26, 1945. The five permanent members at this time included China, the United States, the Soviet Union, Britain and France (Cede 2001a). This insistence on the presence of permanent membership was an attempt to avoid endowing the UN with similar shortcomings as the recently disbanded League of Nations. Under the terms of the Charter, the UN came to represent the Organization of the United Nations that consisted of the five Allied nations that had supported the earliest stages of the UN by declaring war on the Axis states (Cede 2001a).

The UN Charter expressed multiple purposes including (a) securing international peace, (b) fostering friendly relations between nations, (c) encouraging international cooperation and (d) pursuing common objectives (Cede 2001b; Neuhold 2001). In summary, it was conceived as a comprehensive peace organization dedicated to the restoration and maintenance of negative (absence of armed violence) and positive
(gradual elimination of international conflict by means of achieving social justice) peace
(Neuhold 2001). It was based on the following principles: (a) the sovereign equality of all
member states, (b) good faith between members, (c) the peaceful settlement of disputes,
(d) the prohibition of the use of force in interstate relations, (e) the assistance of the UN
by all members, (f) respect for the principles of the UN by all members and (g) non-
intervention in internal affairs (Cede 2001b). The primary function of the UN revolves
around the concept of human rights, specifically representing:

1. **An international consensus of moral aspirations regarding the conditions to be found in some Utopian future;**
2. **An international consensus as to the fundamental rules for the treatment of man in society which are accepted as inherent in philosophical or religious concepts or deductively derived from the biosocial facts of human existence;**
3. **An international consensus of practical judgments as to the most rational and enlightened relation of man and authority under the actual conditions and values of most present societies;**
4. **A compilation of those claims of individuals and groups respecting their relation to authority and society which most contemporary societies perceive as basic and which the claimants assert with particular energy;**
5. **Those claims of individuals and groups respecting their relation to authority and society which the international community, through its organized institutions, is prepared to formally recognize as having a higher order of legitimacy and support by its own authority, and such pressures or sanctions as it can practically bring to bear (Charter of the United Nations 1945).**

2.4.1 The Formation of The First International Military Tribunal at Nuremberg

At the same time the UN Charter was formed, several steps were finally being taken towards the creation of the first international military tribunal. Due to the accumulated evidence against various Nazi leaders and collaborators, the issue of how to deal with the identified war criminals gained importance within the international community. On August 8, 1945, the United Kingdom, Soviet Union, United States and France signed The Agreement of London. In doing so, they adopted the London Charter of 1944 allowing for an International Military Tribunal to be created based on two major issues: the definition of international crimes and the procedure by which the accused should be brought to trial (Beres 1982; Jackson 1971). The resulting procedure was intended to be workable and efficient to meet the international requirements for fairness.
and prompt justice (Weschler 1961). The jurisdiction of the military tribunal would be limited to dealing with:

1. **Crimes Against Peace**: namely planning, preparation, initiation or waging of a war of aggression or a war in violation of international treaties, agreements or assurances or participation in a common plan of conspiracy for the accomplishment of any of the foregoing;

2. **War Crimes**: namely, violations of the laws or customs of war. Such violations shall include, but not be limited to, murder, ill-treatment or deportation to slave labor or for any other purpose of civilian population of or in occupied territory, murder or ill-treatment of prisoners of war or persons on the seas, killing of hostages, plunder of public or private property, wanton destruction of cities, towns or villages, or devastation not justified by military necessity;

3. **Crimes Against Humanity**: namely, murder, extermination, enslavement, deportation, and other inhumane acts committed against any civilian population, before or during the war; or persecutions on political, racial or religious grounds in execution of or in connection with any crime within the jurisdiction of the Tribunal, whether or not in violation of domestic law of the country where perpetrated (Jackson 1971: 23).

Thus, six months after the surrender of Germany, the International Military Tribunal opened in the Palace of Justice in Nuremberg, Germany on November 20, 1945 (Jackson 1971). The defendants included Hermann Göring, Rudolf Hess, Martin Bormann, Joachim von Ribbentrop, Wilhelm Keitel, Ernst Kaltenbrunner, Alfred Rosenberg, Hans Frank, Wilhelm Frick, Julius Streicher, Walther Funk, Hjalmer Schacht, Karl Donitz, Erich Raeder, Baldur von Schirach, Fritz Sauckel, Alfred Jodl, Franz von Papen, Artur Seyss-Inquart, Albert Speer, Constantin von Neurath and Hans Fritzsche (Jackson 1971). They were tried in a single trial on four counts of criminal behavior including:

1. **A common plan or conspiracy to seize power, establish a totalitarian regime, prepare and wage a war of aggression**;

2. **The waging of wars of aggression**;

3. **The violation of the laws of war**;

4. **Crimes against humanity (specifically persecution and extermination)** (Jackson 1971: xiii).

The Tribunal also declared four Nazi organizations to have been criminal in character, including the Leadership Corps of the Nazi Party, the SS, the SD, and the Gestapo such that membership in these organizations became a crime in its own right (Bloxham 2001; Jackson 1971). The trial lasted 216 days and involved four prosecutors, 33 witnesses and a plethora of documentary, photographic and motion
picture exhibits largely remnant of the Nazis own system of record keeping (Jackson 1971). The defendants, meanwhile, called upon 61 witnesses and used interrogatory documents from another 143 witness in defending their actions (Jackson 1971). All proceedings were conducted simultaneously in German, English, French and Russian (Jackson 1971). The resulting verdicts found 19 of the 22 defendants guilty on one or more counts of international criminal activity while Schacht, von Papen and Fritzsche were acquitted (Jackson 1971). Those found guilty were subject to punishments ranging from temporary imprisonment to death (Jackson 1971).

Following the conclusion of the International Military Tribunal at Nuremberg, the focus of the international community returned to the political formation of the United Nations. With regards to the progress of formalizing international criminal law, the formation of the UN as a permanent universal institution was particularly important because it represented the first institution in history with the potential to determine and enforce sanctions in times of conflict. In an attempt to further define its validity in this matter, several legal principles were institutionalized by the General Assembly of the United Nations on December 12, 1950, including:

**Principle I.** Any person who commits or is an accomplice in the commission of an act which constitutes a crime under international law is responsible therefore and liable for punishment.

**Principle II.** The fact that domestic law does not punish an act which is an international crime does not free the perpetrator of such a crime from responsibility under international law.

**Principle III.** The fact that a person who committed an international crime acted as Head of State or public official does not free him from responsibility under international law or mitigate punishment.

**Principle IV.** The fact that a person acted pursuant to order of his government or of a superior does not free him from responsibility under international criminal law. It may, however, be considered in mitigation of punishment, if justice so requires.

**Principle V.** Any person charged with a crime under international criminal law has the right to a fair trial on the facts and law (Charter of the United Nations 1945).

Upon looking at the historical development of domestic and international criminal law, two primary goals become evident. The first concerns the rights of the individual victims of atrocities, specifically the victim's or surviving relatives' need for compensation and personal revenge on the perpetrator (Safferling 2001). The second goal relates to society as a whole and considers the social need to ensure that there is an acceptable punishment in place to act as a preventive measure against future violations (Safferling 2001).
At the same time, it must be acknowledged that international trials are in some ways biased in favor of certain legal traditions and thus, certain cultural preconceptions. This normative bias was certainly the case with the International Military Tribunal at Nuremberg, wherein vanquished perpetrators from Nazi Germany were charged for committing international crimes according to legal principles endorsed by the Allied powers, rather than according to the legal traditions upheld by their own nation. It must further be acknowledged that despite horrendous incidents such as the bombing of Dresden or the atomic bombing of Hiroshima and Nagasaki in 1945, there were no indictments of Allied military officials even though each event represents a shocking abuse of international human rights and international criminal law. For these reasons, it is often argued that international tribunals are fundamentally biased in favor of "victor's justice." Nonetheless, it is widely acknowledged that such trials are necessary to provide the survivors of the atrocities with emotional closure, as well as to assure the public that measures are being taken to prevent future violations (Ferencz 1995; Safferling 2001).

Following the close of the International Military Tribunal at Nuremberg, a select portion of the international community focused on establishing a permanent international criminal court based on the principles expressed in the Nuremberg Trials. On May 13, 1947, Monsieur Donnedieu de Vabres formally proposed the formation of such an institution to the International Law Commission (ILC) due to his concern that the Nuremberg Trials had failed to represent the interests of the entire international community (Kittichaisaree 2001). His proposal included setting up a criminal chamber as part of an International Court of Justice consisting of 15 elected judges (Kittichaisaree 2001). In its purest form, the chamber would be limited to dealing with indictments against a State or its ruler for crimes against peace, or crimes against humanity (Kittichaisaree 2001). Likewise, de Vabres proposed the formation of an optional International Court of Justice whose jurisdiction would only be required if the nation holding custody of an alleged perpetrator was unwilling or unable to prosecute or surrender the individual (Kittichaisaree 2001). In this instance, the optional International Court of Justice would be responsible for considering offenses committed in times of peace, as well as war crimes and crimes against humanity committed by heads of States (Kittichaisaree 2001; Schabas 2000). The International Law Commission referred de Vabres' proposal to the UN General Assembly where, ironically, the issue was overwhelmed by the drafting of the Genocide Convention (Kittichaisaree 2001).
Thus, while the formation of a permanent international criminal court was seen as extremely important for the prosecution of international offenders, the idea failed to be implemented. The UN Secretariat drafted two alternatives to an international criminal court in order to punish war crimes with particular attention paid to the issue of genocide (Kittichaisaree 2001). The first was to create an international criminal court with jurisdiction over international crimes while the second proposed the formation of a special international court, either permanent or ad hoc with jurisdiction limited to the crime of genocide (Kittichaisaree 2001).

### 2.4.2 Mant and the Concentration Camps of World War II

Meanwhile, with the advancement of international criminal law and the creation of institutions such as the UN and the International Military Tribunal at Nuremberg, the need for physical evidence of war crimes, crimes against humanity and crimes against peace became apparent. As a result, the international community would initially turn to military forensic pathologists for assistance. The first person to exhume mass graves for the purpose of amassing evidence of these crimes was A. K. Mant in the late 1940s. As a pathologist serving in the British Army Royal Medical Corps during World War II, his work concentrated on the identification of missing allied military personnel suspected of having been victims of war crimes (Haglund 2002). Later, his work expanded to include investigation of crimes against humanity pertaining to the persecution of religious and cultural minorities, in particular, the mass graves remaining from the various concentration camps found throughout occupied Europe after the end of WWII (Mant 1950). His Doctoral Dissertation completed at the University of London in 1950 is the first body of literature to be dedicated to the previously nonexistent concept of mass grave exhumation.

Perhaps the most significant aspect of his work was that it marked the first study of the preservation of human remains in mass graves, relying on precise systematic observations recorded throughout the process of excavation (Mant 1950). For example, Mant was able to scientifically prove that a mass grave constitutes its own distinct microenvironment within which bodies will decompose at different rates depending on “their condition at burial, method of burial and soil conditions in and around the grave” (Mant 1950: 44). Likewise, Mant was the first professional to use the term “feather-edge effect” to refer to the effects that different rates of decomposition have on the interred body mass (Haglund 2002; Mant 1950; Mant 1957). He noted that in a mass grave environment bodies in the center of the mass decompose more slowly
than those on the outer extent of the mass. This observation completely altered the way in which the medical community perceived mass grave decomposition (Haglund 2002). For thirty years, his contributions to the literature constituted the majority of what was considered scientific fact with regards to exhuming and interpreting mass graves.

2.4.3 The Katyn Forest Massacre

In terms of the application of forensic bio-archaeology to international criminal legal pursuits, meanwhile, the formation of the United Nations and the first International Military Tribunal would prove instrumental in the development of this novel area of research. The first mass grave exhumations were conducted as a direct result of the ambitions of the aforementioned institutions. The most important of these excavations pertains to the Katyn Forest Massacre of 1941 in which over 11,000 Polish prisoners of war were executed in the Russian-occupied Katyn Forest near Smolensk in a direct violation of international criminal law (Fitzgibbon 1971; Haglund 2002; Tusa and Tusa 1983; Zawodny 1972). In February, 1943, advancing German troops discovered the resulting mass graves. After some brief preliminary exhumations, they were brought to the attention of the international community in the hopes that Nazi German troops would not be blamed for the massacre (Fitzgibbon 1971; Zawodny 1972). In an attempt to verify their innocence in the matter, the Germans established an international medical team consisting of forensic scientists from nine German-occupied European nations to determine the cause, manner, time of death and possible culpability (Fitzgibbon 1971; Zawodny 1972). The final report was released to the international community in April 1943 and concluded that out of the 4143 bodies exhumed, 2914 were identifiable based on associated personal affects (Zawodny 1972). The majority of these individuals had been shot in the head, and five percent of the total recovered bodies still demonstrated evidence of having their hands bound behind their back (Fitzgibbon 1971; Zawodny 1972). Entomological evidence, correlated with the presence of associated documents such as diaries, newspapers and personal correspondences, indicated that the deaths occurred in March, April and May of 1940 and were the result of Russian activities in the area at that time (Fitzgibbon 1971; Zawodny 1972).

In reoccupying the Katyn Forest area in September of 1943, the Russians immediately commissioned their own investigation into the massacre. Their investigation concluded that Nazi German troops were at fault. This conclusion was primarily based on the presence of German manufactured ballistics evidence in the graves. While the resulting report was not convincing enough to the American and
British prosecutors to demand consideration in the Nuremberg Trials, pressure from the Soviet government resulted in the inclusion of this war crime in the overall list of war crimes charges brought against some of the alleged war criminals tried at Nuremberg in 1945 (Fitzgibbon 1971; Jackson 1971). Ultimately, it was left to Russia to secure German guilt for the massacre.

It wasn't until a second international team of forensics experts was charged with the investigation of the Katyn Forest massacre in the seventies that scientific evidence was produced supporting the initial German assertion that the massacre had, in fact, been committed by Russian troops (Haglund 2002; Abarinov 1993; Fitzgibbon 1971; Zawodny 1972). And while this evidence came too late to exclude the Katyn Forest massacre from the legal proceedings at Nuremberg, this case nonetheless makes the important point that such politically loaded investigations should always be conducted by an international, politically unbiased team of experts in order to ensure that the resulting evidence is not manipulated to serve a national or ethnic agenda.

2.4.4 The Serniki Massacre

In the two decades following this latest Katyn investigation, there has been a surge of forensic literature concerning the exhumation of mass graves resulting from World War II. From the perspective of international criminal law, the most influential investigation was conducted in Serniki, Ukraine by an international forensics team in June 1990 (Bevan 1994). The objective of the investigation was to amass physical evidence against Ivan Polyukovich for his alleged voluntary participation in two instances of massacre of Jewish civilians in 1941 and 1942. The Jewish ghetto in Serniki experienced two major massacres under German occupation, the first of which involved the execution of approximately 100 Jewish men sometime between July and August of 1941. The second involved the massacre of the Jewish ghetto, then consisting of approximately 850 individuals of varying ages that took place in August of 1942 (Bevan 1994). At the time that these atrocities were committed, Polyukovich was alleged to have been the leader of an informal local police unit based out of Serniki. Under German occupation, such partisan groups often became institutions of the Nazis, and so, were charged with the responsibility of controlling local communities. As a result of his alleged participation in Nazi activities, Polyukovich was located after having immigrated to Australia. He was charged in an Australian court with multiple counts of murder, all concerning the deaths of Jewish citizens caught fleeing Serniki to escape massacre by the Nazis. Furthermore, he was directly implicated in the liquidation of Serniki's ghetto wherein approximately 850 unarmed Jewish men, women and children
were killed and buried in a single mass grave in a wooded area just beyond the outskirts of Serniki (Bevan 1994).

The investigative team was lead to the potential mass gravesite by an informant who had been forced to assist in backfilling the grave after the executions had been completed nearly forty years earlier. Formal excavations began on June 13, 1990 and called upon the expertise of forensics specialists from around the world, though the team was primarily of Australian nationality (Bevan 1994). Initially, they employed a common sampling strategy whereby sample holes were dug at regular intervals in order to predetermine the exact dimensions of the grave and extrapolate the total number of individuals present (Bevan 1994). Ultimately, however, pressure from Australian prosecution resulted in the excavation of the entire site.

The grave feature was revealed as a rectangular pit approximately 60 meters long, five meters wide and two meters deep with a ramp descending from the eastern wall. At this point, heavy machinery was used to remove approximately 50 centimeters of soil covering the body mass. This was followed by the involvement of trained forensic bio-archaeologists to pedestal around the remains using small trowels, brushes and buckets to removed extraneous soil with greater care. At the northern extent of the site, the bodies were found lying naked and facedown in orderly rows while the southern extent of the site demonstrated panic in the form of a disorganized mass of semi-clothed individuals. These characteristics suggested what began as a carefully calculated liquidation of unwanted individuals had resulted in a disorganized frenzy as the perpetrators struggled to finish their unpleasant task. Among the remains, the skull was the primary subject of study. Over half of the individuals present demonstrated typical execution-style gunshot wounds to the occipital, while others showed bullets introduced to the cranium by means of either parietal or the frontal. Only one individual died as a result of being shot in the mouth. Upon briefly examining the post-cranial material present, investigators repeatedly noted evidence of peri-mortem blunt force trauma located throughout the body, suggesting that many of the victims were beaten immediately prior to their deaths (Bevan 1994).

The resulting evidence from the forensics investigation, combined with powerful eyewitness testimony had an incredible impact on the eventual trial of Ivan Polyukovich. He was charged with war crimes under Australia’s War Crimes Act (Polyukovich v. Commonwealth, High Court of Australia 1991). In spite of the quantity and quality of the evidence amassed against him, he was acquitted largely due to the inaccuracy of the translators provided for the Ukrainian witnesses (Morris 1998). This is
merely one example of the effect that poor preparation can have on legal proceedings and an excellent warning of how easy it is for hard-won evidence to be rendered useless.

2.5 Independent Developments Pertaining to the Application of Forensic Bio-archaeology to Criminal Law

Following the advances made in international criminal law as a result of World War II, many nations began to take the occurrence of war crimes, crimes against humanity and genocide much more seriously. This is not meant to imply that such atrocities were no longer occurring, but rather that the responsibility for bringing perpetrators to justice was commonly accepted on a national level. As will be demonstrated in the following case studies, several nations in South America would look to their own resources in an attempt to punish perpetrators of crimes against humanity. However, in other nations, such as Iraq, the onus remained on the international community to determine the severity of the crimes and guilt of the alleged perpetrators.

2.5.1 The Application of Forensic Anthropology to Human Rights Abuses in South America

Similar to the theoretical advances described above, the application of forensic bio-archaeology to violations of international humanitarian law, likewise, would not progress much until the 1970s. Perhaps some of the most influential work being done in this area has emerged from the efforts of various scientific and humanitarian foundations throughout South America. During the 1970s, most regions of South America were affected by periods of intense violence and political repression, many instances of which would later be brought to the attention of the international community as serious crimes against humanity (Doretti and Snow 2003). It should be noted that the legal processes used to indict, charge and punish the perpetrators of these crimes in the 1970s were entirely based on the legal systems functioning within their respective nations and were not significantly influenced by the international community. Thus, in this instance the progress experienced by forensic anthropologists was largely independent from the international legal community.

Argentina was the first nation to use forensic anthropology for the purpose of exposing the crimes committed by the Junta during the “Dirty War” (Doretti and Snow 2003). The powerful military regime in control of Argentina from 1976 to 1983, has
been estimated to have been directly responsible for the disappearance of at least 8960 people (EAAF 2001). Informants stated that after the victims were kidnapped they were taken to illegal "detention centers" where they were tortured and killed for their "involvement" in political activism movements (EAAF 2001; Doretti and Snow 2003). The bodies of the los desaparecidos (the disappeared) were either dumped from military airplanes into the Argentine Sea or buried as ningun nombre (no name) in local cemeteries throughout the country (EAAF 2001; Doretti and Snow 2003). With Argentina's return to democracy and the leadership of President Dr. Raul Alfonsin, the National Commission of the Disappearance of Persons (CONADEP) was created in December 1983 to investigate the disappearances (EAAF 2001; Doretti and Snow 2003).

It should be noted, however, that at this time site reconnaissance and exhumations were largely conducted by medical doctors who had no experience in dealing with the exhumation of human remains. As a result, there was no emphasis on understanding the overall spatial and temporal relationships of evidence within sites. Ultimately, this meant that while information pertaining to the identity of the individual might be recoverable, little evidence could be obtained pertaining to issues such as the manner of death, elapsed time since death, and nature of previous burials. Furthermore, some of the local forensic experts were directly involved, either by omission or commission, in the crimes committed by the previous regime (Snow 2002). As a result, much evidence was lost, misinterpreted or destroyed, and so, excluded from investigative and legal proceedings. Therefore, from the perspective of the international forensic anthropology community that was beginning to take charge of these mass fatality scenarios at this point in history, the majority of the evidence recovered was of questionable value.

Thus, at the request of the Grandmothers of the Plaza de Mayo, the American Association for the Advancement of Science (AAAS) sent a delegation of American forensic and genetic scientists to Argentina in 1984 to assist in the excavation and interpretation of human remains being recovered (EAAF 2001; Stover 1995). Included among the scientists was Dr. Clyde Snow, a distinguished forensic anthropologist who called for an end to the use of non-scientific methods. Over the next five years, he personally established and trained the Argentine Forensic Anthropology Team (EAAF) to deal with the exhumations. Nonetheless, the majority of the professionals presently working with the EAAF are medical professionals and anthropologists with varying degrees of training in archaeological methods. Thus, the need for forensic bioarchaeologists trained in mass grave exhumation for legal purposes is still underestimated in many respects, though the situation continues to improve.
Since its founding, the EAAF has grown to include 11 permanent trained forensic experts and has been a continuous presence in the legal proceedings in Argentina. Its expertise has been extended to other South American countries where similar military regimes and dictatorships in the 1970s resulted in large numbers of "disappeared" individuals. In addition to Argentina, the EAAF is currently active in Bolivia, Chile, Columbia, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, Uruguay and Venezuela. Beyond South America, the EAAF is involved in forensics investigations in Bosnia and Herzegovina, Cote D'Ivoire, Croatia, the Democratic Republic of Congo, East Timor, Ethiopia, French Polynesia, Haiti, Indonesia, Iraqi Kurdistan, Kosovo, the Philippines, Romania, Rwanda, Sierra Leone, Sri Lanka, South Africa and Zimbabwe. The objectives of the EAAF include:

1. To apply forensic sciences to the investigation and documentation of human rights violations;
2. To provide this evidence in court, special commissions of inquiry and international tribunals;
3. To assist the relatives of the victims in pursuit of their rights to recover the remains of their "disappeared" loved ones so that they can carry out the customary funeral rights and mourn their dead;
4. To collaborate in the training of new teams in other countries where investigations into human right violations are necessary;
5. To conduct seminars on the human rights applications of forensic sciences for humanitarian organizations, judicial systems, and forensic institutes in any country where people express interest in this subject;
6. To contribute to the historical reconstruction of the recent past, which is often distorted or hidden by the parties of government institutions which are themselves implicated in the crimes under investigation (EAAF 2001: 5).

