

IDENTIFYING AND ENHANCING FORENSIC SCIENCE SKILLS IN THE
INVESTIGATION AND PROSECUTION OF WAR CRIMINALS WITHIN
INTERNATIONAL PROCEEDINGS.

by

Natalie Mason

A thesis submitted in partial fulfilment for the requirements for the degree of
LLM by Research in International Law at the University of Central Lancashire

June 2013

STUDENT DECLARATION FORM

Concurrent registration for two or more academic awards

I declare that while registered for the research degree, I was with the University's specific permission, an enrolled student for the following award:

Certificate in Higher Education: Teaching Toolkit, Postgraduate Certificate in Learning and Teaching in Higher Education

Material submitted for another award

I declare that no material contained in the thesis has been used in any other submission for an academic award and is solely my own work

Signature of Candidate _____NJ Mason_____

Type of Award _____LLM by Research_____

School _____Lancashire Law School_____

Abstract

The use of forensic science to establish the truth in domestic criminal investigations has developed considerably over the past century. However, its utilisation in the international context of the investigation of war crimes, crimes against humanity and genocide is relatively underdeveloped, only being employed significantly as recently as the 1980s. The inter-related disciplines of forensic archaeology, anthropology and pathology enable investigators to locate, excavate and exhume mass graves; producing powerful evidence of atrocities and returning victims to loved ones. It is even possible to establish the crime of genocide by identifying the attributes of the victims which made them perceived targets, for example their ethnicity or ancestry.

However, whilst there has been recognition of the powerful role forensic science can play in the investigation and prosecution processes, certain disciplines which could provide useful evidence, such as entomology and palynology, are underutilised and obstacles still remain which prevent forensic science being used to its full potential. These may be practical, such as a lack of resources or the concealment and disposal of forensic evidence encouraged by the post-crime 'culture of silence', as well as institutional. Whilst it has been identified that there is a lack of understanding and a conflict of prosecutorial and humanitarian motives between legal and scientific institutions, the impact of these issues on investigative collaboration has yet to be fully explored on an extensive scale. Similar issues between the fields of law and science may also occur during the trial process, with inadequate guidance in the evidentiary rules regarding scientific and expert evidence possibly limiting their submission. Given the potential strength which forensic evidence can lend to war crimes

investigation, these issues which hinder its deployment necessitate additional study in order to further advance their understanding and thus resolution.

Table of contents

INTRODUCTION	-----	p8
LITERATURE REVIEW	-----	p12
THE HISTORICAL SUCCESSES OF THE USE OF FORENSIC SCIENCE IN WAR CRIMES TRIALS	-----	p19
THE CONTEMPORARY SUCCESSES OF THE USE OF FORENSIC SCIENCE IN WAR CRIMES TRIALS	-----	p21
THE RATIONALE FOR THE USE OF FORENSIC SCIENCE SKILLS IN WAR CRIMES INVESTIGATION	-----	p23
- Legal and Judicial Functions	-----	p24
- Humanitarian Functions	-----	p28
- Documentary Functions	-----	p29
- Preventative Functions	-----	p29
POTENTIAL AREAS FOR THE DEVELOPMENT OF FORENSIC SCIENCE SKILLS	-----	p31
- Forensic Palynology, Botany and Geology	-----	p32
- Forensic Odontology	-----	p33
- DNA Analysis	-----	p33
- Forensic Entomology	-----	p35
PRACTICAL OBSTACLES TO THE EFFECTIVE DEPLOYMENT OF FORENSIC SCIENCE SKILLS IN INTERNATIONAL WAR CRIMES INVESTIGATION	-----	p37
- Lack of Funding, Resources and Security	-----	p37
- Lack of Scientific Standards for International Forensic Investigation	-----	p39
- Ineffectual Team Management and Communication	-----	p41
- Jurisdictional Constraints	-----	p42
INSTITUTIONAL PROBLEMS INHIBITING COLLABORATION BETWEEN FORENSIC SCIENCE AND INTERNATIONAL CRIMINAL LAW	-----	p44
- Differing Motivations and Mandates	-----	p44

- Within and Between Forensic Teams -----p44
- Between the Forensic Team and the Prosecutor -----p45
 - Justice versus Truth -----p45
 - Case Construction: Ethical and Investigatory Impacts -----p46
 - At Trial -----p48
- Lack Of Understanding Of Forensic Science -----p48
 - Assessments of Forensic Evidence -----p51

EVIDENTIAL RULES GOVERNING THE
 SUBMISSION AND USE OF FORENSIC EVIDENCE
 IN WAR CRIMES TRIALS -----p52

- Provisions for Forensic Evidence at the
Ad hoc Tribunals and the ICC -----p53
- Provisions for Forensic Expert Testimony
at the *Ad hoc* Tribunals and ICC -----p55
- Provisions for the Presentation of Forensic
Expert Testimony at the *Ad hoc* Tribunals and the ICC -----p56

ANALYSIS, DISCUSSION AND POTENTIAL REFORMS -----p59

- Increased Prioritisation of Forensic Resources -----p59
- Standardisation of Investigative Procedures ----- p60
- Team Management and Communication -----p62
- Overcoming Jurisdictional Constraints -----p62
- The Communication of Mandates -----p62
- Evidentiary Understanding and Guidance ----- p64

CONCLUSION -----p65

REFERENCES -----p70

Acknowledgements

The author would like to thank Professor Michael Salter and Dr Kartina Choong for their supervision during this project, as well as Michael Hartley, Christine Mason and George Mason for their unwavering support throughout.

INTRODUCTION

‘Science, when all else fails, could serve as ombudsman of death.’¹

Despite their common use in investigations at a national scale, the deployment of forensic science skills in international criminal proceedings has only become prominent in the past three decades. In many senses, the roles and responsibilities of investigators in such cases are far greater than in domestic cases,² building up a picture of multiple crimes and mass graves in contrast to processing singular crimes and trace evidence which can often link the perpetrator to the scene or the victim.

The recent increase in the utilisation of forensic science in the investigations of atrocities has partially stemmed from an increased awareness of human rights violations, with the public demanding that such breaches be prosecuted.³ These atrocities, which this thesis shall refer to generally as “war crimes”, include crimes against humanity, war crimes and genocide. Defined in the Rome Statute of the International Criminal Court (ICC), these encompass, respectively, acts committed as part of a widespread or systematic attack against a civilian population,⁴ violations of the laws and customs of armed conflict,⁵ and acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group.⁶ Such acts include, but are not

¹ Joyce C and Stover E, *Witnesses from the Grave: From Mengele to Argentina’s ‘Disappeared’ - the Stories Bones Tell* (Grafton, London 1991) 39.

² Oxenham M, *Forensic Approaches to Death, Disaster and Abuse* (Australian Academic Press, Australia, 2008) 20

³ Ferllini R, ‘The development of human rights investigations since 1945’ (2003) 43 (4) *Science & Justice* 219

⁴ Rome Statute of the International Criminal Court, Article 7

⁵ *Ibid*, Article 8

⁶ *Ibid*, Article 6

limited to, murder, extermination and torture. This thesis shall focus principally on the use of forensic science in the investigation and prosecution of genocide.

The main forensic disciplines utilised in the investigation of genocide are forensic archaeology, which employs structured methods to locate, manage and excavate mass graves; forensic anthropology, which uses metric and non-metric methods to analyse the physical anthropology of any skeletal remains; and forensic pathology, the study of disease and injury, which can aid in the identification of victims and establishing the cause and manner of their deaths. These inter-related disciplines enable investigators to locate, excavate and exhume mass graves - producing powerful physical evidence of atrocities and returning victims to their families. Furthermore the analysis of human remains is a very compelling form of forensic fact-finding, with forensic anthropologist Clyde Snow believing that 'bones are often our last and best witnesses: they never lie, and they never forget.'⁷

In contrast, however, emerging disciplines such as forensic entomology and palynology are comparatively underutilised. In addition, obstacles remain which prevent forensic science in general being used to its full potential, at both an operational and institutional level and within both "forensic" and legal professions. These range from issues of funding, to conflicts of prosecutorial and humanitarian motives between legal and scientific institutions, to inadequate guidance in the evidentiary rules regarding scientific and expert evidence.

Given the potential strength which forensic skills can lend to war crimes investigation, these issues which may hinder their deployment or the

⁷ As quoted in Stover E and Peress G, *The Graves: Srebrenica and Vukovar* (Scalo, Germany, 1998) 231

investigative collaboration between science and law necessitate additional study in order to further advance both their understanding and resolution. The realisation of such potential and resolution of problems with regard to the use forensic science in the investigation of war crimes is a timely issue of global importance. This has been particularly highlighted following the establishment of the International Criminal Court, the Rome Statute entering into force in 2002 and in light of the continual violations of humanitarian law taking place worldwide.

This thesis seeks to identify the historical and contemporary role played by forensic scientists within the evidence-gathering processes; develop a close analysis of the successes, failures and unrealised potential for such contributions; and identify and critically analyse the obstacles to more effective deployment of forensic science techniques within the war crimes investigation and prosecution processes. Chapter 1 will examine the current context of research with regard to forensic science and war crimes trials. Chapter 2 will identify the historical successes of forensic science in war crimes trials, with Chapter 3 looking at more contemporary successes. In Chapter 4, the rationale for utilising forensic science skills in war crimes investigation will be explored, with reference to legal, humanitarian, documentary and preventative functions, with potential areas for the development of forensic science skills being analysed in Chapter 5. Chapters 6 and 7 will examine the practical and institutional obstacles to the deployment of forensic science skills respectively, with Chapter 8 examining the impact of evidential rules on the submission and use of forensic evidence at trial. Finally, Chapter 9 will feature an analysis of the obstacles identified in previous chapters and the formulation of potential

solutions to these in the form of policy, legislation and institutional practice recommendations.

CHAPTER 1- LITERATURE REVIEW

Whilst vast research has been dedicated to the interplay between science and law at a domestic level, there is comparatively little aimed at an international level. This chapter seeks to identify and explain the current context of research in the field of forensic science and war crimes investigation and prosecution. It does not intend to review all existing literature in this field, as much of this is covered in subsequent chapters. It will centre on the works of Melanie Klinkner, due to her reputation as a predominant researcher in the interaction between forensic science and international criminal law specifically in a war crimes context, writing for scientific, legal and human rights audiences. Key themes which emerge in this research include the risk of partiality in forensic work when commissioned by the prosecution, as well as concern over the suitability of the current admissibility provisions for forensic evidence. Klinkner's work focuses specifically on the use of forensic science expertise at the International Criminal Tribunal for the Former Yugoslavia (ICTY).

Examining trial transcripts and literature from science and law, Klinkner's 2008 article⁸ explores the deployment of forensic expertise at the ICTY, with specific reference to the investigation of the Srebrenica massacre and the trial of Radislav Krstić. The article begins with a descriptive narrative of the reasons for seeking forensic expertise in the Krstić trial and the role of the forensic scientist, with particular reference to the forensic archaeologist, pathologist and anthropologist, at the pre-trial, investigation and trial stages. The article then progresses into an identification of some operational and institutional limits to

⁸ Klinkner M J, 'Proving Genocide? Forensic Expertise and the ICTY' (2008) 6 Journal of International Criminal Justice 447-466

investigation, before exploring the influence of prosecution strategies on forensic activities and the construction of “forensic truth”. Klinkner believes this issue requires a balance between guiding forensic activities to prove the prosecution theory, and having a context and awareness of what evidence may be encountered on site.

Klinkner then attempts to contextualise forensic science, with its social and subjective elements, in contrast to the ‘pure’ sciences, before describing its role in the legal narrative of the Krstić trial; what evidence was admitted, how its admissibility was determined and how it contributed to proving the charge of genocide, a charge later substituted at appeal for aiding and abetting in genocide.

The article of its own volition states that it does not aim to solve the ‘epistemological difficulties’ which it identifies, it only intends to provide an overview of the issues involved in the science-law interface. The writer claims that the identified problems relating to forensic science, that is its association with the prosecution and its limits as an applied science, can be countered through the adoption of standard operating procedures used with scientific rigour, with cross-examination determining the reliability of forensic evidence at trial. In relation to the construction of “forensic truth”, she feels it may be more appropriate to search for ‘a truth’ instead of ‘the truth’.

By looking at the role of forensic expertise from the perspective of the Krstić trial, this article has a tendency to only explore the judicial role of forensic science, with some mention of its documentary role. In addition, by restricting its scope to one trial, the information about the case can sometimes be overwhelmed by and feel detached from the wider concepts; necessitating

either a closer analysis of the trial or broader analysis of general concepts. Also, whilst it identifies some operational and institutional problems, the article does not seek to find solutions for them.

In contrast to the narrow perspective of the previous article, Klinkner's 2009 article⁹ looks at the use of forensic expert testimony regarding mass graves more generally within the ICTY. Utilising trial transcripts and semi-structured interviews with participants from science, law and the judiciary, she uses this interdisciplinary methodology to explore the relationship between science and the law at the ICTY, as well as issues of assessing the relevance and credibility of forensic evidence and expert opinion. The article focuses only on the use of forensic archaeology at the ICTY.

The article can be separated into several concepts, the first being a lengthy theoretical discussion regarding how one determines a discipline to be scientific. It features specialist language in its exploration of the empiricist versus post-positivist debate which is clearly intended for an audience with a high understanding of the philosophical and epistemological topics encountered. Klinkner goes on to assess how compatible archaeology and forensic science are with the definition of science created by this preceding research, due to these both involving scientific and social underpinnings in their interpretations. Despite this creative aspect, she believes that archaeology fits more comfortably in the realm of empiricism, stating that issues of subjectivity and interpretation are mitigated by the presence of standard operating procedures and strong teamwork.

⁹ Klinkner M J, 'Forensic science expertise for international criminal proceedings: an old problem, a new context and a pragmatic resolution' (2009) 13 E & P 102-129

After briefly noting some potential limitations to forensic inquiry, such as operational and institutional constraints and the risk that courts may have difficulties in assessing the validity and reliability of novel techniques, the writer notes some sources of unease between the professions of science and law with regard to war crimes investigation. These arguments develop from the 2008 article by looking more closely at how the prosecutorial strategy may impact on the scientific conduct of experts and how criminal proceedings may affect the expert's impartiality and objectivity. Issues of professional misconduct at the ICTY are also discussed, though they are outside the scope of this thesis. Finally, the article explores whether the provisions under the ICTY's Rules of Procedure and Evidence for assessing the relevance and credibility of forensic evidence are sufficient.

The 'pragmatic resolution' suggested by Klinkner is not so much the proposal of new solutions to rectify the issues of partiality, unreliability and subjectivity in forensic work, but more of a justification of how the flexible admissibility approach currently used at the ICTY detects and tackles these. She believes that the limited admissibility rules at the ICTY are necessary, due to judges not being suited to an evidentiary gate-keeping role. Like the 2008 article, she reasons that any questions of reliability and partiality can be tested through cross-examination, with the result being that unreliable evidence does not need to be excluded prior to trial and its probative value can be assessed within the context of all the evidence.

