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Discovering hidden voices in South African forensic archaeology

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A dissertation completed in fulfillment of the degree of Master of Archaeology in the Faculty of Humanities.

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List of Abbreviations

AAAS American Association for the Advancement of Science

ASAPA Association of Southern African Professional Archaeologists

ASSA Anatomical Society of Southern Africa

BDA Bundesdenkmalamt (Federal Monuments Office)

BEE Black Economic Empowerment

CHSS College of Humanities and Social Sciences

CIFA Centre for International Forensic Assistance

CRFP Council for the Registration of Forensic Practitioners

CRM Cultural Resources Management

CSI Crime Scene Investigation

DVI Disaster Victim Identification

EIA Environmental Impact Assessments

ENFSI European Network of Forensic Science Institutions

FAIG Forensic Anthropology Interest Group

FPS Forensic Pathology Services

FSAG Forensic Search Advisory Group

ICMP International Commission on Missing Persons

ICTY International Criminal Tribunal for the former Yugoslavia

INTERPOL International Criminal Police Organization

MEDUNSA Medical University of Southern Africa

MPTT Missing Persons Task Team

NHRA National Heritage Resources Act

NKVD Soviet People's Commissariat for Internal Affairs

NPA National Prosecuting Authority

ÖSK *Österreichisches Schwarzes Kreuz*

PBC Pretoria Bone Collection

PMI Post Mortem Index

RAMSI Regional Assistance Mission to Solomon Islands

SAPS South African Police Services

SAHRA South African Heritage Resources Agency

SPU Sol Plaatjie University

TRC Truth and Reconciliation Commission

TV Television

UAE United Arab Emirates

UAEU United Arab Emirates University

UBA University of Buenos Aires (*Universidad de Buenos Aires)*

UCT University of Cape Town

UK United Kingdom

UN United Nations

UNISA University of South Africa

UP University of Pretoria

US	University of Stellenbosch
USA	United States of America
VIC	Victim Identification Centre
Wits	University of the Witwatersrand
WWI	World War 1
WWII	World War 2

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Abstract

This dissertation outlines the history of the discipline of forensic archaeology in South Africa, reviewing its development over the years. Forensic archaeology is an important discipline in the detection and recovery of human remains and related evidence. While forensic archaeology has been shown to be important, it's existence is largely within the shadows of forensic anthropology. What is further evident is that it's development has been significantly varied from one country to the next. I principally focused on four countries (Australia, the United Kingdom, the United States of America, and South Africa) to critically assess its historical development. Furthermore, two sets of respondents were interviewed through the use of questionnaires to provide the necessary insights. These were the students studying Physical Anthropology (ANA 315) and the professionals working directly and indirectly within the industry of forensic archaeology. I found that the discipline is in its embryonic stages in the country, with no one really identifying as a forensic archaeologist. There are no independent courses offered for one to train as a specialist in the field. Equally, there are no set of requirements for those who wish to practice as forensic archaeologists.

Chapter 1: Introduction

The significance of archaeology, defined as a sub-discipline of anthropology that involved the study of humanity's past by recovering and analysing materials left behind by people who previously used them, is well known (Renfrew & Bahn 2007). Archaeologists apply a variety of different methods, theoretical paradigms, and analytical tools to help them study archaeological materials. One of such methodological approaches is forensic archaeology, which can be defined as the application of conventional principles and methods of archaeology to detect and recover human remains and correlated evidence within the context of a forensic investigation (Dupras *et al.* 2012 in Nienaber 2017). Forensic archaeologists thus employ their expertise of excavation techniques, amongst other archaeological skills, to safeguard the context of the archaeological remains, whether they are partially or completely buried below ground. Context in archaeology is critical, and it is important to ensure that it is protected in order to provide the necessary insights into the particular study. Safeguarding archaeological record means that discovered remains may be properly recovered, thus improving the confidence such materials can be interpreted with.

There are a range of traditional archaeological skills required by forensic archaeologists. Amongst others, such skills include intrusive and non-intrusive search methods, topographical survey techniques, mapping techniques, use of heavy machinery, excavation techniques, knowledge of human and comparative anatomy, ability to differentiate between human and non-human skeletal remains, detailed collection and documentation of artefacts and evidence, collection of field samples, and storage of gathered evidence (Resende & Netto 2014). Some of these archaeological skills, especially the search methods, use of heavy machinery, excavation techniques, and knowledge of comparative and human anatomy (Resende & Netto 2014), have enhanced forensic investigations over the years. This has pointed to the close relationship between forensic anthropology and forensic archaeology. Forensic archaeology, therefore, is a sub-discipline of forensic anthropology (Scott & Connor 2001). The two sub-disciplines have a close relationship.