Since its formation, the methods and organizations implemented by the EAAF have had a great deal of success both locally and internationally. For example, evidence recovered as part of the ongoing forensic excavations in Chile, Argentina and Bolivia resulted in charges of racketeering being brought against General Pinochet, General Videla and President General Hugo Banzer, respectively (EAAF 2001). Since the 1980s, the EAAF has been one of the main providers for international forensic investigations.

2.5.2 The Application of Forensic Bio-archaeology to Human Rights Abuses in Iraqi Kurdistan

Iraqi Kurdistan is another region greatly influenced by the successful efforts of the Argentine Forensic Anthropology Team. In this instance, however, Physicians for
Human Rights (PHR) was in charge of organizing and maintaining the investigation. There is a general lack of forensic archaeological literature pertaining to the forensic investigations conducted throughout the region, although multiple books and articles document the various atrocities affecting the Kurdish people. In particular, a faction of Human Rights Watch (HRW), known as the Middle East Watch (MEW), has published a series of books on this topic, using the Kurdish village of Koreme as a type case for the experience of all Kurds during the Anfal Campaign (Middle East Watch 1993a: Middle East Watch 1993b).

The potential formation of the nation of Kurdistan has been a source of conflict within Iraq, Syria, Turkey and Iran for many years, due to the refusal of the governments of these nations to acknowledge the right of the Kurdish ethnic minority to independence. Their reluctance is primarily due to the fact that in formally recognizing Kurdistan, each nation would be forced to give up a substantial portion of land and access to valuable resources. Thus, Iraq, Syria, Turkey and Iran share a violent history of interaction with the Kurdish minority. During the 1980s, however, Iraq was the only nation to adopt an official policy of ethnic cleansing against the Kurds.

The Anfal Campaign refers to a series of military strikes against the northern region of Iraqi Kurdistan, an area predominantly occupied by Kurds. The term anfal can be found in the Qur'an in reference to "the plunder of the infidel" and was intended to lend a sense of religious justification to the campaign, despite the common realization that the Kurds are Muslim and Iraq is a secular state (Middle East Watch 1993b). Beginning in the southern portion of Iraqi Kurdistan in 1988, these attacks primarily took the form of air raids with infantry positioned nearby to stop the Kurdish villagers from escaping the massacres (Middle East Watch 1993b). In addition to the use of bombs, a variety of chemical weapons were used, similar to those employed against Iran during the Gulf War. This was the first time that a government had chosen to use chemical weapons against its own civilians and unquestionably qualified as a serious crime against humanity (Middle East Watch 1993a). As ground troops moved further north, Kurdish men suspected of being members of the peshmerga guerrilla organization, literally translating to "those who face death," began disappearing and mass graves began appearing throughout the northern regions (Middle East Watch 1993b). While the security unit responsible for these abductions is currently unknown, a number of eyewitness informants and survivors of the executions have since come forth claiming that all forcibly disappeared Kurds were taken north by truck and, in some instances, forced to dig their own mass grave before being executed (Middle East Watch 1993a; Middle East Watch 1993b). Following the abandonment of the Kurdish
villages, either due to direct military involvement or evacuation resulting from the spread of rumors of annihilation at the hands of approaching military forces, the majority of the homes were destroyed by heavy machinery in order to ensure that any surviving members of the community would be forced to relocate. Many fled to Turkey, where similar, although less formalized tactics were being used to reduce the Kurdish populations (Middle East Watch 1993b).

The village of Koreme has particular importance for the Kurdish cause. Since its destruction in August 1988, it has become representative of the situation facing the Kurdish minority under Saddam Hussein's leadership of Iraq. Koreme had a history of destruction dating back to the 1960s due to its vocal participation in the Kurdish independence movement led by Mostafa Barzani (Middle East Watch 1993b). The fact that it had been rebuilt several times and was flourishing was a source of great pride among the Kurdish population of Iraq (Middle East Watch 1993b). When the Iraqi military arrived at Koreme during the Anfal campaign, the majority of the villagers had already fled to the nearby hamlet of Hamsawa or across the Turkish border, 50 kilometers away. Those who had chosen to remain, however, were subjected to a barrage of mustard gas that resulted in the deaths of most of Koreme's remaining inhabitants (Middle East Watch 1993b). The few survivors were taken prisoner by the military. At this point, the remaining men were executed by firing squad while the women and children were forcibly relocated to camps in southern Iraq (Middle East Watch 1993a; Middle East Watch 1993b; Scott and Connor 1997). Six of the 33 men from Koreme who survived the initial chemical attack also managed to escape the firing squad and fled into the mountains to join the peshmergas (Middle East Watch 1993b). The remaining buildings in Koreme were razed to the ground and the village was never reconstructed, largely due to the lack of men to rebuild (Middle East Watch 1993b). Those who survived the air raid and subsequent concentration camps are now located in Turkey as part of the substantial Iraq Kurdistan refugee population (Middle East Watch 1993b).

Dr. Clyde Snow led the 1991 forensic investigation of Koreme. Middle East Watch and Physicians for Human Rights published the details of the excavations. It should be noted that neither Snow's report nor the report released for publication by Middle East Watch (1993B) specify any of the archaeological techniques used during the exhumations, although they do note that "standard procedures for exhumation and examination were followed" (Middle East Watch 1993a: 5). However, there are no "standard procedures" for exhumation presently, which leaves room for a great deal of discussion as to exactly to which methods they could possibly be referring. This
investigation could therefore be mistaken to be representative of the general ignorance of archaeological methods that currently affects mass grave investigations around the world.

As part of the Koreme investigation, survivors and other eyewitness informants from Koreme were interviewed and two mass gravesites were exhumed to ascertain the sequence of events leading up to the executions and to recover evidence that could serve to identify the perpetrators. The exhumation of these two mass graves revealed 27 individuals executed by firing squad (Middle East Watch 1993b). Based on ballistics evidence and the positioning of the bodies within the grave, it was determined that the firing squad organized the 33 men into a line and then, using seven semi- or fully-automatic 7.62\( \times \)39 mm firearms, fired several rounds into the group of men (Middle East Watch 1993b; Scott and Connor 1997). 124 cartridge cases were recovered from the execution site, several of which proved to be from the same gun. This evidence suggests that not only did an individual have to stop shooting to reload at least once during the execution but also they moved closest to the line of victims (Middle East Watch 1993b; Scott and Connor 1997).

There are several important points that should be noted with regards to the organization of evidence from the exhumations for use by the international investigation. The first is the issue of contamination of evidence. Because the bodies were prepared and wrapped in burial shrouds according to Muslim custom and buried in a mass grave by surviving relatives and friends rather than the perpetrators, a great deal of evidence was likely lost. In truth, most of the evidence with the potential to indict individual perpetrators was recovered from the execution site in the form of ballistics evidence, the immediate physical manifestations of which were largely absent save for the effect of the bullets paths on the hard and soft tissues of the victims. Accordingly, it could be very difficult to prove that the bullets found at the execution site were the same bullets responsible for the deaths of the victims. Similarly, in keeping with local Muslim tradition, the deceased were buried without any indicators of the identities of the mass grave occupants. If the provenience of the bodies had been carefully mapped, it might be possible to verify scientifically individual identifications made by family members. However, this standard procedure was apparently not followed. While the evidence recovered does not contradict any of the eyewitness testimonies collected, the altered nature of the evidence should be taken into account according to international humanitarian legal principles. Likewise, the use of undocumented excavation techniques means that the context of the evidence may only be determined by informant testimony. As a result, the investigation has received little
subsequent attention from the international community and no indictments have followed, primarily due to a lack of judicial forum within Iraq or another hosting nation. Thus, the forensic investigations in Koreme were of no use to the application of international humanitarian law given the understandably disturbed nature of the evidence.

2.6 Recent Ad Hoc International Tribunals: The Former Yugoslavia and Rwanda

The next step forward in the development of international criminal law did not occur until 1993 when the concept of universal or international human rights was formally considered for the first time as part of the World Conference (Robertson and Merrills 1996). This conference yielded the official recognition of human rights as being "universal, indivisible and interdependent and interrelated" (Robertson and Merrills 1996: 13). In the same year, the Vienna Declaration was drafted, stating that:

"While the significance of national and regional particularities and various historical, cultural and religious backgrounds must be borne in mind, it is the duty of the States, regardless of their political, economic and cultural systems, to promote and protect all human rights and fundamental freedoms" (Vienna Declaration 1993).

These endorsements marked the first official support for international human rights and proved crucial to the formation of the first ad hoc international criminal tribunals for the Former Yugoslavia and Rwanda. Likewise, at this time international criminal law became more commonly referred to as international humanitarian law.

Accounts of the "ethnic cleansing" occurring in the Former Yugoslavia and Rwanda in the 1990s prompted the UN Security Council to address the human rights abuses as severe threats to international peace and security. The UNSC responded with the formal creation of the ad hoc International Criminal Tribunal for the Former Yugoslavia (ICTY) and International Criminal Tribunal for Rwanda (ICTR), citing several sources of international humanitarian law as their foundation, including:

(a) International conventions;
(b) International custom as evidence of a general practice accepted as law;
(c) General principles of law recognized by civilized nations; and
(d) Judicial decisions and the teachings of the most highly qualified publicists, as a subsidiary means for the determination of rules of law (Ratner and Abrams 2001: 28).
In addition, both institutions are subsidiary organs of the UN Security Council and were created to establish a means of enforcing international policy according to Chapter VII of the UN Charter (Kittichaisaree 2001; Trauttmansdorff). As such, both are accountable to the rules of international law and draw upon identical Rules of Procedure and Evidence (Kittichaisaree 2001). Neither tribunal is capable of holding trials in absentia and both demonstrate the co-existence of concurrent jurisdiction and primacy jurisdiction in association with the nations' courts intimately connected with the crimes being tried (Kittichaisaree 2001).

It has also been suggested that because no victors emerged from the wars in either Yugoslavia or Rwanda, the tribunals represent the first departure from "victor's justice" in the history of international criminal law (Thornberry 1996). However, it remains that the international community is still imposing a predetermined moral order upon the people of these nations that in many instances does not account for the legal or cultural traditions found outside the United States, France and England. There are four charges included in this moral order for which individuals and organizations can be indicted. These include:

(a) Crimes against peace: namely planning, preparation, initiation or waging of a war of aggression or a war in violation of international treaties, agreements or assurances or participation in a common plan or conspiracy for the accomplishment of any of the foregoing;

(b) War crimes: namely, violations of the laws or customs of war. Such violations shall include, but not be limited to, murder, ill-treatment or deportation to slave labor or for any other purpose of civilian population of or in occupied territory, murder or ill-treatment of prisoners of war or persons on the seas, killing of hostages, plunder of public or private property, wanton destruction of cities, towns or villages, or devastation not justified by military necessity;

(c) Crimes against humanity: namely, murder, extermination, enslavement, deportation and other inhumane acts committed against any civilian population, before or during the war; or persecutions on political, racial or religious grounds in execution of or in connection with any crime within the jurisdiction of the Tribunal, whether or not in violation of domestic law of the country where perpetrated (Jackson 1971: 23);

(d) Genocide; the 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 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 1973: 79).
It should be noted that the charge of crimes against peace is the subject of a great deal of controversy and may be removed from the list of indictable charges in the near future due to its potential to incriminate major world powers for their aggressive tactics commonly employed in the past and present against third world nations.

There are several active differences between the tribunals. For example, regarding the issue of primacy and concurrent jurisdiction, Article 8(2) of the ICTR Statute grants the ICTR primacy over the national courts of the involved states such that at any stage in the procedure the ICTR may request that a national court defer investigations or any court proceedings. This primacy enables the ICTR to avoid having to allow a withdrawal of an indictment or deferral to a national court due to the existence of a concurrent trial (Kittichaisaree 2001). Furthermore, while the ICTY has jurisdiction over crimes committed both in internal and international armed conflict, the ICTR's jurisdiction is limited to only those crimes committed in instances of internal armed conflict (Kittichaisaree 2001). Similar differences between the tribunals are observed with regard to the issue of trying crimes against humanity. While the ICTY has jurisdiction over crimes against humanity when committed as part of an armed conflict, the ICTR may only indict crimes against humanity if they are committed with discriminatory intent (Kittichaisaree 2001). In this instance, discriminatory intent refers to genocidal acts committed "on national, political, ethnic, racial or religious grounds" (Kittichaisaree 2001: 27). Each tribunal is also working with a different temporal scale, largely due to the unique context of the conflict within each region. The ICTY may indict crimes committed since 1991 (Kittichaisaree 2001). The ICTR, meanwhile, may indict crimes committed between January 1 and December 31, 1994 (Kittichaisaree 2001). Finally, the ICTR does not have a group of *ad litem* judges to assist in the workload, unlike the ICTY (Kittichaisaree 2001).

### 2.6.1 The International Criminal Tribunal for the Former Yugoslavia

The conflict in the Former Yugoslavia has a long and sordid history stemming from interactions among the three main ethnicities that exist in the area. These include the Serbian, Croatian and Bosnian populations who are distributed unevenly throughout the six republics of Croatia, Serbia, Bosnia-Herzegovina, Montenegro, Macedonia and Slovenia and the two autonomous provinces of Vojvodina and Kosovo (Stover and Peress 1998). The religious and cultural affinities of these groupings include relatively equal populations of Serbian Orthodox Christians and Roman Catholic Croats, as well as a significant Bosnian Muslim component (Stover and Peress
The Balkans have an extensive history of ethnic turmoil spanning several centuries (Bax 1997). The recent conflict in the region primarily relates to an ongoing feud among these entities, drawing upon the memory of various atrocities committed during World War II, particularly the Ustashe treatment of Serbs. However, a number of studies have shown that the amount of intermarriage between the different groups has made it extremely difficult to distinguish any one group based on ancestry (Bax 1997; Stover and Peress 1998). Thus any recently reborn emphasis on ethnic allegiance is largely a construct imposed by political manipulation of a select and powerful majority, specifically, the nationalist Serbian government under the leadership of former President Slobodan Milošević.

The period of conflict brought to the attention of the UN Security Council pertains directly to the emergence of Slobodan Milošević as President of the Republic of Serbia in 1987 (Cohen 2001). Using a platform of strict Serbian nationalism and Serbian Orthodox Christianity, Milošević revived the image of an independent "Greater Serbia" and used it to inspire his followers to commit gross human rights violations against minority and neighboring populations, particularly the Bosnia Muslim minority (Cohen 2001; Stover and Peress 1998). The success of nationalism in this instance has largely been explained by the extreme patriotism found in the Dinaric areas of Bosnia-Herzegovina, northwestern Serbia, western Croatia and Montenegro (Cohen 2001; Cvijić 1930). Individuals in this area tend to feel as closely connected to their political leaders as their blood relatives, thus allowing for a less critical attitude towards authority and a propensity for intolerance (Cohen 2001; Cvijić 1930). It was by means of this foundation that Milošević was manipulating nationalism to aid him in his rise to power. This sudden fanaticism provoked similar independence movements in many of the other Yugoslavian republics. Croatia, for example, experienced a widespread revival of the Ustashe movement, which was the most vocal support for Nazi Germany during World War II and has since been directly linked to the massacre of hundreds of thousands of Serbs and Jews from 1939 to 1945 (Bax 1997; Stover and Peress 1998).

War did not fully develop until June 25, 1991. The motivation for this was Croatia and Slovenia's simultaneous declarations of independence from Yugoslavia. Milošević responded by ordering the Yugoslavian National Army (JNA) to discipline the rogue polities using a series of severe offensive movements into Croatia and Slovenia (Stover and Peress 1998). Slovenia was attacked first, though its National Guard and police were too well prepared for the confrontation (Rogel 1998). The fighting ended after only ten days with minimal deaths and casualties. The European Council brokered a
truce on July 7, 1991 and all JNA forces were evacuated by the end of October, thus ending the war with Slovenia (Rogel 1998).

Croatia, meanwhile, had a very different experience of war with the central authority of Yugoslavia. The Yugoslav government quickly lost control of the JNA, primarily due to the fact that the Serbian component of the officer corps had recently risen to 70% and was actively organizing Serbian communities in the area (Rogel 1998; Weitz 2003). Fighting raged in several areas of Croatia, the most extreme of which occurred with the eighty-seven day siege of Vukovar (Rogel 1998; Stover and Peress 1998). The European Council tried to halt the conflict, resulting in over a dozen failed truces. The majority of the fighting did not stop until the United Nations brokered a cease-fire in November 1991. By this time, however, Serbs controlled over one-third of the Croatian republic and viewed the cease-fire as a means of securing their gains (Rogel 1998). Likewise, the number and types of casualties experienced in Croatia were extreme. Approximately ten thousand Croatians had been killed in the fighting, while thirty thousand had been wounded (Rogel 1998). A further 730,000 (500,000 Croatians and 230,000 Serbians) people had fled to other Yugoslav republics and Europe as refugees (Rogel 1998).

Bosnia-Herzegovina was yet to experience the brunt of Serbian hostility, however. The 1991 census recognized a population of 4,364,574 of which over 43% were Muslim, 31% Serb and 17% Croat (Rogel 1998). Within this, approximately 5% identified themselves as simply Yugoslav (Rogel 1998). That said, the majority of these identities were based on the various communities national associations rather than on religious affiliation or practice (Rogel 1998). With the rise of strong nationalist identities in other areas of the former Yugoslavia, however, Bosnia experienced increasing pressure to either (a) remain part of Yugoslavia, a decision which would alienate its Croat and Serb minority populations and likely leave it helpless against the greater political will of Slobodan Milošević or (b) declare independence, a decision which would undoubtedly bring the military wrath of the JNA (Rogel 1998; Weitz 2003). As Bosnian President Izetbegović stalled for more time, the Bosnian Serbs declared a Serbian Republic of Bosnia-Herzegovina on March 27, 1992 (Rogel 1998). War between Bosnia and its neighbors began ten days later with both Croatia and Serbia expressing territorial designs on Bosnia.

For the first year of the conflict, the primary combatants were the Bosnian Serbs, led by Radovan Karadžić against the multinational Bosnian government (Rogel 1998; Weitz 2003). The majority of the fighting occurred in eastern and northern Bosnia so as to create a continuous arc of Serb-held territory linking Serbia with Serb
populations in western Bosnia and Croatia (Rogel 1998). At this time, the Belgrade-supported Serbian forces were much more prepared for war than the Bosnia government which was forced to appeal to the United Nations for assistance (Rogel 1998). The result of this action was the formal UN recognition of an independent Bosnia-Herzegovina on May 22, followed by the imposition of UN sanctions against Serbia and Montenegro for their involvement in the conflict (Rogel 1998). In spite of this, war continued with reports of concentration camps and crimes against humanity reaching the international community. These events were the motivation for the first use of the term "ethnic cleansing" to refer to the Serbian war policy of genocide whereby members of a national, religious or ethnic group are killed intentionally (Ratner and Abrams 2001; Stover and Peress 1998). It should be noted, however, that its most common usage was in reference to the organized rape, torture and massacre of the unprotected Muslim Bosniak minority (Stover and Peress 1998).

As a result of the human rights abuses taking place throughout the Former Yugoslavia, the UN Security Council exercised its right under Chapter VII of the UN Charter to form the International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the Former Yugoslavia Since 1991 (ICTY). The ICTY Statute was formally adopted on May 3, 1993 (Kittichaisaree 2001). The location chosen for the ad hoc tribunal was The Hague, the Netherlands (Kittichaisaree 2001). Sixteen permanent independent judges and a maximum of nine ad litem judges elected by the General Assembly comprise the ICTY, and an additional twenty-seven ad litem judges serve in the ICTY Trial Chambers for up to three years (Kittichaisaree 2001). There is also an appeals chamber comprised of seven judges, five of which must be present at each appeal (Kittichaisaree 2001). Finally, there is a Prosecutor who exists as an independent organ of the ICTY and is responsible for the investigation and prosecution of the accused (Kittichaisaree 2001). The Prosecutor is appointed by the consensus of the UN Security Council based on nominations from the UN Secretary-General, but answers to a judge from the Trial Chamber to confirm the proposed indictments (Kittichaisaree 2001). The ICTY's jurisdiction extends to those individuals responsible for breaching the Geneva Conventions of 1949, specifically relating to "the protection of victims of international armed conflicts, violations of the laws or customs of war, genocide and crimes against humanity when committed in armed conflict" (Geneva Conventions 2002). Penalties imposed by the ICTY are limited to imprisonment to be enforced by any State designated by the UN Security Council that has made itself a willing host to such convicts (Kittichaisaree 2001). Thus, in many respects, the ICTY represents the first
truly international tribunal established by the UN with the power to determine
individual criminal responsibility as dictated by international humanitarian law.

Events in the Former Yugoslavia proved extremely important to the application
of forensic bio-archaeology to international humanitarian law. Of particular interest is
the UN "safe area" of Srebrenica, which, prior to 1992, was a large Bosnian city with a
multi-ethnic population (Robertson 2002). On July 11, 1995, Dutch peace-keepers
abandoned the city with the understanding that no harm would fall upon civilians
captured by the approaching Serbian forces (Rogel 1998; Manning 2000; Robertson
2002). Ratko Mladić was the commander-in-chief of the Bosnian Serb army at this time,
and in charge of the forces who captured Srebrenica. In spite of promises of safety,
Mladić ordered the execution of more than 6,000 Bosnian Muslim civilians seeking
refuge in the city (Rogel 1998; Manning 2000; Robertson 2002). Forensics investigations
have discovered at least 39 mass graves associated with this betrayal, seventeen of
which have since been fully excavated. Within these graves were the remains of 1883
individuals, approximately 86% of whom were determined to be male, and numerous
unassociated body parts as well as a variety of blindfolds, and ligatures (Manning
2000). At least 1,424 of the individuals recovered had died from gunshot wounds
inconsistent with those experienced in the course of battle (Manning 2000). Likewise,
the graves contained a plethora of non-human evidence, including identity documents,
personal effects and Dutch ration packs, all of which demonstrate a connection with the
Dutch peace-keepers stationed at Srebrenica prior to the arrival of Mladić and his
Serbian forces (Manning 2000). As a result of such overwhelming evidence, the ICTY
has called for the prosecution of Mladić based on his participation in war crimes, crimes
against humanity and genocide (Rogel 1998). While he has yet to be prosecuted for
these events, Mladić was dismissed as head of the Serbian army in 1996 (Rogel 1998). A
warrant has been issued for his arrest, however, and as a result, he remains in hiding.