The author believes this latter issue could use further exploration. Since international courts have limited time, it could possibly prove more time efficient to have an admissibility test prior to trial, to ensure that only reliable evidence

was admitted into the trial context. In addition there may be dangers associated with unreliable evidence providing the context for other evidence, if it is only to be excluded later.

Furthermore, the concepts of social and subjective interpretation of forensic science could be explored more in terms of scientific rigour, since the standard procedures which Klinkner refers to as mitigating this subjectivity are *ad hoc* protocols specific to the ICTY; there are currently no internationally accepted standards. This necessitates further study, as do the operational and institutional limitations which again are only briefly identified.

Finally, in her 2012 article,¹⁰ Klinkner deeply examines possible sources of tension between the legal and scientific professions in the investigation of war crimes, including issues such as ethics, evidentiary requirements and logistics. By performing semi-structured interviews and synthesising the experiences of the anonymous interviewees, she then creates a model to address and resolve such tensions and improve working processes between the professions.

Initially, Klinkner justifies her focus on forensic investigations under the ICTY by stating that the number of mass graves which have been encountered during these makes them the most relevant research context. The article then begins by outlining some sources of tension between science and law in war crimes investigation as identified by other researchers, including shortcomings in interaction, procedures and training, before she begins her own analysis.

¹⁰ Klinkner M J, 'Improving International Criminal Investigations into Mass Graves: Synthesizing Experiences from the Former Yugoslavia' (2012) 4 (3) J Human Rights Practice 1-31

Multiple issues are acknowledged at the pre-investigation, investigation and trial stages. At the pre-investigation stage, the writer notes how ethical dilemmas may result from clashes of the prosecutorial purpose of the investigation with the humanitarian ethics of forensic scientists. This expands on her previous research, which touched on how the prosecutorial strategies can direct forensic activities, as well as acknowledging the humanitarian functions of forensic work which were neglected in the 2008 and 2009 articles. In addition, short contracts for employees leading to issues of continuity in working practices and a lack of planning for the safety and security of staff are noted as sources of tension. Klinkner recommends that these problems can be overcome by increasing the awareness of ethical dilemmas, improved communication of the aims of the mission, enhanced planning and liaison, prolonged contracts and more rigorous staff recruitment and training.

At the investigation stage, the writer identifies how compromises of quantity over quality of evidence recovery at the request of the prosecutor are a source of unease with forensic scientists. Other problems include a lack of standard protocols due to the *ad hoc* nature of the Tribunal and issues of professional misconduct and health and safety. The suggestions to overcome these problems include establishing clear communication lines, assembling an in-house forensic team and the implementation of quality control, complaint and health and safety provisions.

At the trial stage, the forensic expert's limited knowledge of international criminal proceedings and abuses of power in the presentation of evidence were noted as problematic, to which Klinkner stresses the need for professional standards and investment in the law-science relationship.

While this article provides an in-depth analysis of some of the tensions felt by current forensic scientists and investigators, it, like the previous two articles, does not address the potential dangers of the ICTY's flexible approach to admissibility, which is again portrayed as positive.

This thesis intends to supplement, expand upon and develop the research conducted by Klinkner in several ways. Due to her research solely focusing on the use of forensic science at the ICTY, further study is needed to assess whether this is also representative of the use of forensic evidence by the ICTR and ICC. In addition, the standard procedures which she believes to counteract the subjectivity of forensic science are created for and thus are only technically applicable to the ICTY; further exploration is required to determine if a more consistent approach between investigations at the Tribunals and the ICC would prove beneficial. Furthermore, whilst Klinkner portrays the lack of evidentiary guidance at the ICTY as positive, the dangers of this lack of rigour with regards to pre-trial admissibility necessitate deeper study, as do the operational and institutional obstacles outside the scope of law-science interaction. Finally, whilst Klinkner's earlier work often focused on philosophy and theory, this thesis intends to explore the field with a more practical perspective.

CHAPTER 2- THE HISTORICAL SUCCESSES OF THE USE OF FORENSIC SCIENCE IN WAR CRIMES TRIALS

This chapter seeks to identify the historic role played by forensic science in war crimes trials and the extent of its success.

At the Nuremberg trials, which investigated the Nazi atrocities that took place between 1939 and 1945, the principal form of evidence tendered by the prosecution was documentary evidence, available due to the prolific German documentation of events.¹¹ However, Nuremberg also saw one of the first forensic investigations of war crimes; the 1943 German report of the massacre which took place in the Katyn Forest, near Smolensk, Russia.

Count Three of the Indictment at Nuremberg describes the execution of 11,000 Polish officers in the Katyn Forest in September 1941. Upon discovery of the mass grave containing the victims' remains, speculation arose as to whether they had been killed at the hands of the Nazis or the Soviets, with each party blaming the other. The subsequent forensic investigation involved mass grave excavation, autopsies and analysis of ballistic evidence.¹² Forensic investigators determined that the victims had been shot in an execution-style in the back of the head at close range.¹³ Ballistic analysis of pistol cartridges found at the site established that the ammunition used was of German manufacture, though of a type that had been sold to the Soviets in the years prior to the killings.¹⁴ In

¹¹ May R and Wierda M, *International Criminal Evidence: International & Comparative Criminal Law* (Transnational Publishers Inc, New York, USA, 2002) 52.

¹² Oxenham M, above n2 at 18

¹³ Taylor T, *The Anatomy of the Nuremberg Trials, A Personal Memoir* (Alfred A. Knopf Inc, New York, 1992) 466

¹⁴ Ferllini R, above n3 at 222

recent years, the Russian government has accepted responsibility for the Katyn massacre.¹⁵

Forensic anthropology has also enabled the identification of the skeletal remains of Nazi doctor Josef Mengele, who sent 400,000 people to their deaths at Auschwitz,¹⁶ and was also utilised in the exhumations of thousands of victims' remains found in unmarked graves after Argentina's 'Dirty War' from 1976 to 1983. Analysis of the remains confirmed partially healed bone fractures which were consistent with torture, as well as execution-style killings, both of which were able to refute claims that the victims had died naturally or in combat.¹⁷ Historically, forensic fact-finding has also been used in the Ukraine; in Nanking, China; in Vilnius, Lithuania; and the former Soviet Union after World War II.¹⁸

¹⁵ BBC News, 'Russian parliament condemns Stalin for Katyn massacre', 26 November 2010, accessed at <http://www.bbc.co.uk/news/world-europe-11845315> on 28/03/2013

¹⁶ Joyce C and Stover E, above n1 at 150

¹⁷ Claude R P, *Science in the Service of Human Rights* (University of Pennsylvania Press, Pennsylvania USA, 2002) 138

¹⁸ Ranta H and Takamaa K T, 'Crimes Against Humanity and Other War Crimes' in Thompson T and Black S (eds) *Forensic Human Identification: An Introduction* (CRC Press, Florida USA 2007) 446

CHAPTER 3- THE CONTEMPORARY SUCCESSES OF THE USE OF FORENSIC SCIENCE IN WAR CRIMES TRIALS

Following from the examination of the historic use of forensic science, this chapter seeks to identify its role and successes within more contemporary trials. In recent years, forensic missions have taken place to investigate the ethnic cleansing and armed conflict which occurred in the Balkans in the 1990s, the 1994 Rwandan Genocide, the Guatemalan atrocities of the 1980s and the deaths incurred by the Pol Pot regime in Cambodia from 1975-1979. In addition, contemporary investigations have taken place to exhume the graves resultant from the Spanish Civil War of 1936–1939.

Previously, war crimes trials relied heavily on documentary evidence and eyewitness testimony,¹⁹ with the value of physical evidence being seen as inferior.²⁰ Whilst the ‘absence of forensic ... evidence shall in no way diminish the probative value’²¹ of these types of evidence, forensic science now plays an ever-increasing role in war crimes trials, and has exposed the weaknesses and limitations of such traditional forms of evidence.²²

The International Criminal Tribunal for Rwanda (ICTR), created to investigate the genocide of the Tutsi population of Rwanda in 1994, marked the first time forensic evidence of mass grave exhumations had been used substantially

¹⁹ Combs N A, *Fact-Finding Without Facts: The Uncertain Evidentiary Foundations of International Criminal Convictions* (Cambridge University Press, New York USA 2010) 6

²⁰ Cox M *et al.*, *The Scientific Investigation of Mass Graves: Towards Protocols and Standard Operating Procedures* (Cambridge University Press, New York, USA 2008) 15

²¹ *Prosecutor v Musema*, Judgement and Sentence, 27 January 2000, Case No. ICTR-96-13-A, at 45

²² Jackson J D and Summers S J, *The Internationalisation of Criminal Evidence: Beyond the Common Law and Civil Law Traditions* (Cambridge University Press, Cambridge, 2012) 46

within international criminal proceedings.²³ A similarly ground-breaking feat was achieved by the International Criminal Tribunal for the former Yugoslavia (ICTY). The significant use of DNA (deoxyribonucleic acid) analysis in the investigations in Bosnia and Herzegovina proved to be a pioneering step in the deployment of forensic science skills to war crimes trials, with DNA having previously only been utilised to a minimal extent in the ICTR trials. This development contributed to the description of the war crimes investigation of Bosnia and Croatia as ‘the largest international forensic investigation of war crimes ... in history’.²⁴

Forensic anthropology, archaeology and DNA analysis have also been employed in the exhumation and identification of adult and juvenile remains of victims executed in Guatemala in the 1980s,²⁵ as well as of the remains of civilians killed during the Spanish Civil War.²⁶ In addition, forensic ballistics evidence has been used in the trials of *Blaskić*,²⁷ *Kupreškić et al.*²⁸ and *Kordić & Čerkez*²⁹ at the ICTY, as well as in the trial of *Katanga and Chui*³⁰ at the ICC.

²³ Koff C, *The Bone Woman: Among the Dead in Rwanda, Bosnia, Croatia and Kosovo* (Atlantic Books, London, 2004) 86

²⁴ Stover E and Peress G, above n7 at 93

²⁵ Beydoun A, ‘Forensic Evidence Testimony Shows Guatemala Investigation’s Strengths’, April 9, 2013, accessed at <http://hrbrief.org/2013/04/forensic-evidence-testimony-shows-guatemala-investigation%E2%80%99s-strengths/> on 04/05/2013 and Boles T C, Snow C and Stover E, ‘Forensic DNA testing on skeletal remains from mass graves: a pilot project in Guatemala’ (1995) 40 *J. Forensic Sci.* 349

²⁶ Rios L, Ovejero J I C and Prieto J P, ‘Identification process in mass graves from the Spanish Civil War I’ (2010) 199, Issues 1-3 *Forensic Science International*, 27-36 and Ferrandiz F, ‘Exhuming the defeated: Civil War mass graves in 21st-century Spain’ (2013) . 40 (1) *Journal of the American Ethnological Society*, 38.

²⁷ *Prosecutor v. Blaškić*, Judgement, 3 March 2000, Case No.IT-95-14-T, at 668-678

²⁸ *Prosecutor v Kupreškić et al.*. Judgement, 14 January 2000, Case No. IT-95-16, at 461

²⁹ *Prosecutor v Kordić & Čerkez*, Judgement, 26 February 2001, Case No. I T-95-14/2-T at 670-675

CHAPTER 4- THE RATIONALE FOR THE USE OF FORENSIC SCIENCE

SKILLS IN WAR CRIMES INVESTIGATION

Having demonstrated the historic and contemporary use of forensic science skills, this chapter aims to demonstrate the potential contributions which forensic science can make to the investigation and prosecution of war crimes.

The potential power of forensic science skills for both prosecutors and victims is encapsulated by Justice Richard Goldstone, former Chief Prosecutor for the ICTY and ICTR, who states that without the work of forensic teams ‘the victims would have been deprived of revelation of the truth to which they were entitled, and those seeking to do justice would have been deprived of important evidence.’³¹

Forensic science is capable of providing evidence of the *actus reus*, or guilty act, of an atrocity, as well as providing evidence of the *mens rea*, or guilty mind, of the perpetrator through indications of concealment or genocidal intent. Whilst the intention of most forensic investigations of war crimes is to recover physical evidence to establish the accountability of the perpetrators,³² forensic science has many potential purposes in addition to providing evidence to assist the

³⁰ *Prosecutor v Katanga & Chui*, Decision on the disclosure of evidentiary material relating to the Prosecutor's site visit to Bogoro on 28, 29 and 31 March 2009, 9 October 2009, Case No. ICC-01/04-01/07

³¹ As quoted in Stover E and Peress G, above n7 at 8

³² Haglund W D, ‘Recent Mass Graves: An Introduction’ in Haglund W D and Sorg M H (eds), *Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives* (CRC Press, Florida, USA, 2002) 245

prosecution or defence. These functions include legal, humanitarian, documentary and preventative.³³

Legal and Judicial Functions

In order to prosecute war crimes, crimes against humanity and genocide, it is necessary to establish, respectively, that the dead were not legitimate military targets; were civilians killed through executions as opposed to combatants; or that they formed part of an ethnic, religious, racial or national group.³⁴ Proving the existence of human remains, the identities of the victims and their civilian status can therefore substantially aid in the prosecution of such crimes³⁵ and make denial of war crimes by the perpetrators 'difficult, if not impossible.'³⁶

In many cases, local authorities or governments claim that no genocide ever took place and so deny the existence of any mass graves.³⁷ Before any forensic analysis is even undertaken, the exhumation of a large number of human remains from mass graves provides indisputable physical proof that large scale killings *did* occur and that the evidence was concealed, undermining such claims and dispelling denials. This is the most common use of forensic evidence in international trials.³⁸

³³ Jessee E and Anderson K F, 'Forensic Evidence in International Criminal Trials' (2007) accessed at

<http://www.sharedhumanity.org/LibraryArticle.php?heading=Forensic%20Evidence%20In%20International%20Criminal%20Trials> on 10/02/2013

³⁴ Klinkner M J, above n 10 at 8.

³⁵ Connor M, 'Mass Grave Investigation' (2012) Wiley Encyclopedia of Forensic Science 3-4

³⁶ Stover E and Peress G, above n7 at 10

³⁷ Koff C, above n23 at 208 and January B, *Genocide: Modern Crimes Against Humanity* (Twenty-First Century Books, Minnesota USA, 2007) 96.