Dirkmaat *et al*. (2008) have defined forensic anthropology as a scientific discipline that centres around the life, the death, and the taphonomic factors that may have affected a specific individual, based on the evidence that is left behind on the remains and the physical and forensic context in which the remains are set. What thus differentiates forensic archaeologists from forensic anthropologists is that the former are trained in searching for objects that can be discovered from an archaeological site,

paying significant attention to context of the findings. In contrast, forensic anthropologists are trained in human osteology and recovery of human remains. The skeletal evidence, in particular, is used to provide a presumptive identification of an individual by establishing a biological profile made up of sex, age, ancestry, and stature estimates.

While forensic anthropologists focus mainly on the human remains and the biological analysis thereof, forensic archaeologists play a vital role in the recovery of the remains and preservation of the scene in the recovery process. It is important to remember that most forensic anthropologists are trained in the archaeological processes used in recovery of the human remains (Scott & Connor 2001), thus highlighting the instances where these two disciplines overlap. Table 1 is a comparison of the skills associated with forensic anthropology versus those associated with forensic archaeology at a crime scene (Schultz & Dupras 2008)

Table 1: Comparison of skills associated with forensic anthropology versus forensic archaeology at a crime scene (Schultz & Dupras 2008)

Forensic Anthropology	**Forensic Archaeology**
Differentiation between human and non-human remains	Site formation and analysis and description
Skeletal inventory	Ground search methods
Search methods for missing elements	Survey techniques
Initial field assessment of biological information	Archaeological recovery techniques including spatial control
	Use of heavy of heavy equipment
	Basic recognition of skeletal anatomy

	Artefact collection, documentation and preservation
	Site recording
	Sample collection
	Collection and preservation of skeletal remains and associated evidence

The role of a Crime Scene Investigator differs from that of a forensic archaeologist. Their main responsibility is to ensure that the crime scene is secured and that the corruption of evidence is limited. They are also tasked with marking off the area(s) of the crime scene and using the reports compiled by specialists such as the forensic archaeologist to track evidence and give testimony in court. The Crime Scene Investigator works with the specialists on the crime scenes to identify, collect, package and send the evidence to the laboratory for analysis (www.shortcourses.co.za).

Unlike traditionally trained archaeologists, forensic archaeologists are often called up to work under extremely hostile environments (see Scott & Connor 2001). Helping to gather significant evidence in the aftermath of atrocious acts conducted either by authoritative and dictatorial politicians (i.e. mass graves resulting out of the conflict in Guatemala) or other criminal acts, forensic archaeologists are regularly expected to make court appearances as witness. As a result, the lives of forensic archaeologists are put under threat (Hanson 2007). Fredy Peccerelli, a forensic anthropologist trained in archaeological processes, had to relocate to Bournemouth in the United Kingdom because of the many death threats he received for exhuming bodies from the mass graves in Guatemala (Giles 2004). This is an evident illustration, therefore, that forensic archaeology is highly distressing, dangerous, and overwhelming (Hanson 2007). Such negativity about forensic archaeology could potentially explain the reasons why there are only a small number of professionals active in the sub-discipline (Blau 2004; Bernitz *et al.* 2014). Not only is there a limitation in terms of the number of forensic archaeologists, but even the training opportunities have not been extensive. The introductory courses

which are available do not necessarily provide much insight into practical skills, legal, moral responsibilities, and implications of the discipline (Blau 2004).

Research problem

This research project focused on forensic archaeology in South Africa. My interest in forensic archaeology is informed by my amazement as to why I was never taught about how its existence in South Africa came about and the impact the sub-discipline has had. What became immediately evident to me was that there is a dearth of literature dealing with forensic archaeology, especially within South Africa, but also on the global scale. This is not surprising, considering that forensic archaeology is still in its embryonic stages, being well established as an independent discipline in the United Kingdom (UK). By focusing on a research project that addresses forensic archaeology in South Africa, I wanted to make a contribution to the existing literature on the subject. It is important that we further improve our understanding of forensic archaeology within the South African context. This dissertation also compares the development of the discipline, as well as its current status, in the different areas around the world with an in-depth look at the United Kingdom (UK), the United States of America (USA), and Australia. In the process of completing this dissertation, I was able to delve into other factors surrounding the discipline which included (i) the training of forensic archaeology professionals in South Africa and across the rest of the world, (ii) the difference in the racial demography of those studying and practicing in forensic archaeology before and after the abolishment of *Apartheid*, (iii) the future prospects of the discipline within South Africa, as well as the current issue relating to the lack of employment opportunities.

In the context of South Africa, and compared to other parts of the world, forensic archaeology is still at its infancy. That noted, the role of the Missing Persons Task Team (MPTT), within the National Prosecuting Authority (NPA) has been very significant. They have assisted many families to recover the bones of their loved ones who were killed during the struggle for liberation (Matthews 2009). While forensic archaeology has proved very important in the post-Apartheid South Africa, the sub-discipline exists within the shadows of forensic anthropology. Its significance has highlighted the need to develop it as an independent course at tertiary level. The potential growth of forensic archaeology must, as dictated by the political history of South Africa, also consider issues of demography to ensure that it is broadly representative of the South African society. The significance of this dissertation is that it fills in the blanks about a developing, otherwise marginalised, discipline of forensic archaeology

in South Africa. It highlights the importance of forensic archaeology in a country that could greatly benefit from its development.