In 1999, a former Bosnian Serb general who served directly under Mladić,
Radislav Krstić, was served an indictment charging him with genocide, crimes against
humanity and violations of the laws or customs of war as put forth in the 1949 Geneva
Conventions for his participation in the massacre at Srebrenica (ICTY Indictment 1999).
He was held personally responsible for the 15,000 troops who had carried out the "mass
executions of all men of fighting age" (Judge Almiro Rodrigues, Wordsworth 2001) and
was sentenced to forty-six years in prison for committing genocide. This represented the
first genocide finding in the history of the ICTY and was based primarily on forensic
evidence recovered from the various mass grave and mass grave-related sites associated
with the five-day massacre of Srebrenica, among other atrocities (Wordsworth 2001).
In terms of the surplus of evidence recovered from the Srebrenica mass gravesites, the "Dam site" near Petkovci is an excellent case study regarding the application of forensic bio-archaeology to proceedings at the ICTY. On July 14, 1995, Krstić was in command of a military unit that transported hundreds of Bosnian Muslim men from detention sites in Bratunac to a Dam near Petkovci where they were unloaded from the vehicles and summarily executed (ICTY Indictment 1999). This primary inhumation site was later robbed clandestinely and some of its contents moved to a secondary inhumation site referred to as Liplje 2 (Manning 2000). The resulting looted inhumation site was exhumed in ten days, beginning on between April 15, 1998 and revealed a "robbed primary grave" containing a minimum of 43 grossly disarticulated individuals and some unassociated body parts (Manning 2000). Fifteen of the victims were determined to be male, while the remaining bodies were indeterminate (Manning 2000). 750 shell cases were recovered from the surface of the site and twenty-five were found inside the grave feature (Manning 2000). Six body parts demonstrated definite gunshot wounds (Manning 2000). A further two demonstrated probable gunshot wounds, while another fifteen were deemed possible gunshot wounds (Manning 2000). None of the bodies was complete enough to warrant a more thorough investigation at the time of exhumation, thus the cause of death was determined on the basis of individual body parts rather than complete bodies (Manning 2000). At least one white twine ligature and one blindfold were recovered from the surface of the grave, though not in direct association with any of the body parts (Manning 2000). Finally, one identification document from the war hospital in Srebrenica was recovered, suggesting an affiliation with the "safe area" (Manning 2000). It is important to note, however, that no items denoting religious membership were recovered (Manning 2000). Nonetheless, this evidence proved integral to the case against Krstić, primarily as it related to the Liplje 2 site.

The Petkovci Dam site is considered the primary inhumation site from which the secondary inhumation site known as Liplje 2 was created (Manning 2000). In an attempt to obscure the crimes committed by Krstić and his troops, the Petkovci Dam site was revisited sometime after its creation and looted for bodies, which were then moved to the nearby Liplje 2 site. Proof of this event was evident in the presence of lumps of the same greenish clay in which the Petkovci grave feature had been dug (Manning 2000). Furthermore, the bodies recovered at Liplje 2 are grossly dismembered, suggesting that they were exhumed and transported to the secondary site by means of heavy machinery after a period of decomposition at a primary location (Manning 2000). A minimum of 191 individuals was exhumed at the secondary inhumation site, four of
which were considered “relatively intact” by the investigative team (Manning 2000). Of these four individuals, one died of gunshot wounds, one died of possible gunshot wounds and two demonstrated an undetermined cause of death (Manning 2000). 122 individuals were determined to be male while the rest were deemed indeterminate (Manning 2000). Twenty-three ligatures, 14 of which were directly associated with parts of the hand or forearm, and one potential blindfold were recovered (Manning 2000). Only twenty-seven shell cases were collected during exhumation and autopsy, though more were observed in the grave feature (Manning 2000). Finally, a number of identity cards, Dutch newspapers, personalized cigarette tins and a Muslim prayer pouch were located with the bodies (Manning 2000).

As Krstić was known to have been in charge of the troops who performed the massacre of these individuals, this evidence was used to secure a guilty verdict in the ICTY trial against him. Until this point, the international community was questioning the purpose of the ICTY, specifically whether it would ever succeed in prosecuting the head perpetrators responsible for human rights abuses. With the indictment and successful trial of Krstić, however, much of this criticism was subdued. Naturally, the Bosnian Muslim community still felt that a forty-six year sentence was too lenient for a man who had committed so many of their loved ones to death without cause (Wordsworth 2001). Nonetheless, with this success, international support was gained for the ICTY and so, it has continued to amass evidence and issue indictments against alleged perpetrators of war crimes, crimes against humanity and genocide from the conflict in the Former Yugoslavia, including important military and political leaders such as Radovan Karadžić and Slobodan Milošević.

2.6.2 The International Criminal Tribunal for Rwanda

The conflict in Rwanda also has a long history spanning several decades. In terms of its demographics, Rwanda embodies two separate ethnic identities including (a) a Hutu majority and (b) a Tutsi minority (Nyankazi 1998; Scherrer 2002). Historically speaking, the term Tutsi has always carried high status connotations, referring to the line of kings in Rwanda, while the term Hutu referred to the ruling class in Burundi (Scherrer 2002). War between the two groups was common, although it has since been realized that the main reason for the continuation of hostility between these two groups was that it served the European colonialist powers to keep them distracted from engaging their real oppressors (Scherrer 2002).

Of particular importance to the proceedings of the ICTR, however, are the most recent outbreaks of violence that have been linked to economic problems and racial
colonial agendas that culminated in such events as the Hutu Revolution of 1959 (Nyankazi 1998; Scherrer 2002). In this instance, the Hutu were exiled to Uganda and Burundi. Upon their return to Rwanda in 1959, several Hutu-led massacres occurred against Tutsi communities throughout Rwanda in an attempt to alter the ethnic composition of the nation such that the Hutu would become the most powerful ethnic group (Nyankazi 1998; Scherrer 2002). Soon after, the Hutu seized political and military power in the region and began systematically targeting Tutsi farmers, trades people, community leaders and intellectuals (Nyankazi 1998; Scherrer 2002). These events resulted in the creation of approximately 300,000 Tutsi refugees who escaped to Uganda between 1959 and 1963 (Scherrer 2002). The refugee community in Uganda grew stronger, and soon repatriation efforts began through the actions of a guerilla organization which claimed responsibility for several armed attacks in Rwanda in 1973 (Scherrer 2002). In July, 1973, Hutu General Juvenal Habyarimana led a successful military coup against the Hutu government. With the military assistance of France, Habyarimana established a series of government-run organizations whose sole responsibilities included the repatriation and support of returning Hutu refugees who had been victimized during Tutsi attacks (Scherrer 2002). At the same time, Habyarimana established concentration camps throughout Rwanda and instigated a series of genocidal attacks against the Tutsi minority, the most severe of which occurred over the last 100 days prior to his assassination in July, 1994, and continued for several months after his death in spite of attempted UN intervention (Nyankazi 1998; Scherrer 2002). By July 14, 1994, over one million refugees had fled Rwanda for areas such as the Democratic Republic of Congo (Nyankazi 1998). Physicians for Human Rights produced a conservative estimate stating that at least 500,000 Rwandan nationals were killed in massacres in the months following Habyarimana’s assassination (Physicians for Human Rights 1996).

As a result of these rampant episodes of genocide, the UN International Security Council once again exercised its right under Chapter VII of the UN Charter to form the International Criminal Tribunal for the Prosecution of Persons Responsible for Genocide and Other Serious Violations of International Humanitarian Law Committed in the Territory of Rwanda and Rwandan Citizens Responsible for Genocide and Other Such Violations Committed in the Territory of Neighboring States, Between 1 January 1994 and 31 December 1994 (ICTR) (Kittichaisaree 2001). Due to concerns over frenzied crowds attacking defense lawyers and their clients, it was decided that the institution should be based in Arusha, Tanzania (Khan 2000). In keeping with previous international criminal tribunals, it has jurisdiction over crimes against humanity, war
crimes and genocide (Kittichaisaree 2001). In spite of local attempts to include capital punishment among the possible sentences for perpetrators of such crimes, imprisonment for varying periods of time remains the only sentence available for criminals (Khan 2000).

Initially, it appeared that there might be a better likelihood of successfully prosecuting charges of genocide in Rwanda compared to other conflicted regions at the time. Several factors, however, have since impeded the process. The issue of time has proven to be the biggest cause. The primary source of delay was that of finding the money and trained local officials to aid the process of justice (Khan 2000). The majority of Rwanda’s educated population had been massacred or fled the country as political refugees (Khan 2000). Of additional concern, but equally understandable, is the fact that the Rwandan people have long since buried their dead, and in the process unintentionally contributed to the destruction of valuable evidence required to prosecute the perpetrators successfully (Khan 2000; Stover 1995).

Nonetheless, Physicians for Human Rights has conducted two forensic investigations including a Roman Catholic Church site near Kibuye containing 500 individuals and a series of smaller graves near the Amgar Garage (Haglund 2003). In the current literature, there is no mention of the use of forensics investigation teams to recover evidence in order to assist in prosecuting Rwandan war criminals. Archaeologists were, however, used in all stages of the exhumations in accordance with a four-stage plan outlined in 1996 by Physicians for Human Rights. The four-stage plan for the exhumation of mass gravesites included:

**Phase I:** A mapping and survey team will map the location and size of mass graves and massacre sites.

**Phase II:** An archaeological team will undertake the exhumation of the grave and the osteological examination of the remains, as well as determine the number of bodies in each grave.

**Phase III:** A pathology team will conduct onsite autopsies to determine the age, sex, nature of trauma and cause of death of the deceased. Following the completion of the work, the bodies would be turned over to the Rwandan authorities for official reburial.

**Phase IV:** Forensic reports, including photographic and video evidence, from each of the three teams will be incorporated into a final report and submitted to the Tribunal (Physicians for Human Rights 1996).

Phases I, II and III were completed successfully (Haglund 2003). Based on this preliminary plan, they also outlined a series of professional goals including:

1. From a legal and historical perspective, demographic information on mass graves can provide statistical evidence of
the scope and magnitude of the genocide in Rwanda and help corroborate both testimonial and documentary evidence.

2. The aim of the exhumations will be to determine the number, age, and sex of victims, the nature of trauma and injuries, and the cause of death. Moreover, the forensic experts will be able to determine if the graves contain military or civilian dead. This evidence will be compared with eyewitness statements.

3. The presence of the forensic teams collecting evidence at mass gravesites in Rwanda will give visibility to the Tribunal's work, especially as its investigative activities are often conducted outside of public view. To have visual proof that the international community is finally fulfilling its duty to investigate those responsible for the genocide is especially important for the survivors (Physicians for Human Rights 1996). These goals were achieved (Haglund 2003).

In spite of such intentions, however, the majority of trials conducted were based almost entirely on eyewitness accounts. The reliance on eyewitness accounts is in part due to the fact that so much of the physical evidence was lost, altered or destroyed by the survivors in their efforts to honor their dead. Another consideration is that the ongoing political instability in the area makes it extremely difficult to conduct reconnaissance and exhumations of potential mass gravesites. The primary reason for the lack of forensic evidence used in the trials is the fact that such evidence is extremely expensive, especially when eyewitness testimonies seem to be supporting the process of justice and closure effectively from the perspective of the local and legal communities. As a result of such realizations, therefore, the application of forensic bio-archaeology has been less applicable to Rwanda than in other areas of conflict.

2.7 Forensic Bio-archaeology and The Permanent International Criminal Court

The next major step forward in the development of international criminal law occurred with the formation of the first permanent International Criminal Court (ICC) in 2002. There has long been a legal motivation for the creation of a permanent international court. Nonetheless, its physical manifestation remained a pipe dream until recently. As a result of the media's presence around the globe and the contemporary world's role as "instant spectators" of human rights abuses, it is increasingly difficult to commit such atrocities in secret (Walzer 2003). Thus, it is becoming increasingly important that international humanitarian law be seen as an effective and fair source of justice. The ICC represents an attempt to represent this image of justice to the international community.
The first official proposal to come before the UN General Assembly was led by Trinidad and Tobago in the 1980s (Kittichaisaree 2001; Schabas 2001). These states were interested in establishing a permanent international criminal tribunal in order to prosecute international drug traffickers (Kittichaisaree 2001; Schabas 2001). Inspired by the successes of the ad hoc International Criminal Tribunals in the Former Yugoslavia and Rwanda, the UN General Assembly referred the matter to the International Law Commission, requesting that the ICL draft the appropriate statute for such an institution (Kittichaisaree 2001; Schabas 2001). Due to a variety of overlapping and overwhelming issues under consideration by the international community, however, the Draft Statute was not finalized until the 1998 Rome Conference (Kittichaisaree 2001; Schabas 2001).

The resulting Rome Statute came into existence on July 17, 1998 and was open to signatures from supporting nations until December 31, 2000 (Kittichaisaree 2001). In order to enter into force, it required sixteen signatures from UN member states. There was a great deal of concern throughout the international community, often in line with the agendas particular to the nations raising each issue. For example, China refused to accept the universal jurisdiction of the ICC and requested the inclusion of a provision whereby the State at which the trials were directed must provide consent, no doubt in an attempt to avoid its own indictment for crimes in regions such as occupied Tibet (Kittichaisaree 2001). Similarly, Israel, disapproved of the inclusion of a war crime for which an Occupying Power could be indicted for transferring members of its population into the territory it occupies, undoubtedly in an attempt to protect its ongoing colonization of the Palestinian territories.

Despite resistance, the Rome Statute entered into force on July 1, 2002 after having been signed by one hundred and thirty-nine states and ratified by twenty-seven (Kittichaisaree 2001; Schabas 2001). The Statute consists of a Preamble, 13 parts and 128 Articles, the most important of which are Part 1, entitled “Establishment of the Court” and Part 2 entitled “Jurisdiction, Admissibility and Applicable Law” (Human Rights Watch 2002; Kittichaisaree 2001; Schabas 2001). Part 1 states that the UN has established an independent ICC with a seat at The Hague and jurisdiction over crimes of international concern in any State that is a member of the UN (Kittichaisaree 2001). Part 2 stipulates that the ICC has jurisdiction over 4 major crimes, including genocide, crimes against humanity, war crimes and the crime of aggression. Its jurisdiction is limited to crimes committed anywhere by nationals of ratifying states, although by special request states that did not ratify the Statute may accept the court’s jurisdiction if they are willing to cooperate with the processes of investigation and prosecution (ICC
Fact Sheet 2002). There are three ways in which a case may be brought before the ICC. Either member States or the Security Council of the UN may refer a situation to the court for investigation (ICC Fact Sheet 2002). Likewise, the ICC prosecutor can initiate an investigation based on reliable information received from the victims, NGO’s and other related sources (ICC Fact Sheet 2002).

At this point, a provision has yet to be adopted regarding the definition and conditions under which ICC jurisdiction may be exercised regarding the highly controversial charge of aggression (Kittichaisaree 2001). Likewise, an important consideration of the ICC is that persons committing crimes “prior to the entry into force of the Statute” (Rome Statute, Article 24 Part 3 1998) are not criminally responsible for their actions and that “in the event of a change in the law applicable to a given case prior to a final judgment, the law more favorable to the person being investigated, prosecuted or convicted shall apply” (Rome Statute, Article 24 Part 3 1998). Furthermore, the jurisdiction of the ICC is only required in instances where a State is unwilling or insincere in its attempts to investigate and prosecute the crimes stipulated by the Rome Statute (Kittichaisaree 2001). In this instance, the ICC must consider whether:

(a) The national proceedings or decision had the purpose of shielding the person concerned from criminal responsibility;

(b) There has been an unjustifiable delay in the proceedings inconsistent with an intent to bring the person concerned to justice;

(c) The proceedings were not or are not conducted independently or impartially but with the intent not to bring the person concerned to justice (Kittichaisaree 2001: 30).

It should also be noted that in no instance will the ICC make a distinction between civilian and military jurisdictions (Kittichaisaree 2001). The intent of this principle is that the application of international criminal law must be consistent with internationally recognized human rights and must be above discrimination or favoritism based on an alleged perpetrator's status or lack thereof.

The ICC represents significant potential for growth within the discipline of international forensic bio-archaeology. While forensic bioarchaeological investigations have historically been somewhat confined by a lack of scientific input to the discipline, primarily due to budget and time limitations, the renewed interest on the part of the international community means that more funding for scientific research could be made available to professionals. Furthermore, in addition to the use of eyewitness testimony, the evidence recovered by forensic archaeological investigations will likely be of
paramount importance in providing proof that various modern international human rights abuses were committed. Where possible, this evidence may also indicate who was primarily responsible for the atrocities. At present, however, the legal principles of the ICC have yet to be formally codified and released to the international community. Likewise, neither the currently active community of forensic bio-archaeologists nor the ICC has developed protocols for the valid recovery of archaeological evidence for use in legal proceedings. It remains to be seen whether this issue will become a priority in the near future. Assuming that the ICC continues to follow precedence set by the ad hoc international criminal tribunals, however, it is unlikely that the creation of international archaeological excavation protocols will ever be granted the necessary relevance by the international law community, primarily because it lacks the expertise to do so. Therefore, it is the responsibility of internationally active forensic bio-archaeologists to create the standards required of the discipline in order to ensure that the work conducted on the international scene is scientifically and legally valid. At the time when this thesis was written, an organization known as INFORCE had taken responsibility for bringing a number of internationally active professionals together for just such a purpose. Jon Sterenberg (2002b) was also working on an independent set of archaeological protocols. The tangible results of these efforts, however, remain unrealized at the time of the completion of this thesis.
3.0 The Mass Grave as a Distinct Archaeological Phenomenon

There is a lack of literature pertaining to the study of mass graves as distinct archaeological phenomena. New knowledge and methods have typically been taken from domestic forensics casework experience, for which the primary focus is usually single surface and buried remains. While this research is somewhat applicable to mass grave scenarios, experts have recently begun to express the realization that each mass grave creates its own distinct microenvironment and thus should not be conceptually isolated from the physical, social and political forces which create the site (Haglund 2002; Sterenberg 2001).

The physical context includes such factors as the size of the interred body mass and the effect this has on the processes and rates of decomposition. As discussed above, Mant (1950) was the first academic to take note of the "feather-edge effect" often observed in mass graves. This term refers to the tendency for body masses to decompose more rapidly at the edges, while those bodies grouped in the center of the mass decompose much more slowly. In addition, it is known compared to a single interred body, decomposing body masses create greater amounts of heat during the initial stages of decomposition and the heat dissipates at a slower rate. This heat effect is merely one example of a physical context for which the study of single burials provides inadequate insight.

The physical context can also be related to the legal context of the mass grave; in particular, the lack of respect with which the individuals are treated or the haste with which the inhumation occurred. For example, archaeological documentation of haste or disrespect could be used to support a charge of genocide. Thus, the reasons for exhuming the mass graves are broader than those for single burials. Similarly, while both scales of forensic investigation involve a legal component, it must be acknowledged that the magnitude of the crimes represented by a mass grave is much greater than that of a single burial. Furthermore, the goal of mass grave exhumations is not limited to providing the courts with a high standard of evidence to assist in identifying and charging the individuals responsible for interring the remains, but also to linking the mass grave to the larger context of the crime in order to allow the courts to indict any state and military leaders who are morally responsible for war crimes, crimes against humanity, and genocide.
In spite of the general acknowledgement that mass graves require special consideration, it seems that much of the literature presently being created by the academic and professional community of forensic scientists still maintains a largely bio-anthropological emphasis. Jon Sterenberg’s unpublished M.Sc. thesis (2001) is, at present, the only work that considers the mass grave as a unique archaeological feature with its own body of literature requiring independent analysis from specialized forensic bio-archaeologists. While his thesis recognizes the valuable contributions to the science by disciplines such as traditional Archaeology, Physical Anthropology, Geography and the Forensic Sciences, he nonetheless expresses the importance of creating a detailed international forensic archaeological protocol for the location, exhumation and analysis of mass graves (Sterenberg 2001). It should be noted, however, that in creating this type of international protocol, the international humanitarian law community must provide direction to ensure that the result is ethically and forensically valid in accordance with the high standards of evidence collection, analysis and curation expected by international legal institutions such as the recently ratified International Criminal Court (ICC).

These standards for evidence do not yet exist at an international level. Current practice according to the ad hoc International Criminal Tribunals (ICTY/ICTR) requires that evidence reports be created for use in court while the tangible evidence remains catalogued. The evidence must be catalogued and stored in such a way as to slow its decay, thus avoiding introducing potential for further loss, destruction and error in interpretation. Upon looking to United States for examples of protocol for testing the legal and scientific validity of evidence, a much better means of ensuring that the evidence is being collected and analyzed in a competent manner emerges. Based on precedence set by the 1993 trial Daubert v. Merrell Dow Pharmaceuticals, the U.S. Supreme Court introduced a four-part test to determine “general acceptance” of the scientific methods being employed. This four-part test includes:

1. **Whether the type of evidence can be and has been tested by scientific methodology,**

2. **Whether the underlying theory or technique has been subjected to peer review and has been published in the professional literature (although this is not sine qua non),**

3. **How reliable the results are in terms of potential error rate,**

4. **General acceptance (Daubert v. Merrell Dow Pharmaceuticals 113 S.Ct 2786 1993).**
While this test of "general acceptance" does not guarantee that a given methodology or theory is correct, it at least guarantees that a given technique has been reviewed by the discipline it is intended to serve. Furthermore, it encourages the use of scientific research methods, a check which forensic bio-archaeology currently needs in order to ensure that any research that is conducted is valid from an international perspective. Thus, while it is true that the current "Rules of Procedure and Evidence" for international criminal tribunals are somewhat imprecise with respect to the admissibility and evaluation of evidence, nonetheless, forensic bio-archaeologists should prepare themselves and the discipline to meet similar tests of "general acceptance" (Giffard and Rodley 2002). Of particular importance in this regard will be the creation of standards for measuring information loss to be discussed later in the thesis.

The political context, meanwhile, is generally unique to the mass grave in that most modern mass graves are the result of an organized attack by a political or military power against a given religious, cultural, national or political community. In most instances of genocide, annihilation of a minority group is pursued to gain power, such as increased economic hegemony, the elimination of a perceived military or political threat or an increase in land. This political gain may continue after the end of the atrocities via acts of denial, as witnessed with Turkey's denial of the Armenian genocide of 1915 (Astourian 1998; Dadrian 1999a; 1999b; 1995; Hartunian 1968; Hovannisian 1998; 1984; Jernazian 1990; Shirinian 1998; Smith et al. 1998). Thus, it is extremely important that steps are taken towards both documenting the occurrence of war crimes, crimes against humanity and genocide and identifying individual victims, lest the perpetrators continue to benefit politically from their crimes.

3.1 Defining the Mass Grave

Several conflicting definitions for the term "mass grave" have been published over the years from a variety of institutions and academics claiming expertise in the matter. The main source of conflict is the number of individuals present in the grave for it to qualify as a mass grave. For example, Mant (1987) submits that a mass grave consists of two or more bodies that are in contact with each other. His definition is based on the work he conducted in the late 1940s as part of an investigation into the various war crimes committed by Nazi leaders. Skinner (1987) states that a mass grave is any single burial unit containing at least half a dozen tightly-packed, yet indiscriminately placed bodies. The emphasis placed on the nature of the bodies deposition within the burial unit is intended to highlight the disrespect with which the
victims are handled. This definition thus distinguishes between mass graves and mass burials in which bodies are carefully placed, suggesting a degree of care in the process. It should be noted, however, that both Mant's and Skinner's definitions place more emphasis on the number of individuals and their physical relationship to each other than the legal context of their deaths.