³⁸ May R and Wierda M, above n11 at 252

Another claim often used by local officials is that the graves contain the remains of people who had died in combat and without forensic science mass graves can easily be portrayed in this light.³⁹ The charge of crimes against humanity requires a widespread or systematic attack be directed against a civilian population. Therefore it is necessary to establish that the victims were not combatants. A common indication of this is the exhumation of many female and juvenile victims wearing civilian clothes, rather than men of fighting age dressed in uniforms.⁴⁰ Likewise, the medical material, such as crutches, drip bags, X-ray films and staff clogs,⁴¹ found at the Ovčara mass grave near Vukovar in Croatia, demonstrated clearly that the physically handicapped patients and staff of the hospital would not have been combatants.⁴²

Another indicator of the victims being civilians or prisoners of war is when the remains are found with ligatures tying the hands and/or blindfolds covering the eyes. Such evidence was found in Srebrenica, in Bosnia and Herzegovina,⁴³ a discovery which disproved the claims made by Bosnian Serb officials that the bodies within the mass grave were those of military casualties. In addition, gunshot wound analysis has been used in the Balkans to reconstruct and differentiate between combatant and civilian deaths.⁴⁴ Similarly, forensic experts have been able to establish the existence of a civilian massacre, rather than

³⁹ Koff C, above n23 at 313

⁴⁰ Connor M, above n35 at 4

⁴¹ Koff C, above n23 at 212

⁴² Long L, 'Grave Evidence of Genocide: Using Forensic Palynology to Dig up the Truth Behind the Srebrenica Massacre' (2006) 15 (2) *The Forensic Examiner* 46

⁴³ Stover E and Peress G, above n7 at 175

⁴⁴ Warren M W 'Interpreting Gunshot Wounds in the Balkans: Evidence for Genocide' in Brickley M and Ferllini R (eds) *Forensic Anthropology: Case Studies From Europe* (Charles C Thomas Publisher, Illinois, USA, 2001) 151

military casualties, in Rwanda due to the frequency of sharp force trauma and the targeting of women and children, not just men of fighting age.⁴⁵

The statistics relating to the sex, age and civilian status of the victims are important in demonstrating a crime against humanity.⁴⁶ A further key function of forensic analysis is to provide categorical identification of the victims in order to establish whether genocide has occurred. In order to establish a case for genocide, prosecutors must show deliberate targeting of particular people by perpetrators, due to their membership of an ethnic, racial, religious or national group.⁴⁷

Since the victims became targets because of how they were perceived by the perpetrators,⁴⁸ there is debate as to whether membership of a group should be defined independently by science or by the perpetrators' perception of the victims.⁴⁹ When using science, forensic anthropology is able to ascertain an estimation of a person's race or ethnicity from the morphology and measurements of the skeleton.⁵⁰ If there were a common racial or ethnic trait amongst the remains then a demographic profile could be created to help

⁴⁵ *Prosecutor v Kayishema and Ruzindana*, Judgement, 21 May 1999, Case No. ICTR-95-1, at 325-326.

⁴⁶ Koff C, above n23 at 59

⁴⁷ Cerone J, 'The Nature of International Criminal Law and Implications for Investigations' in Ferllini R, *Forensic Archaeology and Human Rights Violations* (Charles C Thomas Publisher Ltd, Illinois, USA, 2007) 53

⁴⁸ Haglund W D, above n32 at 259

⁴⁹ Komar D, 'Is victim identity in genocide a question of science or law? The scientific perspective, with special reference to Darfur' (2008) 48 (3) *Sci Justice*. 146.

⁵⁰ Byers S N, *Introduction to Forensic Anthropology*, 3rd edition (Pearson Education Ltd, Boston USA, 2008) 152-175

determine why they were targeted, which could therefore aid prosecution for genocide.⁵¹

In addition, artefacts recovered from the grave site may establish the victims' religious affiliation, such as the clothing and personal items found in Srebrenica which indicated that a large number of the victims were Muslim,⁵² evidence used in the trial of Radislav Krstić. At the ICTR, the ethnic identity of the victims as members of the Tutsi population was established through the recovery of identification cards found with the remains.⁵³

The recovery of artefacts can also serve as circumstantial evidence from which the court can infer the occurrence of the atrocity. In many cases of mass graves, circumstantial evidence often consists of items found outside the fill of the grave or not directly associated with the remains. Such evidence can help to reconstruct events,⁵⁴ with the Trial Chamber in *Kayishema and Ruzindana* stating that it may even be strong enough to 'provide sufficient evidence of intent.'⁵⁵ In addition, forensic science often provides unequivocal corroboration of the testimony of eyewitnesses or survivors.⁵⁶ For example, at the Ovčara grave site, the presence of medical supplies corroborated the testimony of witnesses who claimed that approximately 200 staff and patients were taken

⁵¹ Koff C, above n23 at 48 and Schmitt S, 'Mass Graves and the Collection of Forensic Evidence: Genocide, War Crimes and Crimes Against Humanity' in Haglund W D and Sorg M H (eds), *Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives* (CRC Press, Florida, USA, 2002) 279

⁵² Stover E and Peress G, above n7 at 175

⁵³ *Prosecutor v Kayishema and Ruzindana*, above n45 at 524

⁵⁴ Schmitt S, above n51 at 284.

⁵⁵ *Prosecutor v Kayishema and Ruzindana*, above n45 at 93

⁵⁶ Blewitt G T, 'The role of forensic investigations in genocide prosecutions before an international criminal Tribunal' (1997)_*Med Sci Law* 284

from the local Vukovar hospital to be executed by the Yugoslav People's Army (JNA) in 1991.⁵⁷

Forensic investigations can also provide evidence of concealment. Haglund states that burial of the victims is 'a commonplace, extra-legal expedient to cover up both human rights abuses and war crimes.'⁵⁸ Whilst domestic homicide cases usually involve little post-mortem interaction, with the remains of the victim often left in situ, in cases of genocide the victims' remains are often concealed in primary graves, and sometimes later relocated to secondary graves.⁵⁹ This concealment can be seen as an act of denial of the genocide, with the absence of the remains interpreted by the perpetrators as the absence of the crime, which prosecutors often argue demonstrates additional evidence of guilt.⁶⁰

Humanitarian Functions

Human remains may also be concealed as a form of repression of the survivors; creating a culture of silence in which they are not allowed to acknowledge the occurrence of the atrocities or see justice effected.⁶¹ Exhumation sheds light on such events and allows for the identification and repatriation of the victims. Forensic anthropology and DNA analysis enable individual victims to be personally identified and, by providing names to the victims, investigators are able to return them to their relatives for a proper burial. This may provide a

⁵⁷ Stover E and Peress G, above n7 at 110

⁵⁸ Haglund W D, above n32 at 244

⁵⁹ Shute J, 'Unfamiliar territory: theory and method for a criminology of corporal destruction', 1st Annual & International Workshop of the Research Programme, Corpses of Mass Violence, Paris, 13th September 2012

⁶⁰ Blewitt G T, above n56 at 288.

⁶¹ Schmitt S, above n51 at 279

sense of closure to families, who may have thought that their relatives were missing or relocated rather than deceased, and allows them to know the fate of their loved ones and grieve.

Documentary Functions

In his memoirs of Rwanda, U.S. Ambassador Robert E. Gribbin describes the importance of having 'documented facts on the table that could be dealt with rationally, as opposed to unverifiable emotional speculations.'⁶² As the conjecture which arose over the Katyn Forest massacre demonstrates, establishing the truth of events for the historical record is crucial, not only for prosecution purposes but also for documentary objectives. Forensic investigations have the power to expose and raise the awareness of war crimes on a global scale, by producing hard, physical proof of the atrocities.⁶³ Documentation of the events which is free from speculation and denial can contribute to a sense of justice,⁶⁴ as well as deterring future atrocities.⁶⁵

Preventative Functions

The collaboration of science and law in the investigation of war crimes is 'one of the few ways to deter potential war criminals.'⁶⁶ As well as allowing the

⁶² Gribbin R E, *In the Aftermath of Genocide: The U.S. Role in Rwanda* (iUniverse Publishing, New York, USA 2005) 2338

⁶³ Haglund W D, above n32 at 245

⁶⁴ Klinkner M J, above n10 at 7

⁶⁵ Rainio J *et al.*, 'Forensic investigations in Kosovo: Experiences of the European Union forensic expert team' (2001) 8 (4) *J Clin Forensic Med* 220

⁶⁶ Cordner S and McKelvie H, 'Forensic Medicine: International Criminal Tribunals and an International Criminal Court' (1998) 351 (9120) *The Lancet*, 1956

investigation of past atrocities, forensic science may help to proactively prevent crimes such as genocide by demonstrating that those responsible will be held accountable for their actions.⁶⁷ Forensic science is able to hold both individuals and nation states accountable, for example, the perpetrators of the Srebrenica massacre were unable to deny their involvement following the DNA identifications of the victims.⁶⁸ By utilising such forensic techniques, a message is sent to potential perpetrators that war crimes *will* be investigated and prosecuted by the international community, with this threat of conviction acting as a deterrent against future crimes.⁶⁹ As January states, ‘truth may be the most important weapon in the battle against genocide.’⁷⁰

⁶⁷ Huffine E, Crews J and Davoren J, ‘Developing Role of Forensics in Deterring Violence and Genocide’ (2007) 48(4) *Croat Med J.* 433 and Kirschner R and Hannibal K, ‘The application of forensic sciences to human rights investigations’ (1994) 13, *Med Sci Law* 453

⁶⁸ *Ibid*, Kirschner R and Hannibal K, at 431

⁶⁹ Cox M *et al.*, above n20 at 15

⁷⁰ January B, above n37 at 96

CHAPTER 5- POTENTIAL AREAS FOR THE DEVELOPMENT OF FORENSIC SCIENCE SKILLS

Whilst the previous chapter examined the current contributions of forensic science to war crimes investigation and prosecution, this chapter aims to show the potential of forensic disciplines which are currently underutilised.

Due to their scale and complexity and the variety of evidence encountered, war crimes investigations often benefit from a multidisciplinary approach to maximise evidence recovery and analysis.⁷¹ Traditional methods of victim identification, such as the recognition of clothing and artefacts by relatives, can lead to misidentification, or may not be possible where the numbers of surviving relatives are low, as in Rwanda.⁷² In addition, since genocide can involve the targeting of people from a particular racial or ethnic group, the use of forensic anthropology to identify the remains can be limited due to the similar appearance of victims' skeletons.⁷³ With this in mind, various disciplines are being developed to aid war crimes investigation. An example of a multidisciplinary team from the ICTY included forensic anthropologists, archaeologists, pathologists, palynologists, soil scientists, ballistics experts, DNA analysts and several other scientific and investigative roles.⁷⁴

⁷¹ Boutruche T, 'Credible Fact-Finding and Allegations of International Humanitarian Law Violations: Challenges in Theory and Practice' (2011) 16 (1) J Conflict Security Law 105

⁷² Ferllini R, 'Forensic Anthropological Interventions: Challenges in the Field and at Mortuary' in Ferllini R, *Forensic Archaeology and Human Rights Violations* (Charles C Thomas Publisher Ltd, Illinois, USA, 2007) 134

⁷³ Komar D, 'Lessons from Srebrenica: the contributions and limitations of physical anthropology in identifying victims of war crimes' (2003) 48 J. Forensic Sci. 713

⁷⁴ Oxenham M, above n2 at 24

Forensic Palynology, Botany and Geology

Forensic palynology, the study of pollen and spores; forensic botany, the study of plant science; and forensic geology, the study of minerals and material from the earth, can be used to ascertain whether human remains have been moved between grave sites. When remains are removed from a grave, the pollen, soil and plant life from the earth may also be transported with them. The pollen, plant types or soil mineralogy of a specific location can indicate relocation and concealment of the remains if they are discovered in a different geographical area where they would not be expected to be found.

This 'environmental profile' can also provide evidence of the scale and organisation of the atrocities and subsequent concealment efforts.⁷⁵ Forensic palynology was used in the investigation of the massacre of 8000 Muslim men and boys following the fall of Srebrenica in 1995 and the subsequent trial of deputy commander Radislav Krstić, to show how the Bosnian Serb forces responsible had attempted to conceal the victims' remains in secondary graves.⁷⁶ In particular, the presence of distinctive wheat pollen recovered from the secondary gravesite was able to provide a link to the original gravesite, a field of wheat.⁷⁷

However, the deployment of these disciplines in war crimes investigation is rare due to funding, staff and equipment constraints, as well as the high potential for contamination of pollen and spores.⁷⁸

⁷⁵ Brown A G, 'The use of forensic botany and geology in war crimes investigations in NE Bosnia' (2006) 163 (3) *Forensic Science International* 204

⁷⁶ *Prosecutor v Krstić*, Trial Testimony and Judgement, 2 August 2001, Case No. IT-98-33

⁷⁷ Wood P, 'Pollen helps war crime forensics', 2004, accessed at <http://news.bbc.co.uk/1/hi/sci/tech/3640788.stm> on 03/08/2012

⁷⁸ Long L, above n42 at 47

Forensic Odontology

Forensic odontology is capable of identifying victims by comparing the dentition of the skeleton with existing dental information. It has been utilised in Rwanda and the Balkans with varying degrees of success depending on the availability of dental records, the oral history known by relatives, and the degree of the victims' dental work.⁷⁹ Where dental records, such as charts, x-rays and photographs are available, dental identification can be achieved in as many as 25 per cent of cases.⁸⁰

However, antemortem records are often unavailable for comparison as many atrocities take place in Third World areas where dentistry is not easily accessible,⁸¹ meaning that the use of forensic odontology in the context of war crimes investigation is limited.⁸² Forensic odontology was more frequently used for identification before the advancements of deoxyribonucleic acid (DNA) analysis.

DNA Analysis

Mitochondrial DNA analysis uses small samples of DNA from the victims' skeleton for comparison with samples taken from relatives.⁸³ It has been used in the identification of human remains from the unmarked graves in Argentina,

⁷⁹ Koff C, above n23 at 66

⁸⁰ Brkic H, Strinovic D, Kubat M and Petrovecki V, 'Odontological identification of human remains from mass graves in Croatia' (2000) 114 Int. J. Legal Med. 19.

⁸¹ Baraybar J P, 'When DNA is Not Available, Can We Still Identify People? Recommendations for Best Practice' (2008) 53, No3, J Forensic Sci 535.

⁸² Skinner M, Alempijevic D and Stanojevic A, 'In the absence of dental records, do we need forensic odontologists at mass grave sites?' (2010) Vol201 Issues 1-3 Forensic Science International 22 and Brkic H *et al.*, 'Dental identification of war victims from Petrinja in Croatia' (1997) 110 Int. J. Legal Med. 47

⁸³ Koff C, above n23 at 114.

from the thousands killed in Kosovo between 1998 and 1999,⁸⁴ and from the victims of the Srebrenica massacre.

There are several benefits in using DNA analysis over traditional identification techniques, such as forensic anthropology. It is able to overcome the dangers of under or over-estimation, for example, of age,⁸⁵ as well as the limitations of use in cases of extensive co-mingling of skeletal elements, such as was seen at Srebrenica due to the movement of the remains to secondary gravesites. Because of this, 'DNA analysis, usually the last step in identification, became the first';⁸⁶ enabling an increase from 1 per cent of Srebrenica's missing being identified prior to 2001, to 25 per cent being identified in the next five years following the implementation of DNA technology.⁸⁷ Similar success has been seen in Croatia, with approximately 75 per cent of the victims from the Ovčara grave being identified, mostly through DNA analysis.⁸⁸ However, whilst DNA analysis is a powerful tool for identification, its expense means that it has limited potential without adequate funding,⁸⁹ and there are also risks of contamination to samples.⁹⁰

⁸⁴ Rainio J, Lalueza K and Penttila A, 'Independent forensic autopsies in an armed conflict investigation of the victims from Racak, Kosovo' (2001) 116 *Forensic Science International* 171

⁸⁵ Klonowski EE, 'Exhumations in Bosnia and Herzegovina: Caves as Mass Graves, From Recovery to Identification' in Brickley M and Ferllini R, *Forensic Anthropology: Case Studies From Europe* (Charles C Thomas Publisher, Illinois, USA, 2001) 201

⁸⁶ Wagner S, 'To Know Where He Lies: DNA Technology and the Search for Srebrenica's Missing' (University of California Press, California 2008) 4.