The legal perspective was not merged with the concept of the mass grave until 1996 when the UN Special Rapporteur published a new definition (International Criminal Tribunal for the Former Yugoslavia 1996), defining a mass grave as any location where three or more victims have died as a result of extra-judicial, summary or arbitrary executions, not including individuals who died in combat or armed confrontations. An excellent aspect of this definition is that it allows for the inclusion of body masses interred in different types of features, such as village wells, natural ravines and graves. Perhaps most importantly, however, the emphasis placed on the context of the formation of the mass grave is useful from a legal perspective because it automatically presents the legal team with a series of potential motives and charges. These options may include genocide based on the ethnic, religious, national or political identity of conflicting groups, war crimes or crimes against humanity, all of which can lead to the prosecution of individual perpetrators (Schmitt 2002). However, this definition fails to acknowledge the common disrespect with which the remains are interred.

Ultimately, both the number of individuals and the context of their execution is of extreme importance. In many instances, mass graves are used as an efficient means of hiding human rights abuses and war crimes committed by the very institutions that are, in theory, designed to protect their civilians. The victims in these cases are generally not combatants, but neutral civilians who are protected by international humanitarian law in times of war, whether the conflict takes place within a single nation or expands to an international scale (Haglund 2002). Thus, for the purpose of this thesis, I will be using a definition that is based on a merging of the previous three. I have defined a mass grave as any location containing two or more tightly-packed, indiscriminately or disrespectfully placed bodies representing victims who have died as a result of extra-judicial, summary or arbitrary executions, not including military combatants who have died as a result of armed confrontations.

3.2 Types of Mass Graves and Mass Grave-Related Sites

Upon reviewing a variety of site reports, newspaper and journal articles pertaining to the exhumation of mass gravesites, it becomes apparent that there are
several types of mass grave and mass grave-related sites with which forensic bio-archaeologists should be familiar. In the past, efforts have been made to distinguish between common types of burials encountered in a traditional archaeological context. Likewise, efforts have been made to distinguish between grave types according to the number of individuals interred within or whether the remains represent primary or secondary burials. The article "Post-Burial Disturbances of Graves in Bosnia-Herzegovina" (Skinner et al. 2001), uses several case studies to exemplify the degree to which a classification system for distinguishing between types of mass gravesites is necessary for forensic bio-archaeologists. This community has failed to create a comprehensive and thorough set of definitions according to which the different behavioral contexts leading to the creation of the individual mass grave might be adequately summarized and communicated. Nonetheless, distinctions can be made based on the archaeological characteristics of each type and are important to acknowledge in order to better reconstruct the sequence of events affecting the remains. This section of my thesis attempts to make these distinctions.

The first type of mass grave-related site is the execution site (ES), wherein multiple individuals are executed as part of extra-judicial, summary or arbitrary executions. The archaeological manifestations of this type of site may be visible on the ground surface or may be obscured by a grave pit or similar feature intended to inter the resulting human remains. It is important that the community of forensic bio-archaeologists come to some agreement on standards of communicating the distinction between surface execution sites (SES) and grave execution sites (GES), for example. The evidence pertaining to these sites would primarily relate to the method of execution, such as bullet casings or explosives residue, although the evidence may also include samples of human blood, tissue and clothing fragments.

Several events may affect the decomposition of the remains prior to recovery. Forensic bio-archaeologists must be able to diagnose certain events and, where possible, note them in the final assessment of the exhumed site. Specifically, it is not always the case that the bodies are interred immediately after their execution. Most commonly, the grave features are dug prior to the victims' execution. In some cases, however, the bodies are dumped together on the ground and left until the necessary heavy machinery and personnel are available to better dispose of the remains. This temporary surface deposition site (TDS) may be recognizable by the presence of extraneous clothing, personal effects, blood and bone fragments. This type of event may not be immediately evident from analyzing the human remains recovered from a mass grave. Nonetheless, it may be worth checking with any informants as to the time
between the execution and burial because this could have an effect on the rate of decomposition due to exposure to weather, insects and scavengers. Lacking this type of information, the estimation of elapsed time since death for the interred remains could be inflated. On the other hand, a site with significant amounts of taphonomically altered human bone but lacking extraneous evidence pertaining to the method of execution, such as bullet casings, likely represents a permanent surface deposition site (PDS).

Gravesites that for whatever reason failed to be used to inter bodies would be in a similar category. The presence of a ramp leading into the grave to assist heavy machinery in dumping the victims, for example, might be diagnostic of a potential grave feature. Recognition of such diagnostic features of the pit is important to establish an element of premeditation in the crimes committed by an individual or organization. It is not unlikely that in some instances the perpetrators may choose to use natural features, such as ravines or caves, to inter a body mass (Simmons 2002). In this case, the use of a natural feature should be noted. It is most common, however, for the perpetrators to construct a simple rectangular pit in which to dispose of bodies using heavy machinery. Heavy machinery could leave tooth marks remnant of an individual bucket along the walls of the grave, however, this important characteristic is likely only observable by means of careful archaeological excavation. Likewise, a grave feature constructed using heavy machinery is liable to have more regular walls than those constructed by hand. These features are archaeologically distinguishable and should be appropriately distinguished as either a machine-made grave feature or a human-made grave feature.

The first episode of interment can be most easily referred to as the primary inhumation site (PIS). In previous works, this type of site has been termed a primary mass grave, roughly referring to a grave containing multiple individuals who have been executed and interred soon after death and therein share a related cause and manner of death (Manning 2000; Mant 1987; Schmitt 2002; Skinner 1987; Sterenberg 2002a). The term clandestine grave is also commonly used in reference to the hasty looting of a primary inhumation site or the creation of a secondary inhumation site in relative secrecy to further conceal the crime from the international community (Skinner et al. 2002). Locals often know the locations of clandestine graves, however. In some instances, a primary inhumation site may also be a grave execution site. Conversely, it may occur in a location far removed from where the victims were killed. Primary inhumation sites are distinguishable by the nature of the remains interred within. For example, while the bodies may be deposited in the grave in a disorderly fashion, it is
likely that they will remain somewhat articulated and that any sloughed soft tissue, such as the fingernails and hair, will be present with the bodies. It is also likely that evidence pertaining to the method of execution, such as bullets or shrapnel, will remain either within or close to the host body. Regarding the taphonomic alteration of the remains, there will be no noticeable disruption in the decomposition of the remains. This feature is indicated by the presence of uninterrupted “feather-edging” around the body mass (Mant 1950).

The next common type of mass gravesite is the secondary inhumation site (SIS). This type of mass grave has also been previously termed a secondary mass grave, defined as a grave that is opened and some or all of the victims removed (Manning 2002; Sterenberg 2002a). Severely disarticulated and commingled bodies are the most easily recognized indicators of a secondary inhumation site, and are the result of the use of heavy machinery to scoop up the partially decomposed remains, transport them to the secondary location and inter them again using heavy machinery. The use of heavy machinery will also result in the mixing of soil and artifacts from the primary inhumation site. Easily disarticulated elements and sloughed soft tissue such as upper and lower limbs and the aforementioned fingernails and hair might be missing, presumably left behind in at the primary inhumation site.

It should be noted that both primary and secondary inhumation sites might contain one or multiple depositional events, resulting in a stratigraphic series of body masses separated by soil. If deposited over a substantial period of time, these body masses may demonstrate increasing stages of decomposition as one excavates from the surface down to sterile soil. These layers should be appropriately numbered and the overall site classified as a multiple deposit interment site (MIS).

The robbed or looted inhumation site (LIS) is closely related to the primary and secondary inhumation sites. In this instance, the terms “looted” or “robbed” refer not to the theft of grave goods but rather the clandestine removal of human remains from the grave by the perpetrators for the purpose of creating a secondary inhumation site known to a minimum number of informants and potential investigators. Looted mass graves may be important from the perspective of the International Criminal Tribunals, thus it is important for the forensic bio-archaeologist to have a general idea of the physical evidence left behind in the perpetrators’ haste at this type of site. As seen in the Former Yugoslavia, the ability of investigators to link the Petkovci Dam site with Liplje 2 was crucial to recovering the sequence of events experienced by the victims (Manning 2000). Important evidence remnant at a looted inhumation site includes the grave feature, as well as seemingly unimportant or easily obscured items such as
clothing, hair and ballistics evidence. These types of evidence often remain at the primary burial site and can provide valuable evidence pertaining to the formation of an overall sequence of events concerning the individuals recovered from a particular body mass. That said, the International Commission on Missing Persons, for example, tends to place more importance on exhuming and identifying individual remains found in mass gravesites (Sterenberg 2003).

3.3 The Goals of Mass Grave Exhumation

There are multiple considerations to be evaluated in the process of exhuming a mass grave or mass grave-related site. These are best articulated in the article "Recent Mass Graves: An Introduction" in which William Haglund (2002) states the multiple rationales for the correct and thorough exhumation and investigation of contemporary mass graves including:

(a) To collect narrative and physical evidence to establish the accountability of the responsible parties and bring them to justice;

(b) To process the evidence in such a way that individual victims may be identified and their remains returned to their surviving family;

(c) To create a document that will scientifically overwhelm the work of historical revisionists;

(d) To expose human rights abuses to the international community in order to establish an international standard to prevent future crimes of a similar nature;

(e) To grant the survivors a degree of closure knowing that their loved ones deaths were not in vain (Haglund 2002).

Thus, it is clear that not only is there a very particular agenda regarding the exhumation of recent mass gravesites, but also there is an emphasis on the ability of the excavation team to ensure that the investigation is conducted by trained experts employing valid techniques. Trained forensic bio-archaeologists have a particularly important role to play in such excavations. The tendency for mass grave exhumation teams to lack technical archaeological input may severely impact the site assessment and thus may detract from the quality of evidence used in subsequent legal proceedings. This absence has been noted many times by professionals and scholars concerned with the archaeological recovery of evidence from mass gravesites. The main reason could be an issue of semantics more than an issue of ignorance on the part of those working in the field. In most North American educational institutions, it is common for Archaeology to be approached as a sub-discipline within a four-fielded
Anthropology Department that also includes basic coursework in Linguistics and Physical and Cultural Anthropology, in addition to Archaeology. As a result, most forensic anthropologists emerging from North American universities and colleges have only a brief introduction to Archaeology yet can honestly say that they have some experience as archaeologists.

Clearly, a proper understanding of archaeological principles of reconnaissance, surveying, mapping, excavation and analysis, and in particular the confident ability to recognize significant evidence such as altered states of bone, metals and fabrics, as well as to reconstruct the overall spatial and temporal relationships presented at a site, requires more training than a few introductory courses can offer (Stover and Ryan 2001). Acquisition of this knowledge requires hands-on experience in a field school. With regards to the recovery of human remains, the knowledge can only be gained through the dedicated study of taphonomy via focused upper division lab courses and subsequent related field experience (Işcan and Loth 1996). Skinner and Sterenberg (2003) place particular emphasis on the integral role of archaeologists as the only leading experts in site transformation processes, an area of extreme importance for the interpretation mass gravesites. Dirkmaat and Adovasio (1997), meanwhile, stress the importance of an archaeologist’s ability to organize and monitor teams in the field and evaluate the forensic significance subsurface features and human remains in situ. In addition, a focused study of forensic bio-archaeology requires some experience in chemistry, physiology, geography, biology and other relevant sciences pertaining to individual specializations (Işcan and Loth 1996).

3.4 Ethical Considerations Regarding the Exhumation of Mass Graves

A great deal of sensitivity is required on the part of the forensic team, due to the highly charged political contexts surrounding mass graves. In traditional archaeological studies of violence, the aim is not impose a moral order on those past cultures being studied, but rather to examine the material culture pertaining to how different communities understood and manipulated their environment in times of conflict for interest’s sake (Carmen 1997). The application of cultural relativism is key in such studies. In the case of mass grave investigations, however, this relative perspective does not apply. While culturally relativity is important, one of the primary goals of any international mass grave exhumation is the recovery of physical evidence such that the imposition of a “higher moral order,” specifically that dictated by the United Nations (UN) and the related international criminal courts, is imposed upon the perpetrators.
This is directly related to any other stated objectives, including that of granting a sense of finality to the surviving family. While it must be admitted that a substantial part of closure is attained in the process of identifying the victims, this often-complex task is generally not the main objective of the NGOs charged with investigating mass gravesites. The successful prosecution of guilty perpetrators is the primary goal of most NGOs and is widely regarded by the international community as integral to providing closure for the families, the nation and the international community (EAAAF 2001; Haglund 2002). International humanitarian legal pursuits have taken precedence in many areas, as demonstrated by the existence of such institutions as the ICTY, ICTR and ICC, in spite of the fact that it may take years for legal justice to be realized.

In amassing evidence as part of a mass grave investigation, the forensic bio-archaeologist is charged with the responsibility of providing an interpretation of the evidence that will either exonerate or support guilt of an alleged perpetrator. Forensic bio-archaeology is often an inexact and flawed science, based on a series of standards that are in many ways outdated and research that may be difficult to replicate in the field or based on poorly collected data. As a result, solid conclusions are not always possible.

The fact that the international community has not previously identified this problem suggests that it is more concerned with the process of identifying a scapegoat than with assuring that the physical evidence and technical reports it relies upon are scientifically valid. This phenomenon was evident in the Versailles Treaty of 1919, wherein German guilt was written into the treaty while atrocities committed by other nations remained purposefully absent (Tusa and Tusa 1983). This tendency could explain past indifference on the part of the international humanitarian law community in encouraging the development of strict standards for excavation and evidence continuity. It is only in the last few years that organizations such as INFORCE (International Forensic Center of Excellence for the Investigation of Genocide 2003) have considered creating archaeological protocols with input from the international humanitarian law community.

Furthermore, it is often the responsibility of the forensic bio-archaeologist to make an informed decision regarding the ranking of different mass grave-related sites according to the severity of the events leading up to the creation of the grave (Skinner 1997). In such instances, it can be assumed that those sites deemed large enough and capable of providing a direct link to important war criminals will be given first priority. However, it is likely that such details will not be known of a site until they have been at least partially excavated and the full weight of the revealed evidence considered by
forensic and legal experts. In general, it is expected that secondary inhumation sites are indicative of a more severe crime - in addition to demonstrating the massacre of multiple individuals, the fact that the site was created clandestinely demonstrates a further charge of obstructing justice on several levels. Primary inhumation and multiple interment sites, lake burials and mass cremations would likely be next in terms of their legal importance. Looted inhumation and surface deposition sites are the least important legally due to the scarcity of identifiable victims. Likewise, while the focus of the international community is often on the prosecution of the major political and military leaders who were in power at the time the war crimes and crimes against humanity were committed, the evidence being recovered by forensic investigations is almost always indicative of the smaller, less important players, such as soldiers who were involved in the construction of the grave feature, for example. While it is possible to indict these individuals for their role as accessories, more often they are used as informants for investigations and are required to provide testimony that may later be used to bring an investigation against their superiors (Haglund 2002). This has been observed in several cases of international human rights abuses, such as the Krstić trial (Manning 2000). International humanitarian law states that while committing war crimes as a result of following orders is not a valid defense, such a fact will nonetheless be taken into consideration when determining the severity of the perpetrator's punishment (Tusa and Tusa 1983).

On a related matter, most investigations function under the general principle that it is naïve to assume that each individual case within a mass grave is of legal significance. It cannot be denied that the excavators have a certain duty to ensure that enough of the context is recovered to ascertain a distinct sequence of events from the evidence. Nonetheless, it is common for a few well-handled exhibits to be used to represent for the overall context of the grave. Skinner and Sterenberg (2003) refer to this tendency as the statistical aspect of the mass gravesite whereby the investigation (a) seeks patterns, (b) compares differences between graves and (c) highlights rare evidence or events. The identity and experience of the individual victim, therefore, is not the primary entity considered by legal inquiry. This focus on the individual victim is generally handled by other NGOs charged with providing closure to those left behind by the victim's death.

Meanwhile, there is an additional issue of personal bias within the discipline. It is to be expected that most forensic investigators experience a certain degree of empathy with the victims and as a result, have an overdeveloped interest in seeing someone answer for the heinous crime committed. This emotional response, though
understandable, is extremely common among the international community. The forensic bio-archaeologist, however, is morally and scientifically obligated to express any uncertainty that might favor an accused in his or her findings or the methods employed in their recovery, regardless of how vague or trivial it may seem. In domestic courts, slight uncertainty can, in the hands of the right defense, enable reasonable doubt to negate evidence harmful to an accused. Thus, professionals must make an effort to identify their personal and political agendas to acknowledge instances where such issues might be affecting their quality of work. Likewise, they must always be prepared for the failure of justice.
4.0 Motivation for the Creation of A Series of Experimental Mass Gravesites

As the international community becomes increasingly concerned about the future of forensics investigations in an international context, more emphasis is being placed on the use of forensic bio-archaeologists in all stages of field exhumations. At the same time, however, many professionals active in this type of work observe that the methods employed in recovering the evidence used in international criminal trial proceedings would not be allowed in American and Canadian domestic courts, for example, regardless of the severity of the crimes committed by the alleged perpetrators (Skinner 2003; Sterenberg 2003). As mentioned earlier, America relies on tests of "general acceptance," which the scientific community must meet before their methods can be allowed in a court of law (e.g. Daubert v. Merrell Dow Pharmaceuticals 113 S.Ct 2786 1993). Otherwise, the expert witness risks introducing "reasonable doubt" in his or her interpretations of evidence.

Presently, I believe that most of the evidence being recovered in the process of international forensic investigations would not stand up in a domestic court of law, primarily due to a lack of scientific research and testing of commonly employed methods for the recovery and interpretation of evidence. As a result, a common critique from the rapidly diversifying international community has been that past and present international criminal trials are not presenting scientifically defensible evidence for charging perpetrators with war crimes, crimes against humanity and genocide. For example, little research has been conducted on potential error rates for the recovery and interpretation of evidence exhumed during mass gravesite investigations. This raises the issue of "victor's justice," and the claim that ongoing international criminal trials are merely for show. According to this criticism, the emphasis is placed on going through the motions of providing justice for the primary benefit of the international Western community which desires a tangible outcome for its charity. Providing the local communities with justice and closure for the victims become a secondary purpose, while the process of thoroughly proving the guilt of the alleged perpetrators is of waning importance. It would appear that the act of performing the trial is more important than the principle of bringing guilty perpetrators to justice.

In response to these concerns, therefore, the next logical step in the progress of forensic bio-archaeology is to encourage increased scientific research into the archaeological processes which most affect forensic evidence in mass grave exhumations. Scientific research into the various taphonomic processes affecting the
overall formation of the mass gravesite and decomposition of the interred body mass is of particular importance. Such site formation processes refer to the total chemical, physical, natural and human factors affecting site formation as observed by the investigative team, including the effects of weather, acidity of the soil, scavenging, presence of different kinds of vegetation, and transport of the body mass by human agents, to name a few. A great deal of research already exists in other disciplines such as geography, archaeology and the forensic sciences in terms of the effects of scavenging on bone or how differing the acidity of soil encourages or slows decomposition. Thus, it is not necessary that these site formation processes be examined in isolation scientifically, but rather the cumulative effects of the total taphonomic agents acting on a site and a given archaeologist's ability to recognize important events are determined. The primary importance of this type of experimental research for forensic bio-archaeology is the establishment of some standards for measuring loss of information through which the community can begin to test the accuracy of its field methods and interpretations.

4.1 The Proposed Experiments: Some Theoretical Considerations

With these considerations in mind, it is relevant to review the body of scientific research emerging from experimental archaeology over the past twenty-five years, particularly as it concerns the study of taphonomy. In an attempt to better understand the site formation processes affecting mass faunal remains, various archaeologists have conducted scientific experiments in order to consider how independent taphonomic processes or the "laws of burial" (Efremov 1940) affect the decomposition of human remains by observing the decomposition of human and animal models.

The creation of a series of experimental mass grave and mass grave-related test sites is intended to begin the process of scientifically examining the site formation processes affecting mass gravesites. This exercise in taphonomic model building should assist the researcher in constructing a series of guidelines concerning the operations and products of the taphonomic processes impacting the sites such that the sequence of events involved in the creation of real mass gravesites might be decipherable by means of careful archaeological excavation. Furthermore, it is intended that any evidence exposed during excavation be quantified and compared to the contents of the grave from which it was recovered at the time when it was backfilled, such that the researcher is able to measure the percentage loss of information. It is hoped that any
knowledge born out of these experiments will serve to assist forensic bio-archaeologists in their pursuit of scientifically and legally valid methods of analysis and interpretation.

Perhaps the best synthesis of the history of taphonomic research can be found in the articles "Advancing Forensic Taphonomy: Purpose, Theory and Process" (Sorg and Haglund 2002) and "Method and Theory of Forensic Taphonomic Research" (Haglund and Sorg 1997). The authors discuss the relative novelty of the science, explaining its late development in terms of (a) the lack of opportunities for research due to the way in which death is viewed by our society, (b) the continually limited involvement of archaeologists and physical anthropologists in forensic investigations and (c) the limited awareness of taphonomy on the part of the mainstream forensic community as exemplified by medical examiners and coroners (Haglund and Sorg 1997).

In the past few years, the majority of taphonomic research has focused primarily on determining which human, non-human or environmental agents might be responsible for certain modifications and patterns of immediate post-mortem transport (Haglund and Sorg 1997). The majority of these studies, however, concern single burials on the grounds that the mass remains presented by modern mass gravesites are affected by too many variables to produce reliable theories. Lyman (1994) acknowledges "assemblages representing one or a few individual organisms signifying an accumulation or depositional event often tend to be easier to interpret than long-term accumulations consisting of multiple taxa and multiple individuals" (Lyman 1994: 452). With regards to the issue of bias or loss of information in the archaeological record, meanwhile, there exist a number of studies that mention this phenomenon, yet none which attempt to quantify information loss due to taphonomic processes. As a result, the theoretical application of forensic bio-archaeology to international human rights is developing at a much slower rate than that of forensic bio-archaeology to the forensic sciences. It is only now that the first theoretical efforts are being made to replicate the unique conditions embodied by a mass grave in order to better understand how to interpret the various classes of evidence interred within.

Upon commencing the model-building stage, therefore, it is first necessary to acknowledge the different types of theory involved. These include (a) low-range theory, whereby patterned empirical phenomena are linked with mechanical, physical and chemical causal mechanisms, (b) middle-range theory, whereby the organization and operation of the observed taphonomic processes are distinguished and (c) high-range theory, or the creation of over-arching explanations as to how the various taphonomic processes act upon the model as a whole (Bonnichsen 1989). In this instance, middle
range theory is most applicable to the study of taphonomy, as the intended outcome of this thesis is a series of theoretical guidelines for the construction of useful analogues for interpreting the taphonomic processes affecting the exhumation, analysis and interpretation of mass grave and mass grave-related sites.

Traditionally, middle range theoretical studies into the taphonomic processes affecting bone assemblages have relied on:

"the use of 1) actualistic studies of the effects of ongoing environmental and cultural systems; 2) experimental replicas which model the operations and effects of important taphonomic processes; and 3) limited inference studies which, because of unique context, allow inferences about the operations and products of past taphonomic processes" (Bonnichsen 1989: 517).

Ongoing mass grave and mass grave-related site exhumations taking place around the world have provided the internationally active community of forensic bio-archaeologists with a great deal of actualistic studies. What is currently lacking, however, are scientifically rigorous experimental models that replicate the site formation processes acting upon these sites, whether cumulative or otherwise. As a result, forensic bio-archaeologists have little proof of the scientific accuracy of their methods in the field. Of even greater importance is the fact that it then becomes difficult to assert the legitimacy of their efforts in a legal context. It is this conundrum that taphonomic models are designed to address.

There are four basic research questions that should be considered when designing the experimental sites. These include:

1. **Should the material properties of bone (e.g., bone state) be treated as constant or changing through time?**

2. **Are diagnostic signatures for linking pattern and process really diagnostic, or do several independent processes produce the same results?**

3. **Is the individualistic or normative theory the most appropriate for linking empirical observations to statements about the organization and operations of past environmental and cultural systems?**

4. **Can the operations of taphonomic systems be generalized from region to region or are the operations of taphonomic systems context specific?** (Bonnichsen 1989: 516).

Traditionally, questions of this nature were dealt with using the diagnostic signatures approach, whereby each unique taphonomic process is assumed to produce a unique morphological pattern on the subjects being studied (Bonnichsen 1989). Furthermore, this approach assumes that all physical, chemical and mechanical mechanisms affecting remains remain the same through time (Bonnichsen 1989). The problem with
this approach, however, is that one cannot make the assumption that, for example, carnivores will always alter bone in the same way. As demonstrated in William D. Haglund's 1991 PhD thesis entitled *Applications of Taphonomic Models to Forensic Investigations*, there is a great deal of variation in the behavior of a given species as a result of a number of factors, including, but not limited to the climate and accessibility of the remains. Likewise, it is not practical to attempt to isolate individual taphonomic processes in such models. Site formation processes are interrelated in terms of the bias they bestow upon the remains and may be impossible to replicate for experimental purposes. Thus the experimental study of individual taphonomic processes is unlikely to provide useful guidelines for the interpretation of mass grave and mass grave-related sites. Instead, the cumulative effects of all known taphonomic processes impacting a site should be monitored and studied in the hopes of providing a diagnostic model for the future interpretation of the overall sequence of events experienced by the victims of war crimes, crimes against humanity and genocide.

That said, it should be acknowledged that experimental archaeology has a long history of debate regarding its usefulness to the more applied areas of archaeology. Criticism regarding this "science" is emerging from multiple areas of archaeology and physical anthropology. For example, R. Lee Lyman has published a book entitled "Vertebrate Taphonomy," (1994) which focuses on the ineffectiveness of experimental models in predicting and distinguishing between taphonomic alterations. In this work, Lyman cites several examples of experiments that not only made definitive interpretations regarding the taphonomic processes they had attempted to isolate but also proposed predictive models for interpretation in the field. In each case, Lyman proves that these experiments are lacking with regards to their replicability in the field. In the end, it was deemed impossible to isolate the various site formation processes concerning zooarchaeologists.

This is a consistent trend throughout much of experimental archaeology. In designing experiments in which there are multiple variables randomly acting upon a site or set of artifacts, it becomes extremely difficult to distinguish which taphonomic process results in a given modification. Those experiments that, in the past, have striven to make definitive statements regarding the expected alterations from a given site formation process have soon after been proven inaccurate, primarily through other experimental archaeologists attempting to replicate the results of the previous experiment in the field or laboratory. A common explanation for this is that the researcher designs research questions that are guaranteed to support his or her hypothesis, aiming for a new and safe hypothesis rather than a null hypothesis. This
phenomenon is certainly not unique to archaeology, nor does it definitively imply that bad science is being practiced so long as attempts are made to replicate experiments in the field. It nonetheless remains a constant plague to the discipline as it strives to become more science-oriented.

Jon J. Nordby, however, discusses this issue in his article entitled "Is Forensic Taphonomy Scientific?" (2001) wherein he contemplates experimental archaeological studies of taphonomy as good science. He acknowledges that the multivariate contextual settings encountered by archaeologists as a result of varying climatic zones make law-like theory building a useless, if not impossible, pursuit. That said, he also recognizes that a discipline's inability to produce umbrella theories does not mean that experimental models cannot be used to approach questions concerning individual cases. Instead, he proposes that a genuine theoretical basis for the study of forensic taphonomy lies in the discussion and analysis of case studies.

4.2 Conclusions Regarding the Creation of a Series of Experimental Mass Grave and Mass Grave-Related Sites

As indicated previously, there are a number of areas requiring research with regards to the application of theoretical and experimental forensic bio-archaeology to international humanitarian law. In describing some of the shortcomings of modern research into taphonomy, Marshall (1989) identified five problem areas, including (a) a lack of standard nomenclature, (b) a dearth of comparative case studies, (c) unsynthesized and scattered data sets, (d) limited data sets and (e) researchers who lack a broad knowledge base appropriate for this multidisciplinary field. Other academics (Haglund and Sorg 1997) have since adopted this list and applied it to describe the limitations in modern forensic taphonomy.

These criticisms particularly hold true with regards to the application of forensic taphonomy to the study of mass grave and mass grave-related sites. As mentioned above, there are few standardized terms and methods used within the community of internationally active forensic bio-archaeologists. Likewise, while there are several published articles and books describing the anthropological aspects of mass gravesites, there are few similar works to discuss and compare the archaeological characteristics encountered during fieldwork. The resulting data commonly remain unsynthesized except for the purposes of the NGOs responsible for site exhumations. In addition, because the professionals performing the excavations are often hired from various
countries, the information can be further obscured by language and cultural boundaries. Meanwhile, legal considerations may prevent the release of the majority of recovered data to the general public until any related trials have been closed and their appeals period finished. Finally, many of the professionals working in the discipline have, understandably, a very specialized understanding of mass gravesites which leaves them unable to fully comprehend the entirety of what they are experiencing archaeologically.

What is required from within the discipline can most easily be achieved by increasing the amount of scientific research conducted on mass grave and mass grave-related sites. Although the research models commonly used by past forensic scientists in conducting experiments may not be ideal there are still gains to be made in continuing the process. The use of pigs in place of humans, for example, can still provide insight into the cumulative effects of various site formation processes on the decomposition of a body mass. However, standards regarding rates of decomposition may not be reliable and any experiments conducted should take this aspect into consideration and should be tailored appropriately.

Likewise, just because replicability is difficult to attain in experimental archaeology does not make it a useless science, but merely a flawed one. In this application, experiments should not be performed in order to provide grand laws of taphonomy by which all taphonomic processes can be explained; rather they should yield situational guidelines for interpretation dependent on a number of variables. The creation of a series of experimental mass grave and mass grave-related sites has a great deal to offer archaeology as a discipline, particularly where site formation processes are concerned. Presently, carefully monitored experiments are the only means of observing the introduction of bias in the archaeological record from the interment of material culture to its recovery by archaeologists. Because nothing like the proposed experiments has ever been undertaken before, the community of forensic bio-archaeologists has nothing to lose by attempting to create a series of experimental sites. On the contrary, there appears to be a great deal of potential benefit for both forensic bio-archaeology and the international humanitarian law communities, not to mention the victims of the atrocities and their surviving loved ones.

Thus it is still recommended that a series of experimental mass grave and mass grave-related sites be created, although the potential for inaccuracy and false conclusions must be kept in mind during all stages of the experiments. Prior to initiating the experiments, the researcher must carefully review current international forensic and humanitarian law literature to ensure that they are in touch with what is
happening in the disciplines. Any experiments should be carefully thought through in terms of the number of variables involved so as to ensure that each variable is monitored and documented throughout. Steps should be taken to determine the classes of evidence sought by the excavation team in the context of each mass grave and mass grave-related site type, as the forensic bio-archaeologist's ability to recognize and interpret evidence in the greater context of the site remains of primary importance in the exhumation process. Likewise, these experiments should emphasize understanding the cumulative effects of a variety of site formation processes within a given climate type, rather than isolating a single variable. Finally, any results should be published and subject to peer-review to increase the validity of the resulting data.
5.0 Relevant Classes of Evidence

Prior to discussing the research questions pertaining to various types of mass grave and mass grave-related sites, it is first necessary to consider the tangible goals of any mass grave exhumation from a legal perspective. It is widely acknowledged that The Rules of Procedure and Evidence for the international criminal tribunals tend to lack precision with regards to the admissibility and evaluation of evidence recovered from forensic investigations (Giffard and Rodley 2002). Nonetheless, the primary legal concern should be the recovery of evidence that either directly or indirectly leads to proof of guilt. Forensic bio-archaeologists are concerned with recovering and interpreting multiple classes of evidence. In addition, there are many taphonomic processes acting on the evidence that can greatly impact its chances of preservation and usefulness for future trial proceedings. Forensic bio-archaeologists must be able to interpret the taphonomic processes affecting evidence in order to determine which evidence is most likely to provide the prosecution with the kind of information they require. Likewise, it is important to be able to determine which evidence can be effectively preserved. As the related trial may take years to complete, it is important that the evidence be properly documented and curated so it is still of use when the time comes.

5.1 Classes of Evidence: Mode of Death

One of the most common classes of evidence pertains to the method of execution or mode of death for the victims interred in the gravesites. The most common mode of execution from an international perspective involves the use of ballistics evidence, though other less common methods such as sharp- and blunt-force trauma, ordnance and chemical and biological warfare may also occur. In the case of ballistics evidence, any material remains from live ammunition to cartridge cases should be collected and analyzed in an attempt to recreate the context of the execution. In the past, excavation of the grave floor often proceeded to a depth of at least ten centimeters below the last body, in order to screen soil for ballistics evidence (Haglund et al. 2001). A metal detector is used once the floor of the grave feature has been located in order to check one last time for relevant ballistics evidence (Haglund et al. 2001). In addition, the usual diagnosis is performed on the individual bodies, during which associated ballistics evidence is commonly removed, photographed and catalogued. Similar measures are often used in recovering ordnance fragments. A study of the spatial relationships between bullets and spent casings can provide the analyst with evidence regarding how many perpetrators were involved, where the perpetrators stood and the position of the
victims upon execution (Middle East Watch 1993b). Ballistics experts, meanwhile, are capable of tracing a single bullet back to the rifle from which it emerged by examining the rifling striae on the body of the bullet or the ejector mechanism impressions on the cartridge cases. In this manner, individual perpetrators may be identified by the distinguishing characteristics of their firearm. Sharp- and blunt-force trauma proves slightly more difficult to diagnose. While any recent and unhealed fracturing present on the hard tissue is likely remnant of a violent episode involving sharp- or blunt-force trauma, or post-mortem disposal events, the archaeologist must also take care not to misdiagnose accidental damage to the remains resulting from the processes of forensic site reconnaissance and exhumation. Likewise, upon determining peri-mortem sharp- and blunt-force trauma, it can be extremely difficult to determine which blow, if any, was the cause of death. This type of evidence, however, is extremely important in forming an understanding of the context of the site. For example, the apparent beating of victims prior to their execution suggests that a greater crime has been committed than that of an execution. It adds an additional degree of brutality that can be important in understanding and demonstrating the mindset of the perpetrators. Also attesting to the presence of brutality and disrespect are ligatures and other objects intended to incapacitate the victim.

When these kinds of evidence become apparent, however, a new challenge arises whereby identifying a sequence of perpetrators and events becomes necessary. This type of challenge has been met repeatedly in regions such as Rwanda where a group of people shared in the killing of victims using machetes. In such instances, it becomes extremely difficult to determine if any one individual had greater responsibility in the death or if all present were equally involved. Some accounts (Berkeley 2002; Li 2002; Packer 2002) of the massacres in Rwanda have suggested that due to fear of retribution on the part of the victims of the massacres' ghosts, killings took place in groups with two or more select individuals sharing in the murder while the rest beat the victim with the flat blade of their machetes. The goal in this instance was to confuse the process of spiritual retribution on the part of the victim. It has also served to greatly confuse the process of legal retribution, however, making informant testimony the only means of determining the identity of a given perpetrator. That said, domestic forensics cases in Canada and the US have shown that it is possible to trace cut marks or indentations on bone back to a single weapon, assuming there is a selection of weapons available for comparison, by examining the patterning of the striae on the affected elements (Skinner 1999a). In this manner, it can be possible to identify individual perpetrators though it should be acknowledged that it is extremely rare to have this kind of evidence at one's
disposal, especially in regions such as Rwanda where time, money and uncontaminated sites are difficult to come by.

The use of chemical and biological warfare agents, meanwhile, is currently of great concern in ongoing forensic investigations of mass grave and mass grave-related sites. The genocide conducted against the Kurdish populations in Iraqi Kurdistan represents the first known episodes whereby a nation used chemical warfare against its own population for the purpose of extermination (Middle East Watch 1993a, 1993b). Unfortunately, this may not be a solitary incident. It is now suspected (Sterenberg 2002a) that chemical warfare was used against Bosnian Muslim populations in the former Yugoslavia during the conflict in the late 1990s. This presents a serious concern for forensics investigation teams because in at least one case (Sterenberg 2002a) evidence was recovered suggesting that chemical agents were responsible for the deaths of the interred victims. These chemical agents could potentially be reactivated during excavation, resulting in severe illness for those professionals who came in contact with the remains (Sterenberg 2003). As the forensics team is rarely informed what the perceived cause of death is prior to arriving in the field, this presents an issue whereby research should be conducted to determine whether it is possible for testing to take place prior to the start of exhumations to negate the presence of chemical and biological warfare in the area. That said, no such research is currently taking place outside of various military institutions and so, is absent from the academic and public spheres. The goal in this instance would not necessarily be to identify a single perpetrator, because it is likely that this individual would merely be part of a larger sequence of events and orders. Instead, the goal would be to ascertain the context of the site in terms of the danger it represents for those in a position to begin exhuming the remains.

5.2 Classes of Evidence: Personal Effects

Personal effects are another class of evidence that is often sought in the process of exhuming mass graves. The most common kinds of personal effects found in this context include clothing, jewelry, fetish items, photographs, identification papers and personal documents. Clothing is often recovered, although greatly altered from its original appearance by the processes of burial and decomposition. Clothing is often washed in the field and then examined for evidence of bullet holes, stab wounds and stains pertaining to the demise of the individual. R. C. Janaway (2002) has conducted a great deal of research in an attempt to understand the decomposition of various textiles, such as wool, silk, cotton, linen and leather, at waterlogged, dry and burial sites when associated with soft tissues of the human body. This type of information has
proven extremely useful to the recovery and interpretation of textiles from mass gravesites because it has provided some basic understanding of the taphonomic processes that affect the decomposition of such materials. While it remains to be seen whether these results are replicable in the field, Janaway's research nonetheless represents a significant step forward for the discipline. Ideally, a similar range of experiments would be conducted under a wider variety of climatic conditions to determine the replicability and significance of the results from an international perspective.

Jewelry and fetish items, meanwhile, present a similar challenge in the process of recovering valuable evidence for the purposes of trial. Such items, and particularly fetish items, are often highly personalized. In most regions of the Middle East, for example, the Quran is perceived to have both preventive and curative medicinal value (Abu-Rabia 1994). To avoid illness, people will often wear passages from the Quran inside small leather pouches that they conceal in their clothing or wear around their neck. These passages will be individually chosen by healers to suit the type of affliction the individual is susceptible to and thus, can be used by family members to identify loved ones. Symbolic tattoos, branding and scarring might also be included in the category of a fetish item.

Jewelry includes anything from more utilitarian items such as glasses and watches to decorative items such as necklaces and rings. While copper and silver jewelry may tarnish and corrode leaving telltale stains on the hard tissues of the body (Janaway 2002), it is much more stable than other kinds of personal effects in terms of preservation. The challenge with organic evidence, however, is that of preservation both during the processes of interment and upon being exposed to air during exhumation (Janaway 2002; Sterenberg 2002a). The processes of decomposition tend to reactivate and accelerate when the remains are exposed to air and so, this type of evidence often becomes extremely delicate. In order to catalogue and curate the relevant pieces of evidence, care must be taken to slow decomposition and destruction as much as possible. The goal is not necessarily to identify a potential perpetrator, but rather to identify the individual victims to give closure to their surviving family members and loved ones. However, this type of evidence could also be significant in determining the validity of informant testimony and verifying the overall context of the site and its contents.

Photographs, identification papers and other personal documents represent another type of evidence that can be extremely diagnostic in international forensic investigations. For example, in many instances in Bosnia, the victims were often
civilians who were fleeing unsafe areas for safe zones maintained by the UN (Manning 2000; Sterenberg 2002a; Stover and Peress 1998). In such instances, they often carried small, meaningful objects such as family copies of the Quran, photographs of loved ones and letters. Because these items are less valuable than jewelry and other personal effects, they tend to be interred with the victims’ bodies, and are therefore subjected to severe decompositional forces that can greatly alter their appearance and stability. Upon being exposed through the process of exhumation, however, paper documents often become extremely unstable and so, cannot be easily cleaned (Sterenberg 2002a). For them to be successfully interpreted and preserved, it is first necessary to understand the site formation processes that have affected their decomposition in order to replicate these conditions. In most cases, paper documents are best preserved in an environment that closely resembles their interred environment, as this will impede accelerating decompositional processes (Sterenberg 2002a).

5.3 Classes of Evidence: The Perpetrators

As mentioned earlier, there are a number of ways in which the previously mentioned classes of evidence can identify individual perpetrators or perpetrating organizations. For example, bullets often bear unique features from being fired that allow them to be traced back to a single weapon, and so, a single perpetrator (Middle East Watch 1993a, 1993b). Clothing and gas masks discarded by the perpetrators can also be useful (Skinner 2001c; Sterenberg 2002a). These are just some examples of types of evidence recovered from within mass grave and mass grave-related sites that are more indicative of a single perpetrator’s presence at the site when it was created.

However, while the existence of such evidence may be indicative of a given individual’s presence at the site, it does not prove that they were necessarily involved in the act of killing the victims. Their role may have been limited to clandestinely interring the remains, for example, in which case the worth of the evidence depends on the individual’s ability to provide investigators with further information pertaining to the context of the site and potential perpetrators further up the chain of command. Furthermore, Haglund (2002) emphasizes that the tendency for investigations of war crimes, crimes against humanity and genocide to focus on identifying individuals in positions of authority who gave the order to kill, rather than that of the individual killers.

Meanwhile, the ability of the forensics investigative team to determine the identity of any perpetrating organizations from the site can be crucial in settling debate over the party or parties responsible for the crimes and the nature of the crimes
committed. In regions where war crimes, crimes against humanity, and genocide have occurred, identifying the responsible organization can be just as important as identifying the individual perpetrators because it is often the very institutions that are morally responsible for the safety of their citizens that are committing the worst atrocities. As mentioned previously, during the Nuremberg Trials several Nazi organizations were declared criminal in character such that membership became a crime (Bloxham 2001; Jackson 1971). This declaration then set the precedent for a series of indictments against known Nazi collaborators who otherwise might have remained immune to prosecution under international criminal law. More recently, in the Former Yugoslavia proof that Slobodan Milosevic and the Yugoslavian National Army (JNA) were responsible for committing genocide against the Bosnian Muslim populations in Bosnia gave the Clinton Administration reason to lift an earlier imposed arms embargo and begin targeting Bosnian Serb artillery positions using selective air strikes (Glenny 1996). The evidence required in these instances was little more than ballistics evidence indicative of one group’s acts of violence against a civilian group. On other occasions (Zawodny 1972), known prisoners of war have been identified by the presence of military uniforms and decorations and their deaths have been ascribed to the groups responsible for their safe keeping at the time of their execution. This type of evidence can be enough to raise international concern and initiate international humanitarian intervention in the form of criminal tribunals.

5.4 Classes of Evidence: Human Remains

Human remains are the most common class of evidence recovered from mass grave and mass grave-related sites. The presence of human remains in a mass grave context is, in itself, likely proof of some heinous crime. Nonetheless, careful and thorough examination of this evidence must be performed throughout the process of exhumation to ascertain which evidence best demonstrates the reconstructed sequence of events experienced by the interred individuals as victims of either war crimes, crimes against humanity or genocide. In addition, throughout the exhumation, other common objectives such as the determination of sex, ancestry, age and stature should be pursued, to reveal the identity and cause and manner of death of the individual victims.

The determination of identity ultimately depends on the forensic anthropologist’s ability to observe specific features present on the elements of an individual in spite of biases occurring in the archaeological record. While the majority of this information will be determined during autopsy, much of what takes place in the field affects the
accuracy and precision of the conclusions. For example, care must be taken to ensure that bodies are mapped in relation to any disarticulated elements or associated evidence to preserve a digital approximation of the positioning of the remains prior to their disturbance. These efforts can assist the investigators in reuniting disarticulated elements after their exhumation and contribute to the organization of the remains for easy analysis and interpretation at a later time. Likewise, any significant evidence pertaining to the mode of death should be mapped in relation to both the individual body and body mass to allow for future spatial analysis. The location of wounds on the body in relation to its position within the surrounding body mass, for example, can be crucial in understanding how the victims were executed. Individuals who are pushed into the grave and then shot will display a different wounding pattern compared to those who are shot outside the grave and then interred. The trajectory of the bullets will be angled differently and in the former case, often bodies resting towards the bottom of the mass will contain more spent bullets than those at the top. As it is possible to trace the path of a single bullet through a body, it should be possible to trace the path of a bullet through a body mass if the mass grave is mapped accurately. Likewise, a positive identification can depend on the forensic anthropologist's ability to recognize and diagnose personally identifying characteristics such as pathologies and traumas remnant on the hard tissue. Healed and healing fractures resulting from pre-mortem events can be extremely useful in regions where medical records are maintained throughout an individual's lifetime (Byers 2002). Chronic ailments such as arthritis and osteoporosis are similarly identifiable (Byers 2002). Likewise, dental records can be extremely useful in identifying individuals (Byers 2002). In instances where medical and dental records are not commonly maintained, family photographs and personal accounts pertaining to an individual's history of wellness can be integral in forming a positive identification (Schmitt 2002). It is the responsibility of the individual forensic anthropologist, however, to ensure that he or she is capable of diagnosing abnormal bone development in the archaeological record. Of particular importance are wounding episodes that occurred around the time of death and the ability of the forensic anthropologist to determine the difference between these and pre-mortem trauma.

In the past few years, the collection of DNA samples has proven extremely valuable in determining the identity of victims interred in mass grave and mass grave-related sites. DNA analysis is actually well suited to identifying individuals recovered in these types of sites. For example, the remains recovered from mass graves are often recent, meaning that the preservation of DNA in the hard tissue is likely exceptional.
Often, soft tissues such as hair, nails and skin can also be recovered, allowing for a less invasive sample to be collected. Furthermore, due to the fact that most mass grave investigations are taking place soon after the atrocity has been committed in terms of the archaeological record, the issue of contamination is not a concern. The one concern with this technology is the funding and time required to analyze the number of samples taken from mass gravesites.