⁸⁷ *Ibid*, at 82

⁸⁸ Haglund W D, above n33 at 258

⁸⁹ Wagner S, above n86 at 86

⁹⁰ Primorac D, 'The role of DNA technology in identification of skeletal remains discovered in mass graves' (2004) 146 *Forensic Sci. Int.* 163.

Forensic Entomology

Forensic entomology utilises the predictable behaviour, development and succession of insects and arthropods which are attracted to decomposition to estimate time since death, location at death and possible relocations since death of victims.⁹¹ It also has the potential to elucidate the cause of death, as the collection of insects around an area of the body may indicate a wound.⁹² Recent developments have been made in the field of entomotoxicology, which allows gunshot residue to be extracted from insects or larvae for analysis,⁹³ which may prove useful in cases where the victims may have been shot. However, again due to practicality and funding constraints, entomologists are only occasionally used in forensic personnel.⁹⁴

Whilst the preceding explanations demonstrate the potential developments of forensic science skills in the future, it is important to note that the implementation of an increasing range of forensic techniques to war crimes investigation will require more forensic experts, time and resources, and the international community must be willing to fund this. This may not occur until the legal process itself creates incentives for the use of such disciplines,⁹⁵ and often

⁹¹ Dadour I R and Harvey M L, 'The use of insects and associated arthropods in legal cases: a historical and practical perspective' in Oxenham M, *Forensic Approaches to Death, Disaster and Abuse* (Australian Academic Press, Australia, 2008) 225

⁹² *Ibid*, at 228

⁹³ Roeterdink E M, Dadour I R and Watling R J, 'Extraction of gunshot residues from the larvae of the forensically important blowfly *Calliphora dubia*' (2004) 118 *Int Journal of Legal Medicine* 63

⁹⁴ Rainio J, Lalu K and Sajantila A, 'International Forensic Investigations: Legal Framework, Organisation and Performance' in Ferllini R, *Forensic Archaeology and Human Rights Violations* (Charles C Thomas Publisher Ltd, Illinois, USA, 2007) 64

⁹⁵ Jasanoff S, 'Law's Knowledge: Science for Justice in Legal Settings' (2005) 95 *American Journal of Public Health* 54

the importance of investigation must be balanced with other expenses, such as funding for humanitarian aid in conflict areas. The alternative option is that investigations are undertaken with the forensic resources and skills which are currently available, though these may not wholly satisfy the aims of the investigation.⁹⁶

⁹⁶ Hanson I, 'Forensic archaeology: approaches to international investigations' in Oxenham M, *Forensic Approaches to Death, Disaster and Abuse* (Australian Academic Press, Australia, 2008) 26

CHAPTER 6- PRACTICAL OBSTACLES TO THE EFFECTIVE DEPLOYMENT OF FORENSIC SCIENCE SKILLS IN INTERNATIONAL WAR CRIMES INVESTIGATION

The previous chapter established potential areas for the development of some underutilised forensic science disciplines. However, forensic science skills which are frequently utilised still encounter obstacles at an operational level that may prevent their effective deployment, which this chapter aims to demonstrate. These include shortcomings of funding, security, staff collaboration and political stability due to on-going conflict within the host country,⁹⁷ as well as issues relating to the intactness of the country's infrastructure, their access to forensic facilities and technology and whether the forensic team has the authority to conduct the investigation, often dependent on government or international good will.⁹⁸

Lack of Funding, Resources and Security

There are many important considerations when conducting a forensic investigation into war crimes, including the scale, cost, time, management of staff and resources, logistics including equipment and transport, site integrity and security and the chain of custody.⁹⁹ Evidence gathering from a large-scale atrocity is expensive and requires great investment, yet many atrocities occur in developing countries without established forensic facilities.¹⁰⁰ Whilst vast funding has been dedicated to the ICTY investigations, countries such as

⁹⁷ Ferllini R, above n3 at 224

⁹⁸ Haglund W D, above n32 at 259

⁹⁹ Oxenham M, above n2 at 25

¹⁰⁰ Huffine E *et al.*, above n67 at 434

Rwanda and Cambodia do not have such funds.¹⁰¹ In addition, despite the ICTY budget, the start of the exhumation programme in Bosnia in 1997 was delayed due to funding problems.¹⁰²

Forensic investigations may be hindered by limited equipment or inadequate resources, which can compromise the team's ability to recover and analyse evidence,¹⁰³ the integrity of the chain of custody and thus the reliability of the results.¹⁰⁴ However in the absence of funding, forensic scientists have been known to construct makeshift equipment and facilities in order to perform their work, which led to Zdenko Cihlarz, the director of the Forensic Institute of the University of Tuzla describing the investigation of the Srebrenica massacre as a situation of 'forensics on a shoestring.'¹⁰⁵ As an example, in her memoirs, forensic anthropologist Clea Koff describes how an absence of the glue needed for bone reconstruction in the laboratory in Kosovo led to her colleague attempting to piece together a fractured skull with masking tape.¹⁰⁶ In addition to deficiencies in scientific equipment, forensic investigations may also lack even basic necessities such as fresh drinking water, power supplies or transport.¹⁰⁷

Furthermore, security provisions may not be accounted for. War crimes investigations often take place in areas with on-going hostilities or where the perpetrators may still be at large.¹⁰⁸ Because of this, the safety and security of

¹⁰¹ Bernardi P and Fondebrider L, 'Forensic Archaeology and the Scientific Documentation of Human Rights Violations: An Argentinian Example From the Early 1980s' in Ferllini R, *Forensic Archaeology and Human Rights Violations* (Charles C Thomas Publisher Ltd, Illinois, USA, 2007) 207 and Baraybar J P, above n83 at 533.

¹⁰² Blewitt G T, above n56 at 288

¹⁰³ Oxenham M, above n2 at 25

¹⁰⁴ Jessee E and Anderson K F, above n33

¹⁰⁵ Stover E and Peress G, above n7 at 179

¹⁰⁶ Koff C, above n23 at 281

¹⁰⁷ Klinkner M J, above n10 at 3 and Stover E and Peress G, above n7 at 146

¹⁰⁸ Cerone J, above n47 at 53

the forensic team and the sites they are investigating cannot always be guaranteed. During the ICTY exhumations in Bosnia and Herzegovina, the Implementation Force (IFOR) refused to guard the gravesites while the investigators were not present.¹⁰⁹ Such absences of site security could potentially mean the exposed graves may be interfered with, sabotaged or “booby-trapped”, which could prove detrimental to the chain of custody at best and potentially fatal to the forensic investigators at worst.

Staff may also face the dangers of confrontation by local armed forces,¹¹⁰ as well as landmines and anti-personnel mines, which investigators are not always given adequate training in either recognising or avoiding.¹¹¹ The risk posed by landmines has been of significant detriment to the investigation of grave sites in Cambodia, many of which remain untouched.¹¹²

Lack of Scientific Standards for International Forensic Investigation

Whilst protocols and standard operating procedures for forensic investigation may be in place at a national level, there is less clarity in the international context of war crimes investigation, where national standards of homicide investigation are deemed irrelevant.¹¹³ At present, there are no international standard protocols for the forensic investigation of war crimes.¹¹⁴ It is necessary, therefore, for international standards to be developed.

¹⁰⁹ Koff C, above n23 at 151 and Stover E and Peress G, above n7 at 146

¹¹⁰ Stover E and Peress G, above n7 at 110

¹¹¹ Koff C, above n23 at 142

¹¹² Lejmi M A, ‘Prosecuting Cambodian Genocide, Problems Caused by the Passage of Time since the Alleged Commission of Crimes’ (2006) 4 (2) *Journal of Int Crim Justice* 300

¹¹³ Klinkner M J, above n10 at 18

¹¹⁴ Jessee E and Anderson K F, above n33

Huffine *et al.* state that forensic systems should ‘adhere to internationally accepted scientific and forensic principles’,¹¹⁵ guidelines and safeguards. It is held to be imperative that forensic teams utilise and develop consistent scientific methodologies in the investigation of mass graves,¹¹⁶ and that evidence is collected in line with ‘sound scientific and legal principles’.¹¹⁷ However, due to the unprecedented nature of war crimes within affected countries, standard forensic procedures are often absent or lacking and, in the absence of international standards, forensic staff may be asked to work to national standards¹¹⁸ or their home country’s own standards,¹¹⁹ which may conflict with those of another investigator.¹²⁰ Considering that teams are often composed of experts originating from different countries, each with their own different standards and levels of expertise, this can lead to confusion as to how to proceed.

This lack of scientific standards for the investigation of mass graves should be a cause for concern for both forensic scientists and prosecutors alike. If the consistency and quality of the investigation cannot be guaranteed through standardised procedures, then the admissibility of the evidence produced may be subject to dispute, and may even be used by the defence in court to

¹¹⁵ Huffine E *et al.*, above n67 at 434

¹¹⁶ Petrig A, ‘The War Dead and their Gravesites’ (2009) 91 (874) *Int Review of the Red Cross*, 362

¹¹⁷ Cox M, ‘A multidisciplinary approach to the investigation of crimes against humanity, war crimes and genocide: the Inforce Foundation’ (2003) 43 (4) *Science & Justice* 226

¹¹⁸ Cordner S and McKelvie H, ‘Developing standards in international forensic work to identify missing persons’ (2002) 84 (848) *IRRC* at 878

¹¹⁹ Klinkner M J, above n10 at 15

¹²⁰ Rainio J *et al.*, above n66 at 220

'discredit otherwise sound evidence, thereby significantly undermining the prosecution case'.¹²¹

Ineffectual Team Management and Communication

Communication between legal and scientific personnel can appear effective, with prosecutors recognising the important role of forensic science in investigations¹²² and appreciating that burial sites harness crucial information to forensic teams.¹²³ However relationships between forensic personnel on site can sometimes appear to be fractious. This may be due to personality clashes between experts,¹²⁴ flawed command structures, or as a result of ethical tensions between members of the forensic teams, which will be discussed in more detail later in this thesis.

Detailing her time working as part of a forensic team in Rwanda, Bosnia, Croatia and Kosovo, Koff describes the deterioration of staff relationships and communication on site; from breakdowns in team morale, to hierarchal divides between management and other workers, to the 'totalitarian approaches' taken by managerial staff.¹²⁵ Such issues, she explains, can have a severe impact on

¹²¹ Cordner S and McKelvie H, above n118 at 878

¹²² Blewitt G T, above n56 at 284-288 and Stover E and Peress G, above n7 at 26

¹²³ Scheffer D, *All the Missing Souls: A Personal History of the War Crimes Tribunals* (Princeton University Press, New Jersey USA, 2012) 257

¹²⁴ Klinkner M J, above n10 at 17 and Duhig C and Turnbull R, 'Crime Scene Management and Forensic Anthropology: Observations and Recommendations From the United Kingdom and International Cases' in Ferllini R, *Forensic Archaeology and Human Rights Violations* (Charles C Thomas Publisher Ltd, Illinois, USA, 2007) 92

¹²⁵ Koff C, above n23 at 56

the investigation, which 'cannot progress efficiently, as communication and morale drop to dangerous levels'.¹²⁶

An additional source of conflict amongst forensic teams may be role overlap. The similar nature of forensic disciplines, such as anthropology, archaeology and pathology in particular, can lead to confusion and a lack of understanding regarding each team member's particular responsibilities and contributions.¹²⁷

Jurisdictional Constraints

Forensic investigations at an international level often involve issues of sovereignty and politics.¹²⁸ In order to investigate alleged war crimes, it is vital that the government of the host state is cooperative and willing to allow the forensic team to investigate. This is not always feasible in politically unstable environments which lack infrastructure and is usually dependent on a change in the government's regime and priorities.¹²⁹ As Oxenham states, some investigations will be supported if there is a 'political will and others will be ignored if there is not.'¹³⁰

¹²⁶ Koff C, above n23 at 120

¹²⁷ Skinner M and Sterenberg J, 'Turf wars: authority and responsibility for the investigation of mass graves' (2005) 151 (2-3) *Forensic Sci Int.* 222

¹²⁸ Makaremi C, 'And they did not return his corpse: state violence, mourning and silence in post-revolution Iran', 1st Annual & International Workshop of the Research Programme, *Corpses of Mass Violence*, Paris, 14th September 2012

¹²⁹ Oxenham M, above n2 at 20 and Cox M *et al.*, above n20 at 12

¹³⁰ Oxenham M, above n2 at 26

Jurisdictional constraints can mean that forensic teams are restricted to working within the legislation of the host state.¹³¹ The European Union Forensic Expert Team (EU-FET) were required to conduct their investigation in Kosovo in accordance with Federal Republic of Yugoslavia law, as well as facing additional obstruction to their activities by the Kosovo Liberation Army (KLA).¹³²

One of the most integral issues to be resolved prior to investigation is the establishment of agreements with the state where the mission will be conducted, as this will impact on the operational functioning of the forensic team. Without their cooperation and support, the investigation of alleged grave sites could be made 'extremely difficult if not impossible.'¹³³ The state must agree to allow the investigators the freedom to access and investigate the sites and exhume any mass graves found, as well as guaranteeing the security and protection of the staff.¹³⁴

Investigations may be halted if the host state denies this access and security to investigators, in spite of legislation equipping the Tribunals and International Criminal Court with the power to compel states to cooperate.¹³⁵ For example, local Serb Commander General Milan Milovanović prohibited work at the Ovčara site in Croatia, stating that the forensic team's 'papers from Belgrade mean[t] nothing'.¹³⁶

¹³¹ Rainio J, Lalu K and Sajantila A, above n94 at 60

¹³² Rainio J *et al.*, above n65 at 219 and Krieger H, *The Kosovo Conflict and International Law: An Analytical Documentation 1974-1999* (Cambridge University Press, Cambridge 2012) 72

¹³³ Wagner S, above n87 at 87

¹³⁴ Ranta H and Takamaa K T, above n18 at 449

¹³⁵ Article 28 of the ICTR Statute, Article 29 of the ICTY Statute, Article 86 of the Rome Statute.

¹³⁶ Stover E and Peress G, above n7 at 112

CHAPTER 7- INSTITUTIONAL PROBLEMS INHIBITING COLLABORATION BETWEEN FORENSIC SCIENCE AND INTERNATIONAL CRIMINAL LAW

In contrast to the practical obstacles to investigation identified in the previous chapter, this chapter examines the institutional problems which may hinder the implementation of forensic science skills to war crimes investigation. These include differing mandates between forensic and legal professions, a lack of understanding of forensic science at an institutional level and flawed legal systems for dealing with scientific evidence.

Differing Motivations and Mandates

-Within and Between Forensic Teams

Forensic teams may work under the mandate of intergovernmental organisations, for example the United Nations (UN) or European Union (EU), or at the request of non-governmental organisations such as the International Committee of the Red Cross (ICRC) or Physicians for Human Rights (PHR). Subsequently, there may be great differences between the mandates of different teams.¹³⁷ When working under the auspices of the Tribunals or International Criminal Court, the ultimate mandate is to provide evidence to support the prosecution of serious violations of international humanitarian law, such as genocide.¹³⁸

However tensions may arise within the same forensic team due to an ethical dichotomy between experts, for example those with a humanitarian focus

¹³⁷ Cox M, above n117 at 225

¹³⁸ Reydam L and Odermatt J, 'Mandates' in Reydam L, Wouters J and Ryngaert C, International Prosecutors (Oxford University Press, Oxford, 2012) 89-92

versus a criminal justice focus,¹³⁹ or those who possess “conviction ethics” (believing that their work has the power to bring justice to victims and their families) and those who possess “responsibility ethics” (who believe their work requires neutrality and impartiality).¹⁴⁰

-Between the Forensic Team and the Prosecutor

Justice versus Truth

There are inherent differences in the objectives of science and law; whilst ‘the objective of the law is justice; that of science is truth’.¹⁴¹ The mandate for the Office of the Prosecutor is to gather ‘sufficient evidence to establish beyond reasonable doubt the guilt of any person indicted’.¹⁴² The prosecutor, therefore, has a legal obligation to establish whether a crime may have been committed and a forensic obligation to collect evidence to support the charges he wishes to raise.¹⁴³ Whilst the Chamber in *Prosecutor v Kupreskic et al.* held that it was the duty of the prosecutor to present all available evidence ‘in order to assist the Chamber to discover the truth’¹⁴⁴ and they are required to disclose both

¹³⁹ Klinkner M J, above n10 at 7 and Tidball-Binz M, ‘Foreword’ in Haglund W D and Sorg M H (eds), *Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives* (CRC Press, Florida, USA, 2002) Xi

¹⁴⁰ De la Grandmaison G L *et al.*, ‘The International Criminal Tribunal for the former Yugoslavia (ICTY) and the Forensic Pathologist: Ethical considerations’ (2006) 46 *Med Sci Law* 208.

¹⁴¹ Goodstein D, *How Science Works*, 2nd edition (Reference Manual on Scientific Evidence, Federal Judiciary Center, 2000) 14-15

¹⁴² Blewitt G T, above n56 at 284

¹⁴³ Safferling C, *International Criminal Procedure* (Oxford University Press, Oxford, 2012) 217

¹⁴⁴ *Prosecutor v Kupreskic et al.*, Decision on communication between the parties and their witnesses, TC, 21 September 1998, IT-95-16-T

incriminating and exculpatory evidence,¹⁴⁵ they are not compelled to search for the latter or for the “truth”.

In contrast, forensic scientists are independent gatherers of information¹⁴⁶ and must stand apart from any partiality.¹⁴⁷ The mandate of the prosecutor may therefore seem incompatible with the nature of forensic science in impartial fact-finding; consequently the question arises as to how the mandate of the prosecutor influences and impacts on the work of the forensic investigators, and what evidence is subsequently available to the Chamber.

Case Construction: Ethical and Investigatory Impacts

Since the mandate of the prosecutor is to gather evidence to establish an alleged perpetrator’s guilt, this prosecutorial strategy will affect the evidence-gathering processes of the forensic team. For example, since the prosecutor requires evidence of the scale of the atrocity, categorical identification is often sought over personal identification of the victims.¹⁴⁸ This ambivalence between individuating and collectivising the victims, a.k.a the ‘numbers v. names dilemma’,¹⁴⁹ could prove to be a source of turmoil to the forensic scientists, who may see this exhumation of remains without the intention of personal

¹⁴⁵ Rule 68 of the Rules of Procedure and Evidence for the ICTY and ICTR

¹⁴⁶ Koff C, above n23 at 85 and Klinkner M J, above n10 at 19

¹⁴⁷ Rothwell T, ‘Presentation of Expert Evidence’ in White P (ed.), *Crime Scene to Court: The Essentials of Forensic Science* (Royal Society of Chemistry, London 2004) 420

¹⁴⁸ Haglund W D, above n32 at 259

¹⁴⁹ Klinkner M J, above n10 at 7

identification and repatriation as unethical,¹⁵⁰ clashing with the needs of the victims' families¹⁵¹ and 'detract[ing] from justice in its broadest sense.'¹⁵²

Additionally, due to time constraints, experts may be asked to focus their efforts on the recovery of certain types of evidence¹⁵³ or the exhumation of only sites pertinent to the prosecution case.¹⁵⁴ This prioritisation of evidence types and site selection may also cause conflict amongst forensic experts, who may view it as compromising the quality of their work¹⁵⁵ and divergent from their truth-seeking role.

From an investigatory perspective, case construction may potentially jeopardise future investigations, as the forensic team is not able to recover any additional evidence which may be relevant. Most forensic teams agree that they should aim for maximum evidence recovery in case further investigation is required in the future.¹⁵⁶ However when categorical identification of the victims is sought, the amount and variety of samples taken may be less than when personal identification is the objective.¹⁵⁷ In addition, when asked to carry out their work with the aim of providing evidence of a crime, forensic teams may dedicate particular attention to evidence which could establish cause of death and less effort towards documenting the condition of the remains, which could endanger future identification attempts.¹⁵⁸ Similarly, investigations which focus on body

¹⁵⁰ Connor M, above n35 at 4

¹⁵¹ Petrig A, above n116 at 362

¹⁵² Cox M *et al.*, above n20 at 13

¹⁵³ Jessee E and Anderson K F, above n33 and Klinkner M J, above n10 at 15

¹⁵⁴ Klinkner M J, above n10 at 9

¹⁵⁵ *Ibid*, at 18

¹⁵⁶ Ranta H and Takamaa K T, above n18 at 450

¹⁵⁷ *Ibid*, 448

¹⁵⁸ Wagner S, above n86 at 96

recovery may neglect other available types of evidence which could prove relevant to the investigation.¹⁵⁹

-At Trial

Finally, the forensic team's motivations may conflict with those of the prosecutor at court. For example, investigators from the ICRC have the right to carry out investigations without being compelled to testify or disclose their activities at trial.¹⁶⁰ The prosecution unsuccessfully attempted to overcome this entitlement in case of *Prosecutor v Simic et al.* at the ICTY,¹⁶¹ however this may still prove to be a source of tension between the parties.

Lack Of Understanding Of Forensic Science

Inman and Rudin believe that forensic science 'is probably both the least understood and most misunderstood of all scientific disciplines.'¹⁶² It is best defined as the application of science to law,¹⁶³ and encompasses a variety of disciplines rooted in the "pure" sciences of biology, chemistry and physics. However, as an application of these natural sciences, as opposed to being one in its own right, forensic science has been subject to much criticism by the scientific community. This is, in no small part, due to the fact that whilst the pure

¹⁵⁹ Cox M, above n117 at 226

¹⁶⁰ May R and Wierda M, above n11 at 65

¹⁶¹ *Prosecutor v. Simic et al.*, Decision on the Prosecution Motion under Rule 73 for a Ruling Concerning the Testimony of a Witness, 27 July 1999, Case No. IT-95-9-PT at paras. 73-74.

¹⁶² Inman K and Rudin N, *Principles and Practice of Criminalistics: The Profession of Forensic Science* (CRC Press, Florida, USA 2001) 22.

¹⁶³ Saferstein R, *Criminalistics: An Introduction to Forensic Science*, 7th edition (Prentice Hall, New Jersey, USA 2001) 1

sciences aim to provide definitive, objective and empirically testable results, forensic science requires interpretation in order to become meaningful,¹⁶⁴ often using an ‘artistic and intuitive approach’.¹⁶⁵ In addition, due to its prolific use in the criminal context, forensic science has warranted the description by some as ‘science constructed in the image of criminal law’; a foundation considered compromising to its objectivity.¹⁶⁶ Since critics claim that forensic science lacks scientific rigour, it is necessary to establish how one determines something to be a science.¹⁶⁷

Many forensic disciplines can be thought of as a combination of science and art, casting doubt over whether they should be considered to be “sciences”. In contrast to DNA analysis, the certainty of which can be communicated by means of a percentage,¹⁶⁸ the methods employed by archaeology and anthropology are often subjective and their accuracy is not statistically quantifiable or able to be objectively tested.

Archaeology has been described by many as a mixture of art and science, which uses vague fieldwork standards which some practitioners deem to be ‘not acceptable for forensic work’.¹⁶⁹ In addition, whilst the non-metric techniques of forensic anthropology employ reference materials for the morphological observations of the shape, size and texture of bone features, this discipline still involves a subjective element and ‘requires some artistry along with empirical

¹⁶⁴ Kruse C, ‘Legal storytelling in pre-trial investigations: arguing for a wider perspective on forensic evidence’ (2012) 31 (3) *New Genetics & Society* 299.

¹⁶⁵ Inman K and Rudin N, above n162 at 12.

¹⁶⁶ Saks M J, ‘Merlin and Soloman: Lessons from the Law’s Formative Encounters with Forensic Identification Science’ (1998) 49 (4) *Hastings Law Journal*.

¹⁶⁷ Pyrek K M, *Forensic Science Under Siege, The Challenges of Forensic Laboratories and the Medico-Legal Death Investigation System* (Elsevier Academic Press, California USA 2007) 235

¹⁶⁸ Wagner S, above n86 at 115

¹⁶⁹ Oxenham M, above n2 at 23

measurement'.¹⁷⁰ Because of their subjectivity, there needs to be even more accuracy in how the methods of these disciplines are employed and documented than for most other forensic methods, yet as previously mentioned there are currently no standardised procedures.

Some experts feel that forensic archaeology has progressed in establishing itself as a 'successful and separate forensic science',¹⁷¹ following advances in legislation and the development of archaeological methodologies. However, unlike most scientific disciplines, it is difficult to test the validity of archaeological techniques in the way one would repeat an experiment.¹⁷² Archaeology is a destructive method; once the grave has been exhumed and the evidence removed it cannot be recreated, repeated or replaced. Excavation of a site is the ultimate unrepeatable experiment¹⁷³ and, furthermore, no two gravesites will be exactly the same to excavate. Therefore, if the validity of the methodology used in archaeology is not capable of being tested through replication, it is questionable as to whether the evidence produced is capable of passing the admissibility criteria for scientific evidence set out by domestic criminal courts. According to Kiely, in order to be admissible a scientific methodology should be capable of being tested for accuracy and error rates, be peer reviewed in the scientific community and be valid for enquiry.¹⁷⁴

¹⁷⁰ Joyce C and Stover E, above n1 at 90

¹⁷¹ Oxenham M, above n2 at 17

¹⁷² Barker P, *Techniques of Archaeological Excavation*, 3rd edition (B.T. Batsford Ltd, London, 1987) 14.

¹⁷³ *Ibid*, at 13.

¹⁷⁴ Kiely T F, *Forensic evidence: Science and the criminal law* (CRC Press, Florida USA 2001)

Assessments of Forensic Evidence

The increasing use of forensic techniques in international investigations has generated debate as to whether the judiciary are capable of evaluating the credibility, reliability and weight to be attributed to scientific evidence produced at trial.¹⁷⁵ When experts can reach differing interpretations of evidence amongst themselves, the competence of judges in understanding and assessing the same evidence without possessing the experts' scientific knowledge, expertise or training is called into question.¹⁷⁶ Since the judiciary 'cannot make proper reliability assessments without an understanding of the science',¹⁷⁷ this is a particularly pertinent issue when considering the emergence of new disciplines and novel techniques, each with their own reputations for credibility and reliability and their own scientific jargon to decipher. If judges are not equipped with the necessary scientific expertise to assess the admissibility of forensic evidence, it could lead to decisions to wrongly exclude reliable evidence from proceedings or the admittance of evidence which may not stand up to defence scrutiny.

To continue this evaluation of admissibility assessments of forensic evidence at court, the following chapter will focus on the admissibility provisions currently available under the Tribunals and ICC.

¹⁷⁵ Jackson J D and Summers S J, above n22 at 74

¹⁷⁶ Jonakait R, 'Forensic science: The need for regulation.' (1991) 4 *Harvard Journal of Law Technology* 109 and Roberts P, 'Science in the Criminal Process' (1994) 14 (4) *Oxford Journal of Legal Studies* 470.

¹⁷⁷ Jackson J D and Summers S J, above n22 at 50.

CHAPTER 8- EVIDENTIAL RULES GOVERNING THE SUBMISSION AND USE OF FORENSIC EVIDENCE IN WAR CRIMES TRIALS

In addition to the practical and institutional obstacles which may hinder the deployment of forensic science skills to war crimes investigation, there is also potential for the evidential rules of the Tribunals and ICC to inhibit the effective use of forensic evidence at trial.

The often unprecedented duty placed upon countries to tackle and try war crimes, such as in the Guatemala trials,¹⁷⁸ has exposed and stressed the need to establish clear international evidentiary provisions, due to the deficits in the current frameworks. Whilst strict and detailed provisions can be found for the frequently-utilised forms of evidence, such as documentary and testimonial evidence, there is little guidance in the Rules of Procedure and Evidence (RPE) of the *ad hoc* Tribunals or the International Criminal Court regarding scientific evidence, nor the permissible scope of expert testimony.¹⁷⁹ This lack of provisions for evidence at the Tribunals and the ICC is portrayed as beneficial, providing a loose framework which allows the Chambers to be flexible and unhindered by the strict technical rules of national courts.¹⁸⁰ This 'broad

¹⁷⁸ Fetterhoff C M, 'Guatemala Trial Presents a Test for Evidentiary Standards in Human Rights Trials', 2013, accessed at <http://hrbrief.org/2013/04/guatemala-trial-presents-a-test-for-evidentiary-standards-in-human-rights-trials/> on 12/05/2013.

¹⁷⁹ Khan K, Buisman C and Gosnell C (eds), *Principles of Evidence in International Criminal Justice* (Oxford University Press, Oxford, 2010) 109.

¹⁸⁰ Cryer R, Friman H, Robinson D and Wilmshurst E, *An Introduction to International Criminal Law and Procedure* (Cambridge University Press, Cambridge, 2009) 383, Cassese A, *International Criminal Law*, 2nd edition (Oxford University Press, Oxford, 2008) 414 and Klinkner M J, above n10 at 11

discretion¹⁸¹ granted to the Trial Chambers has led to an often liberal approach in their admission of forensic evidence.¹⁸²

However this lack of guidance may explain the Tribunals' extensive use of witness testimony, for which there are provisions, and lack of physical exhibits.¹⁸³ It is also possible that without being scrutinised with the same degree of rigour as other forms of evidence, forensic evidence may be more vulnerable to defence attack. For example, the admissibility of evidence submitted in the Guatemala trials has been challenged due to the weak evidentiary standards of the tribunal.¹⁸⁴ A flexible approach to admissibility can also lead to the admission of dubious evidence, the challenging and/or exclusion of which often prolongs and complicates proceedings unnecessarily.¹⁸⁵

The following sections will identify and scrutinise the provisions available for forensic evidence under the Tribunals and ICC.