General field methodology for the collection of mtDNA samples includes taking samples from the hard tissues, preferably teeth or the shafts of long bones (Harvey and King 2002). Samples should be carefully wrapped in foil and plastic so as to ensure that contamination does not occur during transport (Yang 2003). These samples should be carefully documented in terms of the individual from whom they were taken and their provenience within the body mass. The resulting mtDNA sequences are compared with blood samples taken from potential relatives from the victims' maternal lineages (Harvey and King 2002). This method of identification was used to identify forty-four of sixty-eight victims sampled from Ovčara I and II (Harvey and King 2002; Stover and Peress 1998).

5.5 Classes of Evidence: Other

While often overlooked in the course of past forensic investigations, there are certain characteristics of any crime scene that can provide the prosecution with a great deal of evidence if properly collected. For example, evidence present at the site such as the grave feature, tire tracks, foot prints and paths can be very important in recreating the overall context of the site. These types of evidence can be important in verifying informant testimony. Furthermore, disturbed flora, and insect and scavenging activity can be extremely important in determining the season and year during which the grave feature was created as well as the elapsed time since death for the individuals interred within (Byers 2002; Skinner 1999b; Sterenberg 2002a; Rodriguez and Bass 1983).

In examining the grave feature there are certain features that, if present, should be recorded carefully and mapped. For example, efforts should be made to preserve and map the walls of the pit created by the perpetrators. The walls may preserve certain diagnostic features such as the presence of tooth marks from the bucket of the heavy machinery used to dig the grave and inter the body mass. Theoretically, a cast might then be made of the tooth marks for later comparison with actual machines in an attempt to lead the investigative team back to the perpetrators. Likewise, the walls may preserve important botanical evidence such as sheared roots that can be used to
estimate the season or year in which the grave was created. Similarly, ramps are found when grave features are dug using a bulldozer. The use of the evidence in this case is not to identify individual perpetrators so much as to determine the accuracy of informant testimony or to demonstrate site linkages through shared site formation processes. In instances where the body mass is suspected of having been deposited by hand, the floor of the grave may preserve the footprints of the perpetrators. Such evidence, if properly excavated and preserved, can be used to identify individual perpetrators. These types of evidence can reveal important details pertaining to the overall context of the crime that until the recent employment of forensic bioarchaeologists in the field often remained unrecognized and therefore, unexplored by the investigative team.

Another crucial type of evidence present at mass grave and mass grave-related sites pertains to the path taken by the perpetrators to access the site. When investigative teams arrive at a potential site, their first step should be to identify and secure any potential routes or paths taken by the perpetrators in accessing the site in order to avoid further contamination and destruction of evidence leading to the eventual identification of the perpetrators. The evidence sought may include sheared branches or tree trunks, tire impressions and foreign objects abandoned on the landscape. Due to the common use of heavy machinery in transporting and depositing the victims, the area leading up to the eventual mass gravesite is often severely disturbed. One such instance in Former Yugoslavia documents the discovery of a vehicle obscured beneath a pile of dirt. The vehicle had been used to transport the bodies and upon breaking down, it was covered in back dirt and abandoned near the site (Skinner 2001b). An insufficient first search of the area missed the truck, but a later visit to the site took place after some of the dirt had eroded away and left a portion of the vehicle exposed, resulting in its discovery and eventual admission as evidence pertaining to the context of the crime (Skinner 2001b).

Damaged flora can be an extremely important source of information. Once again, the use of heavy machinery generally results in damage to the surrounding landscape in the form of broken branches, debarked trees and large, cleared areas (Skinner 2001c). Regardless of the region in which the grave is created, the first plants to succeed in the area immediately over the body mass will be weed varieties. Usually, this succession will have a distinctive pattern, roughly matching the shape of the grave feature. While this observation in no way guarantees the presence of a body mass below, it is a reliable indicator of whether an area has been disturbed and when the disturbance took place. Sheared branches and debarked trees, meanwhile, can preserve
a record of the season and year in which the perpetrators accessed the site (Skinner et al. 2003). Care must be taken to ensure that the disturbance preserved on the trees can be associated with activities relating to the crime. Nonetheless, because mass graves tend to be created in remote, isolated areas, it is likely that if any such disturbances are noted in association with a mass grave or mass grave-related site, the disturbance is related to the crime.

Insect and scavenging activity can similarly reveal a great deal about the season and year in which the bodies were interred, as well as whether the bodies had been moved prior to their interment in the mass grave. For example, interrupted or arrested larval development can provide information pertaining to the general location of any prior burials or deposition events, and the length of time that the bodies were present at the earlier location (Rodriguez and Bass 1983; Skinner 1999b; Sterenberg 2002a). Likewise, evidence of scavenging on the remains could mean that the body mass was left exposed for a period of time prior to its interment in the mass grave. Insect and scavenging activity both have a tendency to speed the rate of decomposition affecting the remains, making the apparent elapsed time since death seem longer to the untrained forensic scientist. For this reason, it is important that trained local entomologists interpret any entomological evidence recovered because they are more likely to be familiar with local species, succession waves and standards for development.
6.0 Suggestions for Further Research: Primary Research Questions Pertaining to the Scientific Interpretation of Mass Graves

Upon considering all of the preceding variables concerning the nature of mass grave and mass grave-related sites and the evidence interred within, a number of research questions become apparent. This is particularly true when addressing the concept of designing an experimental mass grave test site for the purpose of disclosing site formation processes.

The two types of site formation processes that should be monitored and thoroughly documented throughout any experiments conducted are exogenous and endogenous taphonomic processes. An exogenous site formation process refers to those caused by any human agent that affects the archaeological record. These acts include those committed by the perpetrator such as altering the time that the body mass is subject to surface exposure, using different types of fill to backfill the mass grave, speeding the rate of decomposition by adding chemical agents to the soil, disturbing the remains, and altering the nature of the remains via cremation. An endogenous process refers to any natural processes that cause alterations in the archaeological record. These processes include climatic factors such as changes in temperature, weather and water content of the soil, as well as environmental factors such as scavenging, insect and floral activity.

Meanwhile, Haglund (2002) describes six categories of taphonomic factors affecting the condition of remains in mass graves, including (a) grave characteristics, (b) temporal factors, (c) body characteristics, (d) soil characteristics, (e) body assemblage characteristics and (f) other characteristics, consisting of the temperature during the pre-burial period, moisture, post-burial exposure of remains to the atmosphere, disturbance and oxygen content (Haglund 2002). The grave characteristics category includes the depth, compaction, inclusions and intervening fill (Haglund 2002). Temporal factors affecting mass grave decomposition include postmortem interval prior to burial, and duration and season of burial (Haglund 2002). Body characteristics include the state of decomposition of the remains prior to interment, cause of death, body habitus and the presence or absence of clothing and other wrapping (Haglund 2002). Soil characteristics to be considered consist of the soil pH, drainage, compaction, coarseness, type and contaminants. Finally, body assemblage characteristics consists of
thickness and extent of the body mass and position of individual bodies relative to the 
core and perimeter of the body mass (Haglund 2002).

With all of these taphonomic variables to consider, therefore, an important first 
step is the identification and exploration of the primary research questions facing
internationally active forensic bio-archaeologists in field scenarios. In attempting this 
arduous task, it is first necessary to consider the primary research questions affecting 
the interpretation and analysis of mass grave and mass grave-related sites separately 
according to their previously identified archaeologically distinctive characteristics. 
The main function of this is to provide the internationally active community of forensic bio-
archaeologists with measurements pertaining to the amount of information lost due to 
the various taphonomic alterations that take place over time.

6.1 Primary Research Questions Pertaining to Execution 
Sites

Some of the most important questions pertaining to the overall context of crimes 
against humanity, war crimes and genocide can be answered at the execution sites.
Determining information pertaining to the method of execution, such as identifying the 
mode or instrument of death, is of particular importance. For example, execution sites 
in areas such as the Former Yugoslavia commonly demonstrate the use of automatic 
weapons to spray bullets into a group of people or the use of semi-automatic weapons 
to execute victims by means of a single bullet to the back of the head. In Rwanda, on 
the other hand, the most common mode of execution is the machete. Other relevant 
modes of execution include the use of ordnance and blunt and sharp force trauma. In 
the case of spraying shooting, small fragments of clothing, bone and cartridge cases 
often remain scattered over the execution site (Skinner 2003), while executing victims 
by means of a single bullet to the back of the head is unlikely to yield small fragments 
of clothing, for example. The use of grenades and other explosive devices, meanwhile, is 
likely to result in a great deal of severely fragmented bone with irregular perforating 
wounds, fragments of clothing and shrapnel (Skinner 1998b, 1998c). Thus, in most 
instances the mode of execution will be archaeologically distinguishable. That said, the 
effect of different modes of execution on the taphonomic processes affecting body 
masses remains unstudied.

In addition, it is also important to determine how many instruments were 
involved in the process of execution to estimate the number of perpetrators. For 
example, ballistics evidence recovered from a trench exhumed in Iraqi Kurdistan
allowed the investigative team to determine the number of weapons used in executing the victims such that they were able to determine that one perpetrator had reloaded the weapon once and moved closer to the grave pit, likely in an attempt to ensure that the victims were dead (Middle East Watch 1993a, 1993b). Thus, it is important to be able to identify the number of peri-mortem wounds and, when possible, the order in which they were inflicted. From a legal perspective, this can be used to determine the personal involvement of the alleged perpetrators. For example, it can be determined that the individual who reloads his or her weapon and fires at a closer range into the body mass to ensure the death of the victims has a greater degree of involvement in the criminal activity.

Of greatest importance is the process of determining whether any present bodies represent victims of war crimes, crimes against humanity and genocide based on the type and nature of the recovered evidence. For example, the presence of military uniforms, badges or documents, combined with a pattern of wounds inconsistent with those received in due course of armed conflict, such as a single bullet to the back of the cranium, could be indicative of the execution of a prisoner of war and thus, a war crime. Civilian clothing, or the presence of women and children, combined with a similar pattern of wound could likewise indicate a crime against humanity or act of genocide.

The ability for forensic bio-archaeologists to identify and interpret this type of evidence to draw definite conclusions about the mode of death is integral to the overall process of bringing alleged perpetrators to trial. Such conclusions can be used to test the accuracy of informant testimony, as well as the identity of the perpetrators of the crimes. Therefore, considering the importance of this evidence, it is important that forensic bio-archaeologists begin testing the accuracy of their field methods and observation skills in order to determine potential for misinterpretation in the field, and the degree to which contaminated evidence compromises international legal proceedings.

6.2 Primary Research Questions Pertaining to Deposition Sites

As described above, bodies are commonly deposited for varying periods of time just prior to the first episode of interment. Varying the time of deposition ultimately affects the rate and nature of decomposition of the body mass before and after interment. In several cases, rapid rates of decomposition have been observed acting on
relatively recent body masses, due to the presence of running water (Skinner 2001a; 1998d) or prolonged surface exposure prior to burial, for example. Such taphonomic factors can create an impression of greater time since deposition than alleged by informant testimony. With regards to the issue of surface exposure, there are several factors that can affect the rate of decomposition, such as scavenging, insect and botanical activity. Thus in such instances, it would be extremely useful to better understand the decomposition of exposed remains so as to better determine the otherwise invisible events leading up to the interment of the body mass.

For example, scavenger activity can leave an important signature on the remains, affecting the way in which a body or body mass decomposes. Scavengers scavenge single remains in a very particular manner, beginning with the soft tissue of the face and ventral thorax, then removing the upper and lower limbs and smaller elements such as phalanges, and concluding with the ribs and vertebral column such that only a small percentage of the original skeletal assemblage may remain in place (Haglund 1991). However, little research has been conducted regarding scavenging of body masses. It can be assumed that scavenging of a body mass would create a pattern reflecting accessibility of the exposed elements in addition to the amount of soft tissue or ease of transport of the elements (Ubelaker 2002).

With regards to determining the length of deposition, some flies can locate and begin laying eggs on a cadaver in a matter of minutes after death. Based on associated entomological evidence, therefore, it is possible to determine how long the body mass remained exposed on the surface by noting arrested larval development (Byers 2002; Sterenberg 2002a; Rodriguez and Bass 1983). Likewise, associated botanical evidence can be used to determine how long the body mass remained exposed on the surface, in addition to the season in which the body mass was moved (Hall 1997; Skinner 1997). It is common for plant activity to increase with the presence of decomposing remains, and in many instances, plant roots, vines and other extensions have been observed growing through foramen and wounds or between articulating elements (Hall 1997). This type of evidence should be mapped relative to any associated elements and collected for laboratory analysis.

It is becoming extremely important to scientifically evaluate taphonomic processes resulting from varying the deposition time prior to interment because this can affect estimates of elapsed time since death or the interpretation of the overall context of the series of events leading up to the death of the victims. Little such research has been conducted on these issues in spite of the vast quantities of physical evidence being recovered from mass grave and mass grave-related sites for the purpose of international
criminal trial proceedings. Thus, the community of forensic bio-archaeologists should be focusing more effort on improving its understanding of these factors to ensure that it is providing quality evidence and interpretations.

6.3 Primary Research Questions Pertaining to Inhumation Sites

Inhumation sites have the greatest complexity in terms of the variables affecting decomposition. There are a variety of factors requiring further scientific research regarding typical primary inhumation sites, for example. The majority of these concern the climatic conditions surrounding the site. For example, the soil used in backfilling the grave is of extreme importance. Different types of soil with their distinctive chemical, mineral and nutrient composition, in addition to water content, will significantly affect the rate of decomposition of the interred body mass. Temperature is another factor that directly affects the rate of decomposition of an interred body mass. Body masses will decompose more rapidly in hot, moist climates, while the opposite is true of cold, dry climates. In this respect, climate has perhaps the most significant impact on the decomposition of any mass grave or mass grave-related site. However, little to no research is emerging from different regions regarding how such factors as temperature, weather and soil type affect the decomposition of mass gravesites.

In many instances in the Former Yugoslavia, scrap metal has been included with the soil to obscure the grotesque nature of the features and impede future investigations by the international community (Skinner 2003). Common mass grave reconnaissance techniques, such as the use of metal detectors or ground-penetrating radar, are rendered ineffective in soil with a high metal or water content. Experts have yet to determine how the inclusion of metal affects the overall decomposition of the body mass. Furthermore, the perpetrators are likely to include chemical agents to speed the decomposition of the body mass and any associated evidence (Skinner and Blau 2003; Sterenberg 2002a). These acts may not necessarily be distinguishable in the archaeological record without detailed soil analysis, yet nonetheless have the ability to dramatically increase the apparent elapsed time since death observed by the forensic bio-archaeologist. It therefore is extremely important that the various chemical agents used to speed decomposition be researched to establish how regular standards for body mass decomposition are altered by their presence.

Another method of obscuring a body mass is burning. The use of fire to obscure a crime has been observed archaeologically in several instances in the Former
Yugoslavia (Skinner 1998a, 2001b; Skinner and Kennedy 2001). The Batajnica One site demonstrated burning at the center of the body mass with subsequent fragmentation and compaction of the remains (Skinner and Kennedy 2001). The surrounding soil contained layers of charcoal and "reddened, baked soil" suggesting that the remains continued to smolder after being interred (Skinner and Kennedy 2001). At Batajnica Two, meanwhile, several methods were used to hide the presence of the mass grave. Metal side panels, oval grommets and struts remnant of a canvas covered truck trailer were found throughout the body mass (Skinner 2001b). Of particular interest, however, was the presence of an incomplete layer of car tires along the floor of the grave feature, some of which had burned (Skinner 2001b). The site report suggests that the tires had been set alight and allowed to burn for an unknown period of time prior to backfilling (Skinner 2001b). At this point, the tires continued to smolder (Skinner 2001b). The effect that smoldering would have had on the rate of decomposition is unknown.

A great deal of literature exists within the forensic sciences pertaining to the study of human tissue that has been cremated to varying degrees (Buikstra and Swegle 1989, Dirkmaat 2002; Sledzik and Rodriguez 2002; for example). With an interred body mass, it is known that a distinct microenvironment similar to that found in an oven is created when remains are burned and then interred so as to prolong the smoldering and ultimately, thoroughly destroy the evidence. That said, the "distinct microenvironment" so often referred to by forensic bio-archaeologists has yet to be supported scientifically. The questions that arise in this instance, therefore, are whether it is possible to replicate smoldering in a mass grave so as to isolate and identify its effects on the interred body mass and whether its effects can be explained by any other site formation processes.

Scavenging and insect activity are also of importance, though such factors are less apparent with interred remains than exposed remains. In truth, most scavenging and insect activity will occur while the remains are exposed, depending on the depth at which the remains are interred (Anderson and Cervenka 2002). Shallow burials are often disturbed by scavengers searching for food, resulting in fragmentation and disarticulation of the remains. Likewise, insects settle on the body in successive waves (Anderson and Cervenka 2002). Flies commonly locate the bodies in a matter of hours and lay eggs on the remains, the larvae of which will then feed off the decomposing soft tissue until such a time as they are ready to pupate (Anderson and Cervenka 2002). Assuming that the body mass is transported and interred at some point after this has occurred, arrested larval development is extremely useful in determining how long the bodies were exposed for prior to their interment (Anderson and Cervenka 2002).
Similarly, local vegetation can greatly impact a mass gravesite. In most instances the forensic investigative team has only a rudimentary familiarity with the local vegetation. The botanical context of a mass grave can be extremely important, demonstrating elapsed time since the site was last disturbed, for example (Hall 1997). Vegetation is seldom considered with regards to the effect it may be having on the overall acidity of the soil, however. In relation to this, no studies exist considering the ability of certain plants to alter the rate of decomposition. The inclusion of forensic bio-archaeologists in the investigative team, is unlikely to remedy this shortcoming. Instead, the presence of a trained botanist with local experience is required to direct the investigative team as to how to proceed with their interpretations (Hall 1997).

The effects of clandestine exhumation, transportation and reinterment of the body are often observed in the archaeological record with the extreme degree of commingling that results. With regards to remains exposed after a period of interment, sudden exposure to air renews and increases the processes of decomposition so that a longer apparent elapsed time since death is attributed to the body mass. Likewise, an increased amount of commingling can be explained in terms of the sheering and jumbling results from transport by heavy machinery. Forensic bio-archaeologists have yet to document the cumulative effects of this phenomenon to determine how seriously such episodes affect the overall estimation of elapsed time since death, as well as other key interpretations required as part of the total exhumation by the investigative team.
7.0 The Research Design

Having conducted a review of the relevant literature emerging from forensic bio-archaeology and international humanitarian law, and having identified the types of mass grave and mass grave-related sites of concern within these communities, the final task pertains to thinking through the research design for each type of experimental mass grave and mass grave-related site. To this end, the remainder of this thesis will consider in detail such issues as requirements for the location, staff, facilities, budget and time-line for the experimental sites. It will also address the more practical aspects of designing an experimental version of each mass grave and mass grave-related site type.

7.1 The Research Design: Setting Up

Prior to launching the experiments, there are a number of basic issues that must be considered. For example, acquiring funding for a project of this scope may prove challenging and so should begin at least a year or two prior to the start of the experiments (see Appendix 9.3 for approximate datalogger equipment costs).

Once funding has been acquired, the task of finding a suitable location for the experiments may be difficult, and will likely require a great deal of research and communication with various research facilities and institutions a year prior to the desired start date for the experiments. Due to the nature, size and time span of the projected experiments, it may be difficult to convince research institutions to lend their space and facilities. It may be necessary to purchase private land, at which point providing the equipment and facilities becomes the responsibility and expense of the individual researcher, which is a less than ideal arrangement.

The experimental sites, once approved and funded, will also require many staff (see Appendix 9.1). Most of these positions will be short-term and require a certain naïveté on the part of the personnel lest their awareness of the nature of the experiments affect their interpretations of the sites they excavate. That said, at least two professional forensic bio-archaeologists should be present any time that the naïve personnel are working to ensure that entire sites and separate depositional events within mass gravesites, for example, are not missed. Ideally, most of the experiments will be monitored from remote locations, except for occasional sampling visits. Thus, a minimal amount of time and money spent on travel and maintaining the field facilities year-round will be required.
Ideally, the hosting institution will provide any necessary facilities and equipment (see Appendix 9.2). Failing this, it would be beneficial to have a basic understanding of the types and cost of different transportable field structures, such as wash stations, toilets, freezer compartments and field autopsy tents. It may be necessary to include these expenses in the initial funding request.

Finally, there is the issue of acquiring and preparing the subjects for the experiments. In this instance, it is recommended based on forensic precedent that juvenile pigs be used as a model for the human victims of war crimes, crimes against humanity and genocide. This choice will be explained in greater detail in the following section.

Preparing for the creation of a series of experimental mass grave and mass grave-related sites will be a very time consuming process requiring a great deal of organization and perseverance. The following sections are intended to provide more details for each of the issues mentioned herein and offer some suggestions for dealing with some of the inevitable problems that will arise.

### 7.1.1 The Location

There are three main considerations that must take priority in choosing a site for the experiments. The first consideration is that of size. The size of the overall site ultimately depends on the size of each mass grave and the number of experiments occurring at one time. It is important that in addition to the space required for the experimental sites, enough space be left remaining around each site to allow for the movement of heavy machinery and staff without unnecessarily affecting the interred remains. Likewise, an ideal setup would include basic facilities such as hand-washing stations, washrooms, safety equipment and a temporary field laboratory complete with an autopsy table, computing and datalogger equipment and cooled storage areas.

The second consideration is that of isolation. Due to the highly sensitive subject matter of the experiments, the experiments must be conducted away from the public eye to minimize the potential for interference from the surrounding community. A more isolated location will also be required if scavengers are to access to the remains.

Isolation is also a consideration in the third and most important concern - security. Depending on the area in which the experiments are conducted and the facilities available, it may be necessary to have site security present twenty-four hours a day, seven days a week, for many years. The primary purpose of this precaution is to
minimize the general public's ability to access and affect the sites. It may also be necessary to control the movement of staff throughout the sites.

7.1.2 Necessary Staff

A project of this scale will require many staff members in order to ensure that it is conducted as efficiently as possible by experts in relevant areas of anthropology, archaeology, crime scene investigation, computer sciences, geophysics and the forensic sciences.

The permanent staff members will include the Project Director, Assistant Director, Site Security and Information Technology Officer. The Project Director and Assistant Director will be responsible for ensuring that all aspects of the experiments are under control, including managing the site budget and timeline, overseeing staff and site publicity, ordering supplies and handling site progress reports. These individuals should have a strong foundation in archaeology. While most staff will be able to manage the experiments from a remote location during non-field seasons, site security should be a constant presence at the site regardless of the season.

The basic short-term staff required to prepare the experiments will include a logistician, computer programmer and machine operator for the heavy machinery. The preparation of databases for recording and organizing the evidence, monitoring the decomposition of the graves from a remote location and analyzing and interpreting the eventual findings of the excavations may be an ongoing process throughout the course of the experiments. The machine operator, however, will likely be a very short-term position, consisting of a few days work each time a new series of experiments is created or exhumed.

For the ongoing investigation of the experimental sites, meanwhile, short-term staff should consist of a Crime Scene Manager, Evidence Officer, Geophysicist, Assistant Surveyor, Photographer, Forensic Anthropologist, at least two Forensic bioarchaeologists, and a Pathologist. These individuals will be seasonal employees, responsible for overseeing any work conducted in their respective areas of expertise during the field seasons.

The use of "naive personnel" will be particularly important for beginning the site reconnaissance, surveying and mapping, excavation and interpretation of the experimental mass grave and mass grave-related sites. This experiment would prove an excellent opportunity to create a field school in which archaeology students could be trained according to internationally standardized field protocols, assuming the protocols
is completed in time. The students would have to be completely ignorant as to the nature and location of the sites. At the same time, however, the students should be overseen by at least two forensic bio-archaeologists who are aware of the location and nature of the different sites to ensure that they are not completely missed or destroyed. The purpose of this approach relates to the researcher's need to determine the level of accuracy and precision involved in the average mass grave exhumation. In order to determine the percentage of information loss involved in archaeological excavations of mass grave and mass grave-related sites, it will be necessary to ensure that these employees are not aware of the contents of the graves. The field methods employed by these individuals are to be examined for flaws with respect to the amount of evidence that is missed, lost or destroyed. Furthermore, site interpretations made after the excavations are complete will be examined to determine how accurately the naïve personnel were able to determine the sequence of events involved in the "crimes" depicted by the sites. The purpose of these assessments is to ascertain how accurately internationally active forensic bio-archaeologists are able to recover the full criminal and legal context of mass gravesites. Finally, while the students may talk amongst themselves about their findings, it will be of extreme importance that they do not talk about their experiences outside of the experimental site to ensure that future "naïve personnel" remain ignorant of the nature of the sites.

7.1.3 Key Facilities and Equipment

An experiment of this scale will require a significant amount of resources. Depending on the associated institution, staff accommodations, such as dormitories or tents, may be provided. Likewise, a food preparation and eating area should be provided. A power source should also be available, either via the hosting institution or a portable generator. In addition, it will be necessary to place a number of water sources, wash stations and toilets throughout the site in areas where they will not affect the decompositional processes of the experimental mass grave and mass grave-related sites. A first-aid trailer and first aid technician may also be desired.

Prior to creating the experimental sites, a walk-through of the uncontaminated site should take place in order to record any natural features, important topographical characteristics and floral and faunal activity. Survey equipment, including a total station, clinometer, rope, plum bob and tape measure will be required at this time to map the entire site. At least one notebook should also be charged with the task of recording every measurement made by the total station as a backup. In addition to aerial photography, a map should be created of the entire site with general site grids
imposed over top for organizational purposes. It may also be desirable to capture the aforementioned processes using video and digital cameras. With the exception of a datum point, no evidence of these activities should remain visible on the surface of the site.

The grave features may be created either by heavy machinery or by hand, depending on the type of grave feature the researchers are trying to recreate. The necessary equipment will include a backhoe and shovels. The use of heavy machinery will speed the process of digging and create a more uniform feature in a shorter period of time. Most modern mass grave features created in the Former Yugoslavia were created using heavy machinery. Hand-made grave features, on the other hand, are more common in regions such as East Timor and Rwanda. In any given region, the approach used will depend on what equipment is immediately available to the individuals charged with interring the remains. While the feature is being created, the pH levels of the soil comprising each site should be documented for comparison with after the experiments are concluded. Likewise, the resulting sub-sites must always be recorded in reference to the previously determined datum point using a manual recording method and total station.

A refrigerated trailer or room will be necessary any time the subject’s remains are being dealt with. As the “victims” will be brought in from a primary source, a refrigerated truck and storage area must exist on site. Ideally, the “victims” will be interred immediately after being transported to the site; however, back-up storage may be required. The “victims” will experience “execution” prior to being interred, and therefore, a great deal of spent ballistics and ordnance evidence will be included in the grave features. In addition, a variety of datalogger equipment for measuring precipitation levels, temperature and moisture levels will be included in the experiments both on the surface of the gravesites and within the body mass.

The site reconnaissance stage of the experiments will provide an excellent opportunity to test a variety of different mass gravesite reconnaissance methods for the purpose of determining which technologies work best for a given type of mass grave or mass grave-related site. The 1997 article by France et al. provides an excellent summary of some of the reconnaissance methods employed in locating clandestine graves, including aerial photography, magnetics, electromagnetics, ground penetrating radar, soil gas sampling, metal detectors, thermal imagery, and cadaver dogs. That said, Jon Sterenberg (2002) advocates three main methods of locating mass grave and mass grave-related sites: fluxgate gradiometry, resistivity surveying and ground penetrating radar (GPR). Based on past field seasons, it would seem that the most efficient and
inexpensive remote sensing technology is fluxgate gradiometry (Sterenberg 2001; Skinner 2003). Resistivity surveying remains the most effective ways of determining the precise dimensions and contents of a given grave feature (Sterenberg 2001; Skinner 2003). The equipment required at this stage of the experiments can likely be rented or hired with a trained geophysicist and will likely not represent an excessive expense for the project.

Once a potential site has been located, stakes, rope, line levels, flagging tape, nails, tape measures, pruners, trowels, shovels, dental picks, brushes, dust pans, notebooks, pens, paper bags, smaller storage containers and other basic excavation tools will be required. It may also be necessary to have a portable tent or tarp to provide shade for the excavation team. As mentioned earlier, a clean and secure refrigerated storage area will be required in order to process any recovered evidence, especially remains. This area must be well organized and spacious to minimize the potential for mixing, damaging and losing recovered evidence.

Finally, an office space will be needed to provide the Project Director and Assistant Director with a workspace. This area will also prove useful during the data analysis and report writing stages, some of which can be conducted from a remote location. Several computers should be available for data entry during the process of evidence analysis and interpretation. Likewise, a telephone and Internet server would be useful, albeit luxurious, resources to have on site.

Once the experimental sites have been fully excavated and their contents analyzed, it will be necessary to backfill the grave features and clean the site. Once again, heavy machinery can be hired for a few days to assist in the backfilling of any empty features. It may also be necessary to reinter the remains of the "victims" once forensic analysis of the faunal remains is complete, another task in which the heavy machinery can be of assistance. Ideally, once the experiments are complete the site will look undisturbed.

7.1.4 Approximate Time Line

The expected time line for the first stage of the experiments is four years (see Appendix 9.4). During the eight months spanning winter, spring and fall, the experiments can be observed for the most part from a remote location via the Internet. Occasional visits to the site may be required in order to collect faunal and floral samples and repair equipment. Ideally, however, the site will remain relatively vacant of personnel until the summer field seasons when the bulk of the work will take place. Four summer field seasons are expected to be sufficient to observe the full range of
taphonomic processes affecting the experimental mass grave and mass grave-related sites.

### 7.1.5 The Pig Model

Pigs are the likely models to be used in the experimental sites. Pigs have a long history of use in experiments that model the decomposition of human tissue, primarily due to the fact that they are hairless (Anderson 2003). The animals can likely be purchased from a pig farmer so long as the pigs are killed in a humane and respectful manner. This is usually performed using a pin gun or electric shock. Due to the fact that the pin gun method compromises the integrity of the skull, however, another less invasive method, such as electric shock, should be used. The pigs should be sub-adult at time of death so as to make their handling easier. Ideally, the pigs should be acquired from a local pig farmer to minimize the time in transport. They should be transported in a cooler unit so as to slow the processes of decomposition without freezing the remains.

Once at the site, the remains should be allowed to reach ambient temperature prior to their "execution" and interment. Major elements should be tagged using micro-dot guns, color-coded bands or digital transmitters, depending on the budget for the experiments to provide a way of assessing how well the future excavation team is able to recover disarticulated elements. Collecting mtDNA samples of all the major elements may also be useful in this regard, though extremely expensive. Depending on the direction the researcher wishes to take the experiments, the pigs can either be "executed" and buried at the same time or acquired at various periods throughout the year to determine seasonal standards of decomposition. In replicating the experiences of actual victims of war crimes, crimes against humanity and genocide, meanwhile, it may be necessary to include certain types of evidence with the individual bodies, such as clothing, torture marks, ligatures, and blindfolds. Furthermore, it may be required that the remains have certain atrocities inflicted upon them prior to interment, including torture and beating. For obvious reasons, this could prove extremely traumatic to personnel. Therefore, it might be recommended that particular types of professionals, such as armed forces personnel, be hired to inflict hard tissue trauma upon the subjects. Ultimately, every detail of the premortem, perimortem and postmortem condition of the "victims" should be documented thoroughly, especially individually identifying pathologies and unintentional damage due to handling.

Similarly, any evidence recovered in the process of excavation must be carefully documented in relation to the body from which it was taken (if applicable), the body
mass as a whole and the site as a whole. It will be important to digitally reconstruct the spatial relationship among classes of evidence in order to better understand the context affecting the “victims” interred in a given location.

7.2 The Research Design: The Execution Sites

7.2.1 The Grave Execution Sites

As mentioned earlier, grave execution sites are distinguishable from surface execution sites in that they are subsurface and generally include evidence pertaining to the use of automatic and semi-automatic weapons. Likewise, the victims are interred at the site of their execution, meaning that more of the context of the crime is preserved. The goal in exhuming this type of site is to recover the maximum evidence possible because the execution site offers the most insight into the overall context of the crimes.

In replicating this type of mass grave-related site, the primary concern is to test for each of the execution methods to determine how well archaeologists can identify these different methods using archaeological techniques. Likewise, it would be extremely useful to formulate some standards regarding how much of this type of evidence is recoverable during the process of exhuming the body mass. In addition, while those individuals “executed” in a grave feature will remain interred within, those individuals “executed” at a surface execution site will be interred elsewhere.

In preparing the experimental grave execution site, it is necessary to be aware of the common characteristics observed among past grave execution sites exhumed by forensic bio-archaeologists. Such sites may contain anywhere from two to hundreds of bodies, deposited as part of one episode of execution or multiple episodes of execution taking place over several days. The overall size of the experimental grave execution site will ultimately depend on what the researcher is attempting to observe. A middle-range experimental grave execution site might include ten to twenty bodies deposited in a heaped body mass in a grave feature approximately four by four meters wide and two meters deep, for example. Ultimately, it is up to the individual researcher or research team to decide how large they want the site to be.

Upon placing the bodies in the grave feature, it will be necessary to “execute” the subjects by means of either semi-automatic or automatic weapons. Care should be taken to document the positioning of the “perpetrators” in relation to a site datum point for comparison with the interpretation of evidence that results from later exhumations. Ideally, the “perpetrators” should stand near the edge of the grave feature, firing the weapons at a downward angle into the body mass. A record should be kept concerning
the types of weapons used and the number of bullets directed into the feature for later comparison with what has been recovered archaeologically. Once a sufficient amount of ballistics evidence has been introduced to the site, it will be necessary to add datalogger equipment throughout the body mass in order to monitor some of the endogenous site formation processes affecting the remains. For example, at least five thermometers should be placed within the body mass - one in the center and four towards each pole of the body mass. Likewise, it is recommended that a water content probe be inserted below and in the center of the body mass to determine how much water is contacting the remains and how this affects the overall rate of decomposition. A tipping bucket might also be included near the grave feature to measure the amount of precipitation in the area.

Prior to interring the remains, it will be necessary to map the overall location of the body mass, as well as the positioning of individual bodies in relation to a datum point. This mapping exercise will enable the digital recreation of the body mass for later comparison with the location and positioning of the body mass upon exhumation. It is assumed that due to the processes of decomposition, the body mass changes in size, shape and positioning over time, though no research has yet been conducted to determine how this occurs, nor what impact it has on the site's conditions upon excavation.

Next, the grave feature should be backfilled. The researcher will need to decide how long the body mass should remain undisturbed prior to exhumation based on the nature of the research questions he or she is addressing in the experiments. In a warm, moist environment, it may be possible to exhume the mass gravesite after only one year to find the body mass in the desired stage of decomposition. In cold, dry environments, particularly where freezing events affect the site for more than a couple of months, it may be necessary to wait at least three years for the body mass to reach the desired stage of decomposition. The researcher will likewise need to consider that the size and positioning of the body mass will also affect the decomposition of the body mass. As discussed above, Mant (1950) observed a phenomenon he referred to as a "feather-edge effect," whereby bodies located towards the outer margins of the body mass decomposed much more rapidly than those located towards the middle. The various dataloggers interred with the remains should thus be constantly monitored by means of an external computer.

Once the desired state of decomposition has likely been achieved, a reconnaissance team should be sent in to conduct a series of invasive or non-invasive search techniques in the general area. If the desire is to test the skill and accuracy of
the archaeological techniques being employed in the field, any personnel involved in the processes of reconnaissance, surveying, mapping, exhumation and interpretation of the evidence should be unaware of the location and nature of the mass gravesites. Once a potential site has been located, a datum point must be established and the site and any potentially relevant surface evidence mapped accordingly. Following this, exhumation may begin with extreme care taken to recover as many different classes of evidence as possible. The exhumation should focus on recovering the maximum amount of evidence while preserving its spatial relationship to the rest of the site. Time may or may not be an issue at this stage.

7.2.2 The Surface Execution Sites

Meanwhile, surface execution sites differ from grave execution sites in that most of the relevant evidence will remain on or near the surface of ground. In general, a wider variety of modes of execution are experienced, including semi-automatic and automatic weapons, ordnance, sharp- and blunt-force trauma and chemical and biological weapons. Likewise, the bodies of the victims who are executed at surface execution sites, whether inside a building or in an isolated field, are seldom left at the site to decompose. In most instances, the victims are executed and then transported to a second location, either by the perpetrators or by surviving loved ones, for the purpose of interring the remains. These actions result in a secondary crime scene that often remains unknown to the investigative team. On occasion, however, the bodies may remain exposed at the surface execution site, where they decompose extremely quickly due to insect and scavenging activity and exposure to the elements.

In preparing the surface execution site, a large site must be set up, beginning with the process of assigning a datum point. The extent of the site will depend on the number of modes of execution being tested and the range to which the instruments are capable of spreading evidence. The type and location of vegetation and significant features on the landscape should be documented for later reference. This site could likely be split into several smaller surface execution sites where several modes of execution could be tested. Likewise, this area is the optimal location for “executing the victims” for any of the deposition and inhumation sites.

The relevant literature should be carefully reviewed concerning how victims of war crimes, crimes against humanity and genocide are executed. If the researcher is interested in exploring the use of semi-automatic and automatic weapons, he or she may wish either to place the bodies sporadically across the surface execution site or heaped together. If machetes are being used, it might better mimic the experiences of
the victims if they are placed randomly throughout the site. Once again, it is important
that the number and pattern of strikes per weapon be documented for any instruments
used. The resting position of the “victims” should also be carefully mapped for
comparison with the interpretations made by the future excavation team.

Regardless of whether the researcher’s intent is to leave the bodies exposed
permanently or to inter the bodies at secondary locations, datalogger equipment should
be placed at the site to monitor precipitation, humidity levels and temperature in the
area. Likewise, it would be a good idea to use video equipment so as to preserve a video
record of any scavenging activity that takes place, for example. Visits should be made to
the sites on a regular basis to determine non-invasively the degree of degradation of the
site.

Again, the researcher has discretion as to how long the sites should remain
undisturbed prior to the start of the excavations. Presumably, one year would provide
enough time for any evidence to experience the full seasonal effects of exposure. Once a
suitable state of degradation has occurred, a reconnaissance team can be sent out to
attempt to locate the site using a variety of invasive and non-invasive search methods.
As before, these individuals should be uninformed of the location and nature of the
sites. Depending on the degree to which vegetation recovers, the evidence may remain
visible to the eye upon foot searching the area. Efforts should be made to document the
different strategies used to locate the sites and the relative success of each.

Once the sites have been located, surveying and mapping can take place with
particular emphasis on the recovery of all classes of evidence, especially remains. The
actual excavation of the site will follow. The ultimate goal is to determine whether the
context of this type of site can be accurately recovered by forensic bio-archaeologists
and whether any definite conclusions can be drawn regarding the number of victims
executed, the mode of death employed, the number of perpetrators and the nature of
the crime committed, if any.

7.3 The Research Design: The Deposition Sites

7.3.1 The Temporary Surface Deposition Sites

A temporary surface deposition site can be distinguished from a permanent
surface deposition site by the absence of certain major elements of the victims and the
presence of large quantities of evidence pertaining to the mode of death. For the
purpose of experimentation, these types of sites can be located either with execution
sites or independently. For example, individuals from the surface execution sites might
be left there for either (a) a few hours, (b) 1 day, (c) 3 days or (d) 1 week, thus creating temporary surface deposition sites before being interred at a secondary location.

In preparing these sites, it will be necessary to map the spatial relationships between the bodies. All activity at these sites should be monitored by video, with particular attention paid to the observation of insect and scavenger activity for the duration of their exposure. It will be of particular interest to compare rates of decomposition between body masses exposed for different periods of time. Likewise, the way in which the bodies are deposited could affect the rate of decomposition. Theoretically, bodies that are heaped together may decompose more slowly than those that are scattered because of reduced access for insects and scavengers. However, body masses tend to generate greater amounts of heat that should speed the rate of decomposition, so it would be interesting to see how these factors influence decomposition rates during experiments.

The period of exposure will depend on the goals of the researcher. The bodies can be gathered within each site using heavy machinery and transported to separate inhumation sites for interment. Care should be taken to document any damage that occurs to the remains during transportation. Each site should be surveyed immediately after moving the body masses in order to map any significant evidence left behind for later comparison with the results of the excavations. Once again, a year of uninterrupted exposure should probably be allowed so that a good range of endogenous site formation processes can further impact the sites.

Once the desired period of time has elapsed, a naïve reconnaissance team can be sent out to search for the site using a variety of invasive and non-invasive search techniques. All methods used should be documented and their effectiveness for this type of site noted. Upon locating the site, the team must survey and map the site to determine the extent of the site based on the classes of evidence that remained following the removal of the remains. Once completed, excavation may begin with the goal of determining the nature of the site.

7.3.2 The Permanent Surface Deposition Sites

A permanent surface deposition site can be distinguished from the temporary surface deposition site by the presence of a wider range of human remains, as well as evidence pertaining to the mode of execution. In creating this type of site, the "victims" can be exposed permanently at the surface execution site so as to document the site formation processes affecting remains that have been forgotten or purposefully left behind.
In monitoring the various taphonomic processes affecting the condition of the various classes of evidence, video equipment and daily visits to the site can be used to maintain documentation. Samples of insects should be collected to determine succession patterns in the area. Access to the site by scavengers should be allowed, though measures should be taken to ensure that any elements removed from the site are recorded when possible. Likewise, weather patterns, precipitation levels, temperature and humidity should be recorded to determine the various climatic conditions affecting each site. In theory, those body masses which remained exposed to the elements for longer should be experiencing more rapid decomposition than those that are interred, though again, the pattern by which the bodies are distributed over the site can affect this as well. Observations should be recorded daily to determine the progress of decomposition until full skeletonization occurs.

Once the remains have reached a state of full skeletonization a naïve reconnaissance team should be sent out to locate the site using a series of invasive and non-invasive search methods. As before, they should document any technologies used and make efforts to compare their results with those used to locate and assess temporary surface deposition sites. Upon locating the site, surveying and mapping should take place with emphasis on the investigating team's ability to locate as many of the individual bodies as possible in spite of the scattered and severely decomposed nature of the remains. Following this, excavation can begin. To this end, it would be extremely useful to determine some basic standards pertaining to what percentage of the bodies can be recovered using archaeological methods after a given period of time. While forensic bio-archaeologists are aware of biases affecting the archaeological record, at present there are no standards for how much of a site is recoverable for different types of mass grave and mass grave-related sites.

7.4 The Research Design: The Inhumation Sites

7.4.1 The Primary Inhumation Sites

The primary inhumation sites can often be distinguished from other mass gravesites by the relatively articulated state of the remains and the rate of decomposition observed within. It should be noted, however, that the longer the “victims” are exposed prior to burial, the greater the potential for disarticulation to occur in transporting the remains to the gravesite.

The grave feature can be created using heavy machinery with care taken to map the walls and floor of the resulting pit. The researcher may want to alter the soil type for
the grave in order to determine what affect this has on the rate of decomposition. A selection of bodies can be taken from one of the surface execution sites and placed inside. Their positioning in relation to the feature and the overall body mass should be mapped using a total station. This may be an excellent point at which to subject the body mass to burning and other altering forces. Once complete, temperature probes should be included in the middle of the body mass with four more placed at each pole of the body mass. Likewise, water content probes should be placed at the top, middle and bottom of the body mass to determine how much water is impacting the site. Following this, the remains can be interred.

Video equipment should be set up around the graves to monitor the activity of scavengers. For the first month, insect samples should be sought daily, with weekly sampling taking place after the first month in order to determine the types and quantities of insects that are attracted to the remains. Plant samples should be collected seasonally with particular attention paid to the area directly above the body mass in comparison to areas surrounding the mass grave features. Depending on the number of bodies and sites being engaged at one time, the researcher may want to set up a schedule whereby one grave is exhumed each month, so as to provide a more complete understanding of the continuous processes of decomposition affecting the remains. That said, the researcher may decide to wait anywhere from one month to several years, depending on the climate where the experiments are being conducted and how much decomposition is desired.

Once the primary inhumation site is deemed ready, a reconnaissance team may begin looking for the site using invasive and non-invasive search techniques. As always, they should not know ahead of time what type of site they are looking for and where it is located. Upon locating the site, surveying and mapping should occur with particular emphasis placed on mapping the extent of both the grave feature and the overall site, including any potential points of access for the “perpetrators.”

Once the full extent of the site has been determined, excavation may begin. Care must be taken to preserve the original walls of the feature so as to see if there is any potential for dating the site via botanical evidence. Likewise, there may be telling striations preserved in the walls that can be used to distinguish between hand- and machine-dug grave features. The nature of the remains should be carefully documented with particular emphasis placed on the degree of commingling and disarticulation present among the bodies. In addition, any associated evidence should be documented in terms of both its location within the body mass and the individual body from which it is recovered.
7.4.2 The Secondary Inhumation Sites

The secondary inhumation sites are distinguishable from primary inhumation sites by the pronounced degree of disarticulation and commingling experienced by the body mass. Likewise, certain types of evidence may be extremely rare or missing from the archaeological record in secondary inhumation sites, including smaller, easily disarticulated elements such as phalanges. In designing these sites, bodies can be looted from the primary inhumation sites by means of heavy machinery and interred in a secondary location. In order to maintain a control between site types, it may be wise to create one large primary inhumation site, one end of which can be designated for looting so as to compare the difference between the states of decomposition at the primary and secondary inhumation site. In this instance, commingling will be severe and it will be very difficult to keep a record of individual bodies and their disarticulated elements. Color bands, micro-dots or transmitters can be used to tag major elements so as to later determine how effective the excavators were in sorting the commingled bodies. This should be done prior to interring the body mass at the primary inhumation site, however.

The body mass will be retrieved by means of heavy machinery and transported to a new mass gravesite for reinterment. The resulting secondary inhumation sites should be reinterred with the appropriate datalogger equipment deposited throughout the body mass. Once this is complete, the grave may be backfilled. Constant visits to the site to collect insect and botanical samples will be necessary. In addition, video equipment should be maintained so as to preserve a digital image of any scavengers impacting the sites.