Provisions for Forensic Evidence at the *Ad hoc* Tribunals and the ICC

Article 14 of the ICTR Statute and Article 15 of the ICTY Statute state that the Rules of Procedure and Evidence (RPE) of the Tribunal shall provide for the admission of evidence. However, the RPE do not include provisions for the

¹⁸¹ *Prosecutor v. Popović et al.*, Decision on Joint Defence Interlocutory Appeal Concerning the Status of Richard Butler as an Expert Witness, 30 January 2008, Case No. IT-05-88-AR73.2, at para 22

¹⁸² May R and Wierda M, above n11 at 254

¹⁸³ Cox M *et al.*, above n20 at 15

¹⁸⁴ Fetterhoff C M, above n178.

¹⁸⁵ Murphy P, 'Excluding Justice or Facilitating Justice-International Criminal Law Would Benefit from Rules of Evidence' (2008) 12 E&P 1-31

admissibility of scientific evidence. Therefore, the general tests for admissibility and exclusion, found under Rule 89 and Rule 95 respectively, must be applied by the Chamber. These allow the Chamber to admit any relevant evidence deemed to be of “probative value”, so long as it does not jeopardise the defendant’s right to a fair trial and was not obtained in circumstances which would cast doubt on its reliability.

The admissibility guidance for scientific evidence offered by the International Criminal Court is equally limited. Article 69 (4) of the Rome Statute describes how the Court should determine the admissibility of general evidence based upon its probative value and possible prejudicial effect. It states that this should be carried out in accordance with the Rules of Procedure and Evidence; Rule 63 of which sets out general provisions relating to evidence, whilst Rule 64 advises on the technical procedures for raising an issue of admissibility. The latter rule also states that evidence found to be irrelevant or inadmissible will not be considered by the Chamber, but does not provide any criteria for determining this. More detailed admissibility guidance is provided under Rule 72 for evidence of crimes of sexual violence.

In addition to making no mention of forensic or scientific evidence, the RPE of the ICTY, ICTR and ICC do not supply any provisions for the chain of custody of evidence; an important factor for forensic evidence which must be maintained in order to show its integrity.

With only general evidentiary guidance provided by the Tribunals and the ICC, issues of admissibility are often determined within case law decisions.¹⁸⁶ With

¹⁸⁶ Khan K, Buisman C and Gosnell C, above n179 at 600

such issues being handled at the Judge's discretion, this can lead to inconsistency 'between tribunals, and even...within the same tribunal'.¹⁸⁷

Provisions for Forensic Expert Testimony at the *Ad hoc* Tribunals and ICC

Whilst case law states that an expert's testimony 'is intended to enlighten the judges on specific issues of a technical nature, requiring special knowledge in a specific field'¹⁸⁸ and 'by virtue of some specialized knowledge, skill or training can assist the trier of fact to understand or determine an issue in dispute',¹⁸⁹ the RPE of the ICTR and ICTY do not provide definitions for what constitutes an "expert", nor explanations of their role and duties. Rule 94bis, relating to the testimony of expert witnesses, is a 'misnomer'¹⁹⁰ as it only provides guidance relating to the disclosure of expert reports and advice for the defence in accepting or challenging these. It does not describe the type or scope of expert evidence which can be admitted, including that from scientists. In the absence of admissibility provisions for expert witnesses, this must also be covered by the general guidance found under Rule 89.

Similarly, with no provisions for expert testimony in its Statute or RPE, admissibility issues under the ICC must be governed by the general provisions for ordinary witnesses as outlined in Article 69 (4) of the Rome Statute, due to the ICC's RPE being 'entirely silent on the issue of experts'.¹⁹¹

¹⁸⁷ *Ibid*, at 604

¹⁸⁸ *Prosecutor v Akayesu*, Judgement, 2 September 1998, Case No. ICTR-96-4-T,

¹⁸⁹ *Prosecutor v Galić*, Decision Concerning the Expert Witnesses Ewa Tabeau and Richard Philipps, 3 July 2002, Case No. IT-98-29-T,

¹⁹⁰ Khan K, Buisman, C and Gosnell C, above n179 at 602

¹⁹¹ *Ibid*, at 605

It is also important to note that the evidentiary rules of the ICC are only applicable to member States, with 122 of approximately 196 potential States currently party to the Statute and RPE. Whilst these include many countries where atrocities have taken place, such as Bosnia and Herzegovina, Argentina, Spain, Sierra Leone and Cambodia,¹⁹² there are currently many countries which are not bound by the evidentiary rules of the Court, which may give rise to further inconsistency between trials with regard to how forensic evidence is utilised.

Provisions for the Presentation of Forensic Expert Testimony at the *Ad hoc* Tribunals and the ICC

The presentation of expert testimony, Pyrek states, 'is one of the primary ways in which forensic science and the law clash.'¹⁹³ As mentioned previously, the judiciary's lack of scientific understanding can mean that they are not equipped to confidently interpret forensic evidence. This may lead to a reliance on the expert witness to take on a quasi-judicial role which is outside of their remit.¹⁹⁴ Again, the ICC and Tribunals provide little guidance regarding the presentation of evidence by the expert at court; whilst some may believe this provides 'a novel environment for presenting ... expert evidence',¹⁹⁵ this is a considerable issue particularly if the expert has little or no experience in presenting evidence in international criminal proceedings.

¹⁹² The International Criminal Court, 'The States Parties to the Rome Statute', accessed at http://www.icc-cpi.int/en_menus/asp/states%20parties/Pages/the%20states%20parties%20to%20the%20rome%20statute.aspx on 02/05/2013.

¹⁹³ Pyrek K M, above n167 at 15

¹⁹⁴ Jackson J D and Summers S J, above n22 at 75

¹⁹⁵ Klinkner M J, above n10 at 11

Whilst they are able to state their opinion, the role of the forensic scientist at the trial stage is only to present evidence to be used by the court, and not to judge the case themselves.¹⁹⁶ However, there can be confusion regarding this presentation of evidence for even the most experienced forensic scientists. For example, during his testimony at the trial of Radovan Karadžić, forensic anthropologist Dr William Haglund admitted that he should not have stated that the victims' had been executed, as it was the prosecutor's role, rather than his, to prove whether or not executions had taken place.¹⁹⁷

A practice which may eliminate such confusion over the testimony of forensic experts is that of 'witness proofing'. By allowing experts to prepare and review their testimony with the prosecution prior to presenting it in court, without prejudicing the rights of the defendant, witness proofing ensures that the expert understands both their role and how to present their evidence in court; a tool useful for lawyers and scientists alike.¹⁹⁸ This practice, whilst allowed at the ICTY and ICTR,¹⁹⁹ has not been widely accepted at the ICC,²⁰⁰ and there are no written provisions authorising its use in the Statutes or RPE for the ICTY or

¹⁹⁶ Rainio J, Lalu K and Sajantila A, above n95 at 58 and Rainio J *et al.*, above n66 at 220

¹⁹⁷ *Prosecutor v Karadžić*, Trial transcript, 31 January 2012, IT-95-5/18-I, at page 23910

¹⁹⁸ Rothwell T, above n147 at 434

¹⁹⁹ *Prosecutor v. Limaj, Bala and Musliu*, Decision on Defence Motion on Prosecution Practice of 'Proofing' Witnesses, 10 December 2004, Case No. IT-03-66-T, *Prosecutor v Milutinovic' et al.*, Decision on Ojdanic' Motion to prohibit witness proofing, 12 December 2006, Case No. IT-05-87-T and *Prosecutor v. Karemera, Ngirumpatse and Nzirorera*, Decision on Interlocutory Appeal Regarding Witness Proofing, 11 May 2007, Case No. ICTR-98-44-AR73.8

²⁰⁰ *Prosecutor v. Lubanga Dyilo*, Decision Regarding the Practices Used to Prepare and Familiarise Witnesses for Giving Testimony at Trial, 30 November 2007, Case No. ICC-01/04-01/06 and *Prosecutor v Bemba Gombo*, Partly Dissenting Opinion of Judge Kuniko Ozaki on the Decision on the Unified Protocol on the practices used to prepare and familiarise witnesses for giving testimony at trial, 24 November 2010, Case No. ICC-01/05-01/08

ICTR, therefore there may be confusion as to whether witness proofing is an acceptable practice.

In addition, the Tribunals and the ICC also lack Codes of Conduct for expert witnesses and guidance for the presentation of their evidence in writing. Rule 94bis, governing witness testimony at the ICTY and ICTR, does not provide guidelines for the creation or content of expert reports. In the absence of provisions, experts have been known to seek the advice of prosecutors regarding report writing and the level of detail required for prosecutorial purposes.²⁰¹ Advice must also be sought from case law, such as the admissibility requirements for expert reports provided in the case of *Prosecutor v Stanišić and Župljanin* at the ICTY. These included the classification of the witness as an expert, that the report meets the minimum standards of reliability, is relevant and of probative value and that the contents fall within the expertise of the expert.²⁰² The case of *Prosecutor v Popović et al.* also provided expansion on the requirements for admissibility of expert reports, including transparency, reliability and whether the content falls within the expert's area of expertise.²⁰³

This chapter has demonstrated the deficiencies for admissibility guidance within the Rule of Procedure and Evidence for the Tribunals and the ICC. An analysis of the dangers of these shortcomings and possible solutions will be discussed in the following chapter.

²⁰¹ Klinkner M J, above n10 at 17

²⁰² *Prosecutor v Stanišić and Župljanin*, Written Reasons for the Trial Chamber's Oral Decision Accepting Dorothea Hanson as an Expert Witness, 5 November 2009, Case No. IT-08-91-T, at para 8

²⁰³ *Prosecutor v Popović et al.*, Decision on Defence Rule 94 bis Notice regarding Prosecution Expert Witness Richard Butler, 19 September 2007, Case No. IT-05-88-T, at para 30

CHAPTER 9- ANALYSIS, DISCUSSION AND POTENTIAL REFORMS

This chapter seeks to analyse and address the identified practical, institutional and evidentiary obstacles to the deployment of forensic science in war crimes investigation and prosecution. It aims to formulate potential reforms and recommendations for legislation, institutional practice and policy to enable forensic skills to be better utilised to their full potential.

Increased Prioritisation of Forensic Resources

The importance of uncovering and documenting grave crimes such as genocide for both prosecutorial and humanitarian interests demands a global investment.²⁰⁴ Whilst it is recognised that the costs of international criminal proceedings far exceed those of domestic investigations and trials,²⁰⁵ the Tribunals and the ICC need to give more importance to forensic science skills in their budgetary allocations. Increased financial investment would help ensure that forensic teams are adequately equipped with appropriate resources for undertaking the excavations of sites and analysis of evidence, in order to provide safe, reliable results. There is also a need for additional organisational structures pertaining to the planning and logistics of the mission,²⁰⁶ and provisions for security teams to ensure the safety of staff and integrity of sites.

²⁰⁴ Oxenham M, above n2 at 25

²⁰⁵ Wierda M and Triolo A, 'Resources' in Reydam L, Wouters J and Ryngaert C, *International Prosecutors* (Oxford University Press, Oxford, 2012) 170

²⁰⁶ Cox M *et al.*, above n20 at 3

Standardisation of Investigative Procedures

There are many benefits to the creation and dissemination of international standard operating procedures and protocols. Producing and implementing common approaches to the investigation of mass graves and recovery of evidence will encourage consistency both within and amongst forensic teams at an international level. By integrating and unifying their efforts, a universal language amongst forensic practitioners may be created, leading to maximum effectiveness in the field.²⁰⁷

This will also increase cohesion amongst experts, counteracting the lack of standardised experience amongst team members and enhancing more effective team collaboration.²⁰⁸ In addition, by incorporating a framework detailing the roles and responsibilities of the team, such protocols would clarify and reaffirm the parameters of each member's expertise,²⁰⁹ thus discouraging role overlap and the associated conflict. Standard procedures would also ensure that evidence was recovered to a standard which would satisfy both judicial and humanitarian aims.

Furthermore, standardisation may increase the demonstrable credibility and scientific rigour of forensic science disciplines, such as forensic archaeology and anthropology, as well as creating an image of 'proper' science²¹⁰ and minimising the risk of 'subjective distortions'.²¹¹ This could potentially mean that such scientific evidence would stand more strongly against scrutiny from defence lawyers, whose objective is to expose the weaknesses in scientific

²⁰⁷ Skinner M and Sterenberg J, above n127 at 222

²⁰⁸ Cordner S and McKelvie, above n118 at 10

²⁰⁹ Skinner M and Sterenberg J, above n127 at 221

²¹⁰ Klinkner M J, above n9 at 459

²¹¹ Barker P, above n172 at 14

evidence.²¹² In this way, standardisation would prove beneficial to prosecutors too. It would also alleviate some of the pressure on the judiciary in their evaluation of the admissibility of scientific evidence by demonstrating the rigour of the forensic investigation underpinning the evidence.

There are several existing examples of protocols which could be adopted as or harmonised into common standards for forensic investigation, scene management and evidence recovery. These include the Inforce Protocols created by Cox *et al.* under the auspices of the International Forensic Centre of Excellence (Inforce),²¹³ the best practice recommendations from the ICRC's International Conference on the Missing and Their Families from 2003,²¹⁴ and The Model Protocol for a Legal Investigation of Extra-legal, Arbitrary and Summary Executions²¹⁵ otherwise known as The Minnesota Protocol. The latter is often regarded as the current international standard for investigation.²¹⁶ The provision of preparatory training sessions for forensic staff in the use of such standard procedures would also help ensure consistency throughout the team prior to investigation.²¹⁷

²¹² Jonakait R, above n176 at 167.

²¹³ Cox M *et al.*, above n20.

²¹⁴ Ubelaker D H, *Forensic Science: Current Issues, Future Directions* (John Wiley & Sons Ltd, Sussex 2013) 345

²¹⁵ United Nations Manual on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Executions, U.N. Doc. E/ST/CSDHA/.12 (1991) accessed at <http://www1.umn.edu/humanrts/instreetree/executioninvestigation-91.html#III> on 15/03/2013.