The time period for which the secondary inhumation site remains undisturbed will vary depending on the goals of the researcher. Once an acceptable degree of decomposition has been attained, site reconnaissance, surveying, mapping, exhumation and interpretation can continue as described for the primary inhumation sites. The goal here is to distinguish between primary and secondary inhumation sites based on the archaeological characteristics observed by the investigative team. It is possible that the investigators will be able to determine the number of prior interments experienced by the remains by analyzing the number of exotic soil types found within. Of primary importance, however, is that the investigative team recognize that the body mass has experienced an episode of disturbance similar to that of creating a clandestine or secondary inhumation site.
7.4.3 The Looted Inhumation Sites

Looted inhumation sites should be easily distinguishable from other inhumation sites, primarily due to the absence of complete bodies. Some disarticulated elements may remain, along with sloughed soft tissue, fingernails and hair samples. Furthermore, evidence pertaining to the method of execution may be recoverable, though removed from the victims who experienced it. As mentioned previously, the primary inhumation sites can be used to create a looted inhumation site. Following excavation, the primary inhumation sites can be backfilled with the assumption that the excavation team will miss a certain amount of evidence, thus creating a looted inhumation site. Likewise, a primary inhumation site could be designated for looting via heavy machinery rather than by forensic bio-archaeologists so as to ensure that a random selection of evidence will remain in the emptied grave feature.

As with the other experimental sites, the time between the creation of the looted inhumation site and its excavation can vary greatly depending on the goals of the researcher. A year would likely allow for the full range of taphonomic processes to affect the site. Once an acceptable amount of degradation has occurred, reconnaissance efforts can begin as with the other inhumations sites. Once located, the looted sites should be thoroughly mapped for any remaining evidence. The goal in this instance is to determine whether it is possible to distinguish between looted inhumation sites and other types of inhumation sites. Likewise, it is important to consider the types of evidence revealed in excavating looted inhumation sites in terms of the benefit they can serve in international criminal trial proceedings. While it is extremely important to understand the sequence of events and common patterns employed by different perpetrators, it is possible that the kinds of evidence recovered from looted inhumation sites may not be extensive enough to allow for definite conclusions to be drawn linking secondary and looted inhumation sites, for example.

7.5 The Research Design: The Control Sites

In conducting a series of experiments as complex as these, it may be necessary to include a series of control sites in order to ensure that any perceived results are unique to the given type of mass grave or mass grave-related test sites in which they were observed. There are two primary questions that these sites are intended to address, including:

1. To what extent are observations the same between experimental test sites and control sites where the body mass remains unaltered by execution and handling?
2. **Is this type of site archaeologically distinguishable from those representing acts of war crimes, crimes against humanity and genocide?**

As in most science experiments, it is hoped that the use of control sites will enable researchers to determine whether any conclusions drawn are accurate interpretations of site formation processes.

The control sites should remain similar in design to the experimental sites save for the experiences visited upon the subjects. For example, assuming that the researcher is replicating an execution site for the purpose of the experiment, it would be recommended that a control site be created, the subjects of which would be treated exactly the same as in the experimental execution site minus the presence of evidence pertaining to a given mode of death. In other words, the manner of death for the "victims" would appear to be natural. That said, ultimately, the number and types of control sites will depend on the research goals of the individual researcher. It may be necessary to create only one control site as the different types of experimental mass grave and mass grave-related sites should serve as controls for each other. Ideally, this would serve to lend the experiments more scientific validity than were they to be conducted independently. This scientific validity is particularly important for the purpose of the international criminal law community. Upon completion of the experiment, any control sites should be exhumed using archaeological methods and its contents used for a comparison between mass gravesites representing war crimes, crimes against humanity and genocide and those resulting from less hostile circumstances.

### 8.0 Conclusion

The creation of a series of experimental mass grave and mass grave-related test sites has the potential to greatly advance the body of knowledge currently employed by the internationally active community of forensic bio-archaeologists. The proposed experiments are extensive in nature, requiring the independent scientific research of a variety of previously unidentified mass grave and mass grave-related sites. Likewise, a great deal of funding, space and time would be necessary in order to properly conduct the experiments and communicate the results for the purpose of peer-review.

Nonetheless, due to the pronounced interest in international humanitarian causes relating to mass graves and their associated crimes, the current international political
atmosphere would likely be supportive of experimental endeavors of this kind. The discipline of forensic bio-archaeology has nothing to lose in attempting to create a series of experimental mass grave and mass grave-related sites and a great deal of knowledge and scientific legitimacy to gain for the benefit of proceedings currently taking place within the international criminal law community. This is particularly relevant with the recent ratification of the International Criminal Court and the increasingly scientific rules and procedures for evidence that forensic bio-archaeologists are going to be required to meet.
9.0 Appendices

9.1 Staff

"Permanent" Positions:
- Project Director
- Assistant Director
- Site security (24 hour may be necessary depending on the location and nature of the site).
- Information Technology Officer

Temporary Positions:
- Logician
- Computer Programmer (to design databases, surveillance systems, site web page, etc.)
- Crime Scene Manager
- Backhoe operator (1-2 employees to dig grave features according to predetermined specifications).
- Geophysicist (to oversee site reconnaissance).
- Photographer
- Assistant Surveyor
- Evidence Officer
- Forensic Anthropologist
- Forensic bio-archaeologists (2-4 hired per field season to oversee the reconnaissance, surveying, mapping, excavation and field analysis of sites).
- Students (~20 Archaeology/Osteology student employees/volunteers for field seasons who remain at the site for one field season to serve as naive personnel).
- Forensic Veterinarian/Pathologist
- First aid technician
9.2 Important Facilities and Equipment

Facilities:
- Accommodations
- Food preparation/eating area
- Wash stations/showers
- Drinking water stations
- Toilets
- Generator (failing a permanent power source)
- First aid trailer
- Refrigerated storage area
- Telephone/Internet service

Survey Equipment:
- Total Station
- Tape measure
- Rope/string
- clinometer
- plum bob
- notebooks and pens/pencils
- flagging tape
- stakes
- shovels
- probes
- weed whackers
- pruning shears
- computer and software (for creating map of sites)

Creating Experimental Sites:
- 360° digger
- Shovels
- Flagging tape
- Total station
- Tape measure
- Rope/string
- clinometer
- plum bob
- notebooks and pens/pencils
- root cutters
- weed whackers
- pruning shears
- paper and computer documentation of "victims" experiences prior to "execution"
- precipitation measure
- subsurface thermometers
- portable weather station
- weapons
- semi-automatic and automatic weapons and bullets
- machetes, knives and other instruments for inflicting sharp- and blunt-force trauma
- ordnance – grenades, explosives, etc.

Excavation:
- total station
- clinometer
- tape measure
- compass
- plum bob
- notebooks and pens/pencils
- stakes
- rope
- line levels
- flagging tape
- nails
- pruners
- trowels
- shovels
- dental picks
- brushes
- dust pans
- paper bags
- small storage containers
- remote sensing technologies (fluxgate gradiometry, resistivity surveying and GPR)
- portable tent/tarp
Other:

- Manual and digital cameras
- Video cameras (handheld and video surveillance)
- Computers
- Vehicle (for transportation of staff/equipment)
### 9.3 Approximate Budget for Datalogger Equipment\(^6\)

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**Total before taxes**

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\(^7\) Subtotal for each experimental gravesite.
9.4 Sample Time Line for Experiments

Year 1: 1-1 (spring/pre-field season)
- Arrange for location of experiments, complete with staff facilities and site access on a daily basis.
- Arrange for site security.
- Purchase and rent necessary equipment (see Appendix 9.3 for approximate budget for datalogger equipment).
- Arrange for necessary computer programs, data sheets and daily log books.
- Begin interviews for necessary staff (see Appendix 9.1).
- Ensure all associated facilities are functioning.
- Arrange for humane execution and transport of subjects to site.

Year 1: 1-2 (summer/first field season)
- Locate datum point for site and survey, map and record area in its entirety with particular attention paid to major landmarks and naturally occurring flora and fauna.
- Arrange site area into several sub-sites depending on the number of experimental mass grave and mass grave-related sites required with well-marked access routes for necessary heavy machinery.
- Conduct aerial photography and sub-surface testing using GPR on site.
- Test soil type for each sub-site.
- Create mass grave features using heavy machinery for some and manual labor for others.
- Survey and map the dimensions of the features and record the surface characteristics of each.
- Prepare subjects including recording the state, size and age of each subject, tagging the major elements according to each individual, clothing the subjects and binding select limbs.
- Create the following site types: SES, GES, PIS, SIS, LIS, MIS (see Appendix 9.5).
  - In the first few months, it may only be necessary to create the SES' and GES' from which the other mass grave and mass grave-related sites can be created at a later date.
  - Subjects may be deposited in several "events" to create a MIS with care taken to record the dimensions and contents of each layer.
  - A series of CS' should also be created (grave features containing no evidence) depending on the requirements of the experiments. It may be necessary to create only one.
  - "Execute" subjects according to the type of mass grave or mass grave-related site they are required for (record on VHS/digital camera).
  - Include personal effects and other evidence.
• Carefully record everything that is done to the subjects on data sheets as it is happening with particular attention paid to mapping the placement of all classes of evidence and the overall dimensions of the body mass in relation to the grave feature.

• Set up and record the location of any required surveillance and datalogger equipment prior to backfilling those sites that require it.

• Set up video surveillance of sites in order to capture any interference with human remains as a result of scavenger/human activity.

• Take aerial photographs of resulting sites and use "naïve" personnel to conduct GPR to determine subsurface visibility of fresh sites.

Year 1: 1-3 (fall/remote observation and sampling)

• Conduct observation visits of the sites periodically (once a month) with particular attention paid to the process of recording and mapping any noticeable disturbances to the sites.

• Follow video surveillance, noting the presence of any scavenging/human activity as it impacts the sites.

• Use naïve personnel to survey and map the sites for comparison with earlier records.

• Collect floral and faunal samples (including insects and associated scats).

Year 2: 2-1 (spring/remote observation and sampling)

• Follow video surveillance, noting the presence of any scavenging/human activity as it impacts the sites.

• Use naïve personnel to survey and map all sites for comparison with earlier records.

• Visually record botanical evidence and all changes to the surface of the gravesites.

• Collect floral and faunal samples.

Year 2: 2-2 (summer/second field season)

• Use naïve personnel to conduct site reconnaissance using GPR, resistivity surveying and fluxgate gradiometry with efforts made to map any potential sites for comparison with earlier records.

• Visually record botanical evidence and all changes to the surface of the sites.

• Create more of the following site types: LIS, SIS and CS.

• Loot remains and evidence from selected GES' and PIS' and transport remains to SIS'.

• Some of the remaining GES' and PIS' should be converted to LIS'.

• Survey, map and record the dimensions of the new body mass before backfilling the sites.

• Use naïve personnel to survey and map all sites for comparison with earlier records.
Year 2: 2-3 (fall/ remote observation and sampling)
- Follow video surveillance, noting the presence of any scavenging/human activity as it impacts the sites.
- Use naïve personnel to survey and map all sites for comparison with earlier records.
- Visually record botanical evidence and all changes to the surface of the gravesites.
- Collect floral and faunal samples.

Year 3: 3-1 (spring/ remote observation and sampling)
- Follow video surveillance, noting the presence of any scavenging/human activity as it impacts the sites.
- Use naïve personnel to survey and map all sites for comparison with earlier records.
- Visually record botanical evidence and all changes to the surface of the gravesites.
- Collect floral and faunal samples.
- Design and test relational databases for evidence interpretation.

Year 3: 3-2 (summer/ third field season - excavation)
- Use naïve personnel to conduct site reconnaissance using GPR, resistivity surveying and fluxgate gradiometry with efforts made to map any potential sites for comparison with earlier records.
  - This stage of the experiments may provide an excellent opportunity to introduce archaeology field students as the naïve personnel required to perform the site reconnaissance, surveying, mapping, excavation and basic field analysis.
  - The Project Director may choose to limit the naïve personnel's access to certain site types so as to control the times when different site types are relocated and excavated.
  - Resulting remote sensing images should guide the excavation of any suspected mass gravesites.
- Survey and map the individual mass gravesites with particular attention paid to the various types of faunal and floral indicators that a feature may be present.
- Begin excavation of recovered mass gravesites (after 3 years of decomposition).
  - Primary areas of interest include the preservation of the original grave walls, the location and decompositional state of individual bodies in relation to the rest of the body mass and the presence of different classes of evidence in relation to the body mass.
  - Backfill excavation pit when completed.
- Begin field analysis of remains and associated evidence.
  - Perform analysis of recovered remains
  - Efforts should be made to locate and associate all parts of the individual bodies.
  - Particular attention should be paid to identifying each site type according to the established typology, identifying the sequence of events depicted by the evidence
and determining what percentage of evidence is being missed during archaeological processing.

- Emphasis should be placed on the creation of relational databases and the percentage of evidence recovered relative to evidence deposited.
- Prepare preliminary findings reports with computer generated maps and figures.

**Year 3: 3-3 (fall/ remote observation, sampling and data analysis)**
- Follow video surveillance for remaining sites, noting the presence of any scavenging/human activity as it impacts said sites.
- Use naïve personnel to survey and map remaining sites for comparison with earlier records.
- Visually record botanical evidence and all changes to the surface of the gravesites.
- Collect floral and faunal samples.
  - Continue data entry and analysis (may take place at a remote location).
  - Prepare preliminary findings report with computer generated maps and figures.

**Year 4: 4-1 (spring/ remote observation, sampling and data analysis)**
- Follow video surveillance for remaining sites, noting the presence of any scavenging/human activity as it impacts said sites.
- Use naïve personnel to survey and map remaining sites for comparison with earlier records.
- Visually record botanical evidence and all changes to the surface of the gravesites.
- Collect floral and faunal samples.
- Complete preliminary findings report for mass gravesites experiencing three years of decomposition.

**Year 4: 4-2 (summer/ fourth field season – excavation and clean-up)**
- Use naïve personnel to conduct site reconnaissance using GPR, resistivity surveying and fluxgate gradiometry with efforts made to map any remaining sites for comparison with earlier site record.
  - Resulting remote sensing images should guide the excavation of any suspected mass gravesites.
- Survey and map the remaining individual mass gravesites with particular attention paid to the various types of faunal and floral indicators that a feature may be present.
- Begin excavation of recovered mass gravesites (after 4 years of decomposition).
  - Primary areas of interest include the preservation of the original grave walls, the location and decompositional state of individual bodies in relation to the rest of the body mass and the presence of different classes of evidence in relation to the body mass.
• Backfill excavation pit when completed.
• Begin field analysis of remains and associated evidence.
  • Perform autopsies of recovered remains
  • Efforts should be made to locate and associate all parts of the individual bodies.
  • Particular attention should be paid to identifying each site type according to the
    established typology, identifying the sequence of events depicted by the evidence
    and determining what percentage of evidence is being missed during
    archaeological processing.
  • Emphasis should be placed on the creation of relational databases and the
    percentage of evidence recovered relative to evidence deposited.
• Prepare preliminary findings report with computer generated maps and figures for
  mass gravesites which experienced four years of decomposition.
• Rebury all animal remains and evidence not requiring further laboratory analysis (to
  dispose).
• Clean up site and re-seed the necessary areas with indigenous plant species.
• Close down first stage of experiments.

Year 5: 5-1 to 5-3 (data analysis and dissemination of results)
• Complete analysis of data.
• Prepare articles for publication.
• Apply for the second cycle of grants and other funding.
9.5 Sample Experiment Designs for Different Types of Mass Grave and Mass Grave-Related Sites

9.5.1 Flow Chart For Experimental Mass Grave and Mass Grave-related Sites

This diagram is intended to depict the number and types of experimental sites to be created in the course of the first phase of the experiment. A total of six separate experimental sites will need to be created, including five experimental sites and one control site. Any addition sites can be created within the confines of these original sites (shown in gray).

The subjects from the SES can be divided into two groups (PDS or TDS). The subjects from the TDS can be moved to a second site and interred to form the PIS stage of the experiment. The PIS can again be divided into two sections, one of which can be allocated for later "looting" to create a LIS. The third site will be the SIS, which will contain the looted evidence from the PIS.

The subjects from the GES do not need to be divided into two groups until the formation of the PIS. Once again, half of the PIS can be allocated for "looting" thus resulting in a LIS. The looted evidence can be reinterred at a third experimental site, resulting in a SIS. Greater detail regarding the creation of each type of experimental mass grave and mass grave-related site follows in the next section.
9.5.2 Surface and Grave Execution Sites

Grave execution sites (GES):

- Survey and map the area taking note of any important botanical inclusions and landmarks that may affect the decomposition of remains or appearance of the grave features.
- Perform remote sensing on the site.
- Construct grave features using either manual labor or heavy machinery and carefully document their dimensions relative to a datum point using a total station.
- Place a number of pigs (~10-20) in the grave feature, mapping their location in relation to the body mass and the grave feature as a whole. (Bodies may be deposited in several separate events in order to create MIS'.)
- Ensure that the appropriate amount and type of evidence is scattered throughout each grave when using automatic or semi-automatic weapons or ordnance to "execute" the subjects. Take care to map the location of the "perpetrator" in distributing any ballistics evidence. The number and types of evidence should likewise be documented.
- Insert the necessary datalogger equipment into each resulting body mass at seven points, including the middle, top, bottom and lateral edges of the body mass, noting their location.
- Backfill the grave. Variation among types of grave fill may be desired.
- Set up video surveillance to monitor scavenging/human activity.
- Finish process by surveying and mapping the freshly filled grave feature.
- Allocate grave for three or four years decomposition prior to exhumation. A portion of this site may be allocated for earlier disturbance in order to create a SIS and LIS.

Surface execution sites (SES):

- Survey and map the area taking note of any important botanical inclusions and landmarks that may affect the decomposition of remains.
- Transport ~10-20 euthanized pigs to the desired location and "execute" them on the surface using the desired mode of death, taking care to ensure that the appropriate amount and type of evidence is distributed among the remains.
  - Include ligatures and blindfolds. Some subjects may be tied together.
  - In mimicking common SES' the researcher may chose to line the victims up prior to "execution."
  - Take care to map the location of the "perpetrator" in distributing any ballistics evidence. The number and types of evidence should likewise be documented.
  - The position of the evidence and bodies should be mapped in relation to the rest of the body mass using a total station.
- Insert the necessary datalogger equipment into each resulting body mass at seven points, including the middle, top, bottom and lateral edges of the body mass, noting their location.
- Set up video surveillance to monitor scavenging/human activity.
• Mark site for one to four years decomposition prior to reconnaissance and exhumation. A portion of the site may be chosen for earlier disturbance in order to create a TDS.
9.5.3 Temporary and Permanent Surface Deposition Sites

Temporary Surface Deposition Sites (TDS):

- Survey and map the area taking note of any important botanical inclusions and landmarks that may affect the decomposition of remains.
- After "executing" the victims at the SES, allocate a portion of the subjects exposure for varying periods of time (ex: one day, one month, one week) prior to moving them to a PIS.
  - Insert the necessary datalogger equipment into each body mass at seven points, including the middle, top, bottom and lateral edges of the body mass, noting their location.
  - The position of the evidence and bodies should be mapped in relation to each body mass using a total station.
  - Set up video surveillance to monitor scavenging/human activity.
- After moving the body masses, the site should be surveyed and mapped with care taken to determine the nature and quantity of remaining evidence without disturbing its location on the site.
- Monitor insect, scavenger and human activity at the site.
- Site reconnaissance by naïve personnel may take place anytime in the following four years.

Permanent Surface Deposition Sites (PDS):

- Survey and map the area taking note of any important botanical inclusions and landmarks that may affect the decomposition of remains.
- After "executing" the victims at the SES, allocate a portion of them for permanent surface deposition.
  - Insert the necessary datalogger equipment into each body mass at seven points, including the middle, top, bottom and lateral edges of the body mass, noting their location.
  - The position of the bodies and evidence should be mapped in relation to each body mass using a total station.
  - Set up video surveillance to monitor scavenging/human activity.
- Allow the body masses to remain exposed until such a time as naïve personnel are directed to locate the site and begin excavation.
9.5.4 Inhumation Sites

Primary Inhumation Sites (PIS):

- Survey and map the areas taking note of any important botanical inclusions and landmarks that may affect the decomposition of remains or appearance of the grave features.
- Construct grave features using either manual labor or heavy machinery and carefully document its dimensions relative to a datum point using a total station.
- Inter victims from the TDS or GES, mapping their location in relation to the body mass and the grave features as a whole. (Bodies may be deposited in several separate events in order to create MIS'.)
  - Insert the necessary datalogger equipment into each body mass at seven points, including the middle, top, bottom and lateral edges of the body mass, noting their location.
  - Set up video surveillance to monitor scavenging/human activity.
- Finish process by surveying and mapping each freshly filled grave feature.
- Allocate graves for either three or four years decomposition prior to exhumation. A portion of each PIS should also be designated for earlier disturbance in order to create an SIS and LIS.

Secondary Inhumation Sites (SIS):

- Survey and map areas taking note of any important botanical inclusions and landmarks that may affect the decomposition of remains or appearance of the grave features.
- Construct grave features using either manual labor or heavy machinery and carefully document their dimensions relative to a datum point using a total station.
- Survey and map PIS' prior to looting them for evidence.
  - Remove a random assortment of remains from the PIS' and transport them to the SIS, allowing for jumbling of the remains to occur while keeping the contents of each looted site separate. (Evidence may be deposited in several separate events in order to create MIS'.)
  - Map the dimensions of the body mass in relation to the grave feature.
  - Insert the necessary datalogger equipment into each body mass at seven points, including the middle, top, bottom and lateral edges of the body mass, noting their location.
  - Backfill the graves.
  - Set up video surveillance to monitor scavenging/human activity.
- Finish process by surveying and mapping each freshly filled grave feature.
- Allocate graves for either three or four years decomposition prior to exhumation by naïve personnel.

Looted Inhumation Sites (LIS):
• Remove as much of the evidence as possible from each PIS and transport it to separate SIS.
  • Map the dimensions of the body mass in relation to the grave feature.
  • Insert the necessary datalogger equipment into each body mass at seven points, including the middle, top, bottom and lateral edges of the body mass, noting their location.
  • Backfill the graves.
• Finish process by surveying and mapping each freshly filled grave feature.
• Mark graves for either two or three years decomposition prior to exhumation by naïve personnel.
9.5.5 Control Sites (CS)

- Survey and map area taking note of any important botanical inclusions and landmarks that may affect the decomposition of remains or appearance of the grave feature. (More than one CS may be required, depending on the nature of the experimental research design employed by the researcher.)
- Construct grave feature using either manual labor or heavy machinery and carefully document their dimensions relative to a datum point using a total station.
- Backfill without allowing for any evidence to contaminate the feature.
- Finish process by surveying and mapping the freshly filled feature.
- Mark site for either two or three years decomposition prior to exhumation by naïve personnel.
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