²¹⁶ Haglund W D, above n32 at 255 and Beydoun A, above n25

²¹⁷ Klinkner M J, above n10 at 13

Team Management and Communication

Though the aforementioned standardisation of procedures would reduce some of the conflicts within forensic teams, there will always be room for improved staff interactions. Whilst personality clashes are inevitable, clear and open communication lines must be encouraged and supported by managerial staff, as well as a 'more collegial than hierarchical' management structure.²¹⁸

Enhanced communication between team members would also enable more effective investigation strategies.²¹⁹

Overcoming Jurisdictional Constraints

This is an issue which is not capable of reformation within the scope of this thesis, as to a large extent it is an unforeseeable problem involving many unpredictable external factors, such as the fragility of the host country's infrastructure and the willingness of their government. When situations where governments are resistant to forensic investigation do arise, the creation of impromptu agreements such as the Dayton Peace Agreement of 1995 can demand that the government cooperate and allow investigation to take place.²²⁰

The Communication of Mandates

This thesis does not intend to address or dissuade the intrinsic ethics which may differ between members of a forensic team. However, it does seek to minimise any negative effects which may result from ethical conflicts. This can be achieved by ensuring that potential team members are made fully aware of

²¹⁸ *Ibid*, at 21

²¹⁹ *Ibid*, at 27

²²⁰ Scheffer D, above n123 at 42

the requirements of the investigation at the recruitment stage, so that they are able to make an informed decision as to their involvement. Whilst some forensic experts may not feel that the prosecutorial and humanitarian goals of an investigation are mutually exclusive,²²¹ it is important that the mandate, role and parameters of the forensic team are established and clearly communicated to members prior to the commencement of the investigation, so that they do not foster expectations of the investigation which will not be achieved.²²²

When the mandate of the team is to provide evidence for prosecution purposes, the presence of organisations such as International Commission on Missing Persons (ICMP) should be conveyed to staff, as their mandate alleviates the responsibilities of personal identification and repatriation of missing persons from the forensic team.²²³ Some forensic practitioners believe that standard protocols for investigation should also incorporate the need for personal identification of the missing;²²⁴ the implementation of which would mean safe and optimised evidence recovery whether the intention for the evidence is judicial or humanitarian.²²⁵

However, the author does recognise that requests to the forensic team for the prioritisation of certain evidence by the prosecutor are not issues which can be easily resolved. Care must be taken by prosecutors to avoid their case construction influencing the forensic scientists in ways which could compromise their independence, the quality of their work or the potential for future

²²¹ Koff C, above n23 at 86

²²² Rainio J *et al.*, above n65 at 220 and Klinkner M J, above n10 at 11

²²³ Ubelaker D H, above n214 at 344

²²⁴ Stover E and Shigekane R, 'The missing in the aftermath of war: When do the needs of the victims' families and international war crimes tribunals clash?' (2002) 84 *International Review of the Red Cross*, 845 and Klinkner M J, above n10 at 22

²²⁵ Cox M *et al.*, above n20 at 2

investigation. However, where a prosecutorial orientation may arise, any questions of partiality of the forensic team are able to be detected by quality assurance measures such as cross-examination and counter-expertise at trial.²²⁶

Furthermore, increasing each party's understanding of the other's profession, through education or training, could mean more appreciation of their perspectives, the dangers of case construction and/or the need to accept compromises such as site selection which are 'beyond the forensic expert's control.'²²⁷ Obviously, such training would need to be unbiased towards the defence, so that no prejudicial effect was created.

Evidentiary Understanding and Guidance

As this thesis has explored, the current evidentiary frameworks under the Tribunals and the ICC provide minimal guidance for forensic evidence and forensic expert testimony. The dangers of a lack of guidance include uncertainty as to the type and scope of evidence admissible, confusion over the presentation of expert testimony and expert reports, a lack of consistency between trials, and a lack of scrutiny at the admissibility stage, meaning that weak evidence may be admitted into proceedings. These conditions are not conducive to forensic evidence being utilised in court to its full potential.

Given the lack of evidentiary guidance for scientific evidence, it would be prudent to suggest the implementation of enhanced admissibility procedures for

²²⁶ Roberts P and Willmore C, 'The Role of Forensic Science Evidence in Criminal Proceedings', Royal Commission on Criminal Justice Research Study No. 11 (HMSO, London, 1993) 36

²²⁷ Klinkner M J, above n10 at 4

scientific and expert evidence. While it is believed that the various methods employed by the different sciences cannot be distilled into a set of core, basic criteria for determining admissibility and reliability,²²⁸ attempts have been made. An example of an enhanced test for expert evidence is the “Daubert test” from the United States,²²⁹ which employs a proactive gate-keeping role for the judiciary in assessments of evidence. This approach has been approved of by jurisdictions outside of the U.S., including Canada, New Zealand and England and Wales. In the case of the latter, the Law Commission has advocated the adoption of Daubert-style admissibility criteria in England and Wales in their 2011 report, and has recommended a revised test for reliability based on the data, materials, methods and inferences utilised by the expert and the current opinions of and methods used by other experts in that field.²³⁰ However, the report recognises that, as previously discussed, judges and lawyers may lack the expertise to assess the reliability of scientific evidence.²³¹

Edmond believes that the judiciary’s lack of scientific knowledge requires tackling at an institutional level, rather than through judicial training or education. He has proposed a way to overcome this by the implementation of a multidisciplinary advisory panel composed of experts from many scientific fields, including forensic science.²³² It would undertake the responsibility for assessing the reliability of evidence based on ‘what is empirically known and demonstrably

²²⁸ Jasanoff, above n95 at 57 and Edmond G, ‘Judicial Representations of Scientific Evidence’ (2000) 63 *Modern Law Review* 251

²²⁹ *Daubert v Merrell Dow Pharmaceuticals Inc*, 509 US 579 (1993)

²³⁰ The Law Commission, *Expert Evidence In Criminal Proceedings In England And Wales*, March 2011, accessed at http://lawcommission.justice.gov.uk/docs/lc325_Expert_Evidence_Report.pdf on 17/02/2013, 138

²³¹ *Ibid*, at 83

²³² Edmond G, ‘Advice for the courts? Sufficiently reliable assistance with forensic science and medicine (Part 2)’ (2012). 16 (3) *The International Journal of Evidence & Proof*, 266.

supportable²³³ about the techniques underpinning the evidence, therefore those which lacked empirical support would be deemed unreliable.

By providing such an advisory panel, evidence gained through unreliable techniques would be able to be filtered out of proceedings prior to the trial. Eliminating this assessment of reliability would allow the judiciary to focus on issues which do not require any scientific expertise, such as questions of the relevance and probative value of the evidence which are the province of lawyers rather than scientists.²³⁴ In addition, this would still allow the evidence to be evaluated within the context of all the evidence and not in isolation, but only once the evidence was determined as being reliable. It is possible that implementing such a panel would be a more time and cost efficient, by cutting back on the time taken for reliability assessments at trial, and provide safer assessments, as they would be conducted by practitioners with knowledge of the science.

This thesis has also highlighted the need for further provisions for the presentation of expert evidence at trial and within reports to be created and implemented. Witness proofing has not been accepted at the ICC and is not codified in the Rules of Procedure and Evidence of the ICTY or ICTR. There are several benefits to making this practice available and accepted throughout international criminal proceedings. Experts would be more familiarised with court proceedings, their role at trial, their testimony and their recollection of events, which could lead to fewer mistakes and inconsistencies in court and a more streamlined experience. In addition, since no coaching is allowed to take

²³³ *Ibid*, at 274

²³⁴ Klinkner M J, above n9 at 117

place, witness proofing could benefit both the expert and the prosecution without having an adverse effect on the fairness of the trial.

It would also be beneficial to create provisions for report writing for experts.

Whilst the communication between the prosecutor and forensic team in the supply of report-writing advice is valued, it might be helpful to have report writing guidelines codified in international legislation, similar to Rule 33 of the Criminal Procedure Rules 2013 for the courts of England and Wales. In addition, a Code of Conduct for experts would further help to clarify their role and duties within proceedings. Derham and Derham propose the adoption of a definition of and a Code of Conduct for expert witnesses at the ICC.²³⁵ This could also help to deter professional misconduct or unethical practice.²³⁶

If capable of being implemented, these suggested reforms and recommendations could hopefully create more opportunities for forensic science skills to be used to their full potential in the investigation and prosecution of war crimes.

²³⁵ Derham R and Derham N, 'From Ad Hoc to Hybrid - The Rules and Regulations Governing Reception of Expert Evidence at the International Criminal Court' (2010) 14 Int'l J. Evidence & Proof 25

²³⁶ Klinkner M J, above n9 at 122

CONCLUSION

Forensic science and the evidence it gleans can prove vital to the investigation and prosecution of war crimes. Through the investigation and excavation of alleged mass grave sites, forensic disciplines address many of the legal, humanitarian, documentary and preventative needs of the international community. The physical evidence recovered and testimony of forensic experts can be used in the trials of alleged war criminals to demonstrate the type and scale of atrocity, whilst exhumations can enable the identification of victims at a categorical and personal level, the latter of which can aid repatriation efforts and provide closure for families. Forensic science also helps establish the truth of events to create an accurate historical record of the atrocity, the publication of which could deter future war criminals by demonstrating the strength of forensic science as an investigatory tool.

Since its early use at Nuremberg, advances have been made in the deployment of forensic science to the investigation and prosecution of war crimes. The existing disciplines have been developed and utilised to much success, and new skills, such as DNA analysis, have been formulated to provide novel forms of evidence. However, in comparison to the traditional forms of evidence such as documentary evidence and witness testimony, scientific contributions are still relatively small. This thesis has identified several obstacles which may hinder the deployment of forensic science skills at both an operational and institutional level. These include limitations of funding, a lack of standardised procedures for forensic investigation, team conflicts and jurisdictional constraints, as well as conflicting mandates, issues of scientific understanding and inadequate evidentiary guidance for forensic and expert evidence.

The suggested reforms and recommendations generated by this thesis enjoy a dual perspective of benefits to both science and legal professions. Improving the availability of resources to and lines of communication within forensic teams will make investigations more streamlined, and thus maximise evidence recovery for the prosecutor. In addition, the adoption of standard investigative procedures will provide consistency to procedures on site and help minimise team conflicts, with codification of provisions for the presentation of expert testimony and reports providing uniform guidance for court proceedings. This could alleviate confusion over the presentation of testimony in court, as well as helping to ensure that the evidence is less vulnerable to attack and possible inadmissibility at court. However there is still scope to develop the fruitful interaction and collaboration between science and the law, such as through education and training.

With regard to the use of forensic evidence at trial, there are many benefits to the implementation of a multidisciplinary advisory panel as opposed to criteria to assess the reliability of evidence. This thesis does not suggest that such a panel is intended to replace the traditional forms of fact-finding, such as cross-examination, but to supplement them by ensuring the reliability of evidence before it is examined at trial, making it more likely to stand up to defence scrutiny and alleviating the gate-keeping role from the judiciary.

By realising the potential and resolving of the identified problems of forensic science, more opportunities could hopefully be generated for forensic science skills to be used to their full potential in the investigation and prosecution of war crimes in the future.

REFERENCES

Legislation

Statute of the International Criminal Tribunal for the Former Yugoslavia

Rules of Procedure and Evidence for the International Criminal Tribunal for the Former Yugoslavia

Statute of the International Criminal Tribunal for Rwanda

Rules of Procedure and Evidence for the International Criminal Tribunal for Rwanda

Rome Statute of the International Criminal Court

Rules of Procedure and Evidence for the International Criminal Court

Rule 33 of the Criminal Procedure Rules 2013

Case Law

Daubert v Merrell Dow Pharmaceuticals Inc, 509 US 579 (1993)

ICTY

Prosecutor v Blaškić, Judgement, March 3 2000, IT-95-14-T

Prosecutor v Kordić & Čerkez, Judgement, Feb 26, 2001, I T-95-14/2-T

Prosecutor v Krstić, Trial Testimony and Judgement, 2 August 2001, Case No. IT-98-33

Prosecutor v Kupreškić et al., Judgement, Jan 14, 2000, IT-95-16

Prosecutor v Galić, Decision Concerning the Expert Witnesses Ewa Tabeau

and Richard Philipps, 3 July 2002, Case No. IT-98-29-T

Prosecutor v. Gotovina et al., Decision on Admission of Expert Report of Geoffery Corn, 22 September 2009, Case No. IT-06-90-T

Prosecutor v. Limaj, Bala and Musliu, Decision on Defence Motion on Prosecution Practice of 'Proofing' Witnesses, 10 December 2004, Case No. IT-03-66-T

Prosecutor v Milutinovic' et al., Decision on Ojdanic' Motion to prohibit witness proofing, 12 December 2006, Case No. IT-05-87-T

Prosecutor v Popović et al., Decision on Defence Rule 94 bis Notice regarding Prosecution Expert Witness Richard Butler, 19 September 2007, Case No. IT-05-88-T

Prosecutor v. Popović et al., Decision on Joint Defence Interlocutory Appeal Concerning the Status of Richard Butler as an Expert Witness, 30 January 2008, Case No. IT-05-88-AR73.2

Prosecutor v. Simic et al., Decision on the Prosecution Motion under Rule 73 for a Ruling Concerning the Testimony of a Witness, 27 July 1999, Case No. IT-95-9-PT

Prosecutor v Stanišić and Župljanin, Written Reasons for the Trial Chamber's Oral Decision Accepting Dorothea Hanson as an Expert Witness, 5 November 2009, Case No. IT-08-91-T

ICTR

Prosecutor v Akayesu, Judgement, 2 September 1998, ICTR-96-4-T

Prosecutor v. Karemera, Ngirumpatse and Nzirorera, Decision on Interlocutory Appeal Regarding Witness Proofing, 11 May 2007, Case No. ICTR-98-44-AR73.8

Prosecutor v Kayishema and Ruzindana, Judgement, 21 May 1999, ICTR-95-1
Prosecutor v Musema, Judgement and Sentence, 27 January 2000, Case No.
ICTR-96-13-A

ICC

Prosecutor v Bemba Gombo, Partly Dissenting Opinion of Judge Kuniko Ozaki
on the Decision on the Unified Protocol on the practices used to prepare and
familiarise witnesses for giving testimony at trial, 24 November 2010, Case No.
ICC-01/05-01/08

Prosecutor v Katanga & Chui, Decision on the disclosure of evidentiary material
relating to the Prosecutor's site visit to Bogoro on 28, 29 and 31 March 2009, 9
October 2009, Case No. ICC-01/04-01/07

Prosecutor v. Lubanga Dyilo, Decision Regarding the Practices Used to
Prepare and Familiarise Witnesses for Giving Testimony at Trial, 30 November
2007, Case No. ICC-01/04-01/06

Books

Bantekas I and Nash S, *International Criminal Law*, 3rd edition (Routledge-
Cavendish, New York, USA, 2007)

Barker P, *Techniques of Archaeological Excavation*, 3rd edition (B.T. Batsford
Ltd, London, 1987)

Brickley M B and Ferllini R, *Forensic Anthropology: Case Studies From Europe*
(Charles C Thomas Publisher Ltd, Illinois USA 2007)

Byers S N, Introduction to Forensic Anthropology, 3rd edition (Pearson Education Ltd, Boston USA, 2008)

Cassese A, International Criminal Law, 2nd edition (Oxford University Press, Oxford, 2008)

Claude R P, Science in the Service of Human Rights (University of Pennsylvania Press, Pennsylvania USA, 2002)

Combs N A, Fact-Finding Without Facts: The Uncertain Evidentiary Foundations of International Criminal Convictions (Cambridge University Press, New York USA 2010)

Cox M, Flavel A, Hanson I, Laver J and Wessling R, The Scientific Investigation of Mass Graves: Towards Protocols and Standard Operating Procedures (Cambridge University Press, New York, USA, 2008)

Cryer R, Friman H, Robinson D and Wilmshurst E, An Introduction to International Criminal Law and Procedure (Cambridge University Press, Cambridge, 2009)

Ferlini R, Forensic Archaeology and Human Rights Violations (Charles C Thomas Publisher Ltd, Illinois, USA, 2007)

Goodstein D, How Science Works, 2nd edition (Reference Manual on Scientific Evidence, Federal Judiciary Center, 2000)

Greenberg B and Kunich J C, Entomology and the Law, Flies as Forensic Indicators (Cambridge University Press, Cambridge, 2002)

Gribbin R E, In the Aftermath of Genocide: The U.S. Role in Rwanda (iUniverse Publishing, New York, USA 2005)

Haglund W D and Sorg M H (eds), *Advances in Forensic Taphonomy: Method, Theory, and Archaeological Perspectives* (CRC Press, Florida, USA, 2002)

Inman K and Rudin N, *Principles and Practice of Criminalistics: The Profession of Forensic Science* (CRC Press, Florida, USA 2001)

Jackson J D and Summers S J, *The Internationalisation of Criminal Evidence: Beyond the Common Law and Civil Law Traditions* (Cambridge University Press, Cambridge, 2012)

January B, *Genocide: Modern Crimes Against Humanity* (Twenty-First Century Books, Minnesota USA, 2007)

Joyce C and Stover E, *Witnesses from the Grave: From Mengele to Argentina's 'Disappeared' - the Stories Bones Tell* (Grafton, London 1991)

Koff C, *The Bone Woman: Among the Dead in Rwanda, Bosnia, Croatia and Kosovo* (Atlantic Books, London, 2004)

Khan K, Buisman, C and Gosnell C, *Principles of Evidence in International Criminal Justice* (Oxford University Press, Oxford, 2010)

Kiely T F, *Forensic evidence: Science and the criminal law* (CRC Press, Florida USA 2001)

Kimmerle E H and Baraybar J P, *Skeletal Trauma: Identification of Injuries Resulting from Human Rights Abuse and Armed Conflict* (CRC Press, Florida USA 2008)

Krieger H, *The Kosovo Conflict and International Law: An Analytical Documentation 1974-1999* (Cambridge University Press, Cambridge, 2012)

May R and Wierda M, International Criminal Evidence: International & Comparative Criminal Law (Transnational Publishers Inc, New York, USA, 2002)

Oxenham M, Forensic Approaches to Death, Disaster and Abuse (Australian Academic Press, Australia, 2008)

Pyrek K M, Forensic Science Under Siege, The Challenges of Forensic Laboratories and the Medico-Legal Death Investigation System (Elsevier Academic Press, California USA 2007)

Redmayne M, Expert Evidence and Criminal Justice (Oxford University Press, Oxford, 2001)

Reydams L, Wouters J and Ryngaert C, International Prosecutors (Oxford University Press, Oxford, 2012)

Saferstein R, Criminalistics: An Introduction to Forensic Science, 7th edition (Prentice Hall, New Jersey, USA 2001)

Safferling C, International Criminal Procedure (Oxford University Press, Oxford, 2012)

Scheffer D, All the Missing Souls: A Personal History of the War Crimes Tribunals (Princeton University Press, New Jersey USA, 2012)

Stover E and Peress G, The Graves: Srebrenica and Vukovar (Scalo, Germany, 1998)

Stover E and Shigekane R (eds) My Neighbor, My Enemy: Justice and Community in the Aftermath of Mass Atrocity (Cambridge University Press, Cambridge, 2004)

Taylor T, The Anatomy of the Nuremberg Trials, A Personal Memoir (Alfred A. Knopf Inc, New York USA 1992)

Thompson T and Black S (eds) Forensic Human Identification: An Introduction (CRC Press, Florida USA 2007)

Totten S and Parsons W S (eds), Century of Genocide: Critical Essays and Eyewitness Accounts (Routledge, New York, USA 2008)

Ubelaker D H, Forensic Science: Current Issues, Future Directions (John Wiley & Sons Ltd, Sussex 2013)

Wagner S, To Know Where He Lies: DNA Technology and the Search for Srebrenica's Missing (University of California Press, California 2008)

White P (ed.), Crime Scene to Court: The Essentials of Forensic Science (Royal Society of Chemistry, London 2004)

Articles

Baraybar J P, 'When DNA is Not Available, Can We Still Identify People? Recommendations for Best Practice' (2008) 53 (3) J Forensic Sci 535

Baraybar J P and Gasior M, 'Forensic Anthropology and the Most Probable Cause of Death in Cases of Violations Against International Humanitarian Law: An Example from Bosnia and Herzegovina' (2006) 51 (1) J Forensic Sci 103

Blewitt G T, 'The role of forensic investigations in genocide prosecutions before an international criminal Tribunal' (1997) *Med Sci Law* 284

Blau S and Skinner M, 'The use of forensic archaeology in the investigation of human rights abuse: Unearthing the past in East Timor' (2005) 9 (4) *The International Journal of Human Rights* 449

Boles T C, Snow C and Stover E, 'Forensic DNA testing on skeletal remains from mass graves: a pilot project in Guatemala' (1995) 40 *J. Forensic Sci.* 349

Boutruche T, 'Credible Fact-Finding and Allegations of International Humanitarian Law Violations: Challenges in Theory and Practice' (2011) 16 (1) *J Conflict Security Law* 105

Brkic H *et al.*, 'Dental identification of war victims from Petrinja in Croatia' (1997) 110 *Int. J. Legal Med.* 47

Brkic H, Strinovic D, Kubat M and Petrovecki V, 'Odontological identification of human remains from mass graves in Croatia' (2000) 114 *Int. J. Legal Med.* 19

Brown A G, 'The use of forensic botany and geology in war crimes investigations in NE Bosnia' (2006) 163 (3) *Forensic Science International* 204

Broeders APA, 'Forensic Evidence And International Courts And Tribunals: Why bother, given the present state of play in forensics?' (2003) *International*

Conference of the International Society for the Reform of Criminal Law, The Hague, Session 403

Cordner S and McKelvie H, 'Developing standards in international forensic work to identify missing persons' (2002) 84 (848) IRRC 867

Cordner S and McKelvie H, 'Forensic Medicine: International Criminal Tribunals and an International Criminal Court' (1998) 351 (9120) The Lancet, 1956

Connor M, 'Mass Grave Investigation' (2012) Wiley Encyclopedia of Forensic Science 1-6

Cox M, 'A multidisciplinary approach to the investigation of crimes against humanity, war crimes and genocide: the Inforce Foundation' (2003) 43 (4) Science & Justice 225

De La Grandmaison G L and Durigon M, 'Do medico-legal truths have more power than war lies? About the conflicts in the former Yugoslavia and in Kosovo' (2001) 41 (4) Med Sci Law. 301

De La Grandmaison G L, Durigon M, Moutel G, and Herve C, 'The International Criminal Tribunal for the former Yugoslavia (ICTY) and the Forensic Pathologist: Ethical considerations' (2006) 46 Med Sci Law 208

Derham R and Derham N, 'From *Ad hoc* to Hybrid - The Rules and Regulations Governing Reception of Expert Evidence at the International Criminal Court' (2010) 14 Int'l J. Evidence & Proof 25

Edmond G, 'Advice for the courts? Sufficiently reliable assistance with forensic science and medicine (Part 2)' (2012)16 (3) The International Journal of Evidence & Proof, 263

Edmond G, 'Judicial Representations of Scientific Evidence' (2000) 63 Modern Law Review 251

Edmond G and Roberts A, 'Procedural Fairness, the Criminal Trial and Forensic Science and Medicine' (2011) 33 Sydney L Rev 359

Ferllini R, 'The development of human rights investigations since 1945' (2003) 43 (4) Science & Justice 219

Ferrandiz F, 'Exhuming the defeated: Civil War mass graves in 21st-century Spain' (2013) 40 (1) Journal of the American Ethnological Society, 38

Huffine E, Crews J and Davoren J, 'Developing Role of Forensics in Deterring Violence and Genocide' (2007) 48(4) Croat Med J. 431

Jasanoff S, 'Law's Knowledge: Science for Justice in Legal Settings' (2005) 95 American Journal of Public Health 54

Jonakait R, 'Forensic science: The need for regulation.' (1991) 4 Harvard Journal of Law Technology 109

Kirschner R and Hannibal K, 'The application of forensic sciences to human rights investigations' (1994) 13 Med Sci Law 453

Klinkner M J, 'Forensic science expertise for international criminal proceedings: an old problem, a new context and a pragmatic resolution' (2009) 13 International Journal of Evidence and Proof 102

Klinkner M J, 'Improving International Criminal Investigations into Mass Graves: Synthesizing Experiences from the Former Yugoslavia' (2012) 4 (3) J Human Rights Practice 334

Klinkner M J, 'Proving Genocide? Forensic Expertise and the ICTY' (2008) 6 Journal of International Criminal Justice 447

Klinkner M J, 'Toward improved understanding and interaction between forensic science and international criminal law in the context of transitional justice' (2009) PhD Thesis (PhD). Bournemouth University.

Komar D, 'Is victim identity in genocide a question of science or law? The

scientific perspective, with special reference to Darfur' (2008) 48 (3) Science & Justice 146

Komar D, 'Lessons from Srebrenica: the contributions and limitations of physical anthropology in identifying victims of war crimes' (2003) 48 J. Forensic Sci. 713

Kruse C, 'Legal storytelling in pre-trial investigations: arguing for a wider perspective on forensic evidence (2012) 31 (3) New Genetics & Society 299

Leebaw B A, 'The Irreconcilable Goals of Transitional Justice' (2008) 30 (1) Human Rights Quarterly 95

Lejmi M A, 'Prosecuting Cambodian Genocide, Problems Caused by the Passage of Time since the Alleged Commission of Crimes' (2006) 4 (2) J Int Criminal Justice 300

Long L, 'Grave Evidence of Genocide: Using Forensic Palynology to Dig up the Truth Behind the Srebrenica Massacre' (2006) 15 (2) The Forensic Examiner 46

Makaremi C, 'And they did not return his corpse: state violence, mourning and silence in post-revolution Iran', 1st Annual & International Workshop of the Research Programme, Corpses of Mass Violence, Paris, 14th September 2012

Murphy P, 'Excluding Justice or Facilitating Justice-International Criminal Law Would Benefit from Rules of Evidence' (2008) 12 E&P 1-31

Peterson K, 'The Use of Forensic Archaeology to Investigate Genocide' (2008) BSc Project, University Of Wisconsin-La Crosse

Petrig A, 'The war dead and their gravesites' (2009) 91 (874) International Review of the Red Cross 341

Primorac D, 'The role of DNA technology in identification of skeletal remains discovered in mass graves' (2004) 146 Forensic Sci. Int. 163

Primorac D *et al.*, 'Identification of war victims from mass graves in Croatia, Bosnia, and Herzegovina by use of standard forensic methods and DNA typing' (1996) 41 (5) J Forensic Sci. 891

Rainio J, Lalue K and Penttila A, 'Independent forensic autopsies in an armed conflict investigation of the victims from Racak, Kosovo' (2001) 116 Forensic Science International 171

Rainio J *et al.*, 'Forensic Investigations in Kosovo: experiences of the European Union Forensic Expert Team' (2001) 8 Journal of Clinical Forensic Medicine 218

Rainio J, Lalu K, Ranta H, Takamaa, Penttilä A, 'Practical and legal aspects of forensic autopsy expert team operations' (2001) 3 (4) Legal Medicine 220

Rios L, Ovejero J I C and Prieto J P, 'Identification process in mass graves from the Spanish Civil War I' (2010) 199 (1-3) Forensic Science International, 27-36

Roberts P, 'The admissibility of expert evidence: Lessons from America' (1996) 4 (3) Expert Evidence 93

Roberts P, 'Science in the Criminal Process' (1994) 14 (4) Oxford Journal of Legal Studies 470

Roberts P and Willmore C, 'The Role of Forensic Science Evidence in Criminal Proceedings', Royal Commission on Criminal Justice Research Study No. 11 (HMSO, London, 1993) 36

Roeterdink E M, Dadour I R and Watling R J, 'Extraction of gunshot residues from the larvae of the forensically important blowfly *Calliphora dubia*' (2004) 118 Int Journal of Legal Medicine 63

Rosenblatt A, 'International Forensic Investigations and the Human Rights of the Dead' (2010) 32 Human Rights Quarterly 922

Saks M J, 'Merlin and Soloman: Lessons from the Law's Formative Encounters with Forensic Identification Science' (1998) 49 (4) Hastings Law Journal

Shigekane R, 'Balancing the Needs of Families and the Needs of International Criminal Tribunals in Forensic Investigations' (2003) 9 (3) Reports from the Field

Shute J, 'Unfamiliar territory: theory and method for a criminology of corporal destruction', 1st Annual & International Workshop of the Research Programme, Corpses of Mass Violence, Paris, 13th September 2012

Skinner M, Alempijevic D and Stanojevic A, 'In the absence of dental records, do we need forensic odontologists at mass grave sites?' (2010) 201 (1-3) Forensic Science International 22

Skinner M and Sterenberg J, 'Turf wars: Authority and responsibility for the investigation of mass graves' (2005) 151 (2-3) Forensic Science International 221

Stover E and Shigekane R, 'The missing in the aftermath of war: When do the needs of victims' families and international war crimes tribunals clash?' (2002) 84 International Review of the Red Cross 845

Tyers C A, 'Hidden Atrocities: The Forensic Investigation and Prosecution of Genocide' (2009) PhD dissertation, University of Tennessee

Websites

BBC News, 'Russian parliament condemns Stalin for Katyn massacre', 26 November 2010, accessed at <<http://www.bbc.co.uk/news/world-europe-11845315>> on 28/03/2013

Beydoun A, Forensic Evidence Testimony Shows Guatemala Investigation's Strengths, April 9, 2013, accessed at <<http://hrbrief.org/2013/04/forensic-evidence-testimony-shows-guatemala-investigation%E2%80%99s-strengths/>> on 20/04/2013

Fetterhoff C M, 'Guatemala Trial Presents a Test for Evidentiary Standards in Human Rights Trials' April 10 2013, accessed at <<http://hrbrief.org/2013/04/guatemala-trial-presents-a-test-for-evidentiary-standards-in-human-rights-trials/>> on 20/04/2013

Huffine E, 'International Impact of Forensic DNA Technology' (2008) Forensic Magazine, accessed at <<http://www.forensicmag.com/article/international-impact-forensic-dna-technology?page=0,2>> on 23/10/2012

The International Criminal Court, 'The States Parties to the Rome Statute', accessed at <http://www.icc-cpi.int/en_menus/asp/states%20parties/Pages/the%20states%20parties%20to%20the%20rome%20statute.aspx> on 02/05/2013

Jessee E and Anderson K F, 'Forensic Evidence in International Criminal Trials' (2007) accessed at <<http://www.sharedhumanity.org/LibraryArticle.php?heading=Forensic%20Evidence%20In%20International%20Criminal%20Trials>> on 10/02/2013

The Law Commission, 'Expert Evidence In Criminal Proceedings In England And Wales', March 2011, accessed at

<http://lawcommission.justice.gov.uk/docs/lc325_Expert_Evidence_Report.pdf> on 17/02/2013

United Nations, 'Manual on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Executions', 1991, accessed at

<<http://www1.umn.edu/humanrts/instreet/executioninvestigation-91.html#III>> on 15/03/2013

Wood P, 'Pollen helps war crime forensics', 2004, accessed at

<<http://news.bbc.co.uk/1/hi/sci/tech/3640788.stm>> on 03/08/2012