Research questions

The research project I conducted was anchored on two research questions:

1. What has been the role of Africans in the development of forensic archaeology in South Africa?

2. If there are any, what are the future prospects of forensic archaeology in South Africa?

Aim and objective

The aim of my research project was to revisit the history of forensic archaeology in a South African context with a focus on the role played by Africans, if at all, in the development of the sub-discipline. The objective of the study was to specifically explore the growth of forensic archaeology in South Africa, especial after 1994.

Chapter outline

Chapter one: Introduction

This chapter outlines the context that informed the research project I undertook, as well as highlighting the difference between forensic archaeology and forensic anthropology. This is critical in allowing the reader to clearly differentiate between the two disciplines and the roles and responsibilities of each one. I furthermore presented the research problem, research questions, as well as the aims and objectives of the project.

Chapter two: Global History of Forensic Archaeology

I provide an overview of the history of forensic archaeology on a global scale, with the aim of presenting the development of the discipline in various parts of the world. I specifically focus on four countries, namely, the United States of America (USA), the United Kingdom (UK), Australia, Libya, and South Africa. The reviewing of the history of forensic archaeology within these four countries focuses on the (i) origins of the discipline, (ii) its key role players, (iii) its uses in the various regions, (iv) the education systems supporting the discipline, and (v) existing organisations for professionals practicing in the field. I also discuss forensic anthropology as forensic archaeology developed as a sub-discipline thereof the discipline. In some places it is still considered as such.

Chapter three: Methodology

In this chapter, I present the methods applied to conduct the study. In particular, I review the methodological approached I used, present reasons behind their preferences, what data I gathered, as well as data analysis. Where challenges were experienced at various stages of the research process, I discuss the ways in which I tried to overcome them. The one other critical aspect I discuss in this chapter is the ethical standards I followed as per the guidelines set by the two Faculties of Humanities and Health Sciences at the University of Pretoria.

Chapter four: The People's Voices

This chapter reflects on the research outcome as informed by the research questions, aim, and the objective. Overall, this chapter summarises the data I received from the participants and identifies the underlying themes based on their responses.

Chapter five: 'Unearthing' the insights from the study participants

In this chapter, I discuss, in great detail, the underlying themes that were identified from the results gathered through the questionnaires I sent to the various respondents. My discussion is informed by the research questions that provided the scope of the study.

Chapter six: Concluding remarks and Recommendations

This chapter brings the whole dissertation together, reflecting back on the key findings. The main aim of this reflection is to assess the extent to which I was able to succeed in the research project through which I gathered the data presented in the dissertation. I then conclude the chapter by presenting recommendations for potential research projects that can further provide advancements in the discipline.

Chapter 2: Global History of Forensic Archaeology

Introduction

In this chapter, I will provide an overview of the history of forensic archaeology as a discipline, on a global scale. I specifically discuss the development of the discipline in four specific geographical areas- the United States of America (USA), the United Kingdom (UK), Australia, Libya, and South Africa. My interest on these countries shall be focused on (i) exploring the origins of the forensic archaeology as a discipline and the role players who were involved in its development, (ii) understanding how the discipline is being used in these countries, (iii) the education systems supporting the discipline, and (iv) the organisations that exist for professionals in the field. In addition, I aim to explore (v) educational opportunities, (vi) the brief history behind the accumulation of human bone collections, and (vii) reviewing legislation governing 'human remains' in these countries.

By providing an overview of the historical developments of forensic archaeology around the globe, I will also show that forensic anthropology originated from forensic archaeology. Therefore, one cannot appropriately review the history of forensic archaeology without appreciating that it developed as an independent field from forensic archaeology (Schultz & Dupras 2018). Furthermore, most forensic anthropologists have training in forensic archaeology. Therefore, the two are closely interlinked.

It is imperative that I reiterate the difference between the fields of forensic anthropology and forensic archaeology as stated in Chapter 1. This will help provide much clarity on the differences between the two sub-fields. On the one hand, forensic archaeology can be defined as the application of archaeological principles and methods to detect and recover 'human remains' and supporting evidence within the context of a forensic investigation (Dupras *et al.* 2012 in Nienaber 2017; Connor 2019). Moran (2019) argued that a paper published by Dirkmaat *et al.* (2013) reduced the role of a forensic archaeologist in investigations to that of a technician, thus showing the lack of knowledge about what archaeology is, the thought processes of archaeology, and what exactly the discipline entails.

One the other hand, forensic anthropology has been defined as a scientific discipline that focuses on the life, the death, and the taphonomic factors that may have affected a specific individual,

based on the evidence that is left behind on the remains and the physical and forensic context in which the remains are set (Dirkmaat *et al*. 2008). While forensic anthropologists focus mainly on the 'human remains' and the biological analysis thereof, forensic archaeologists play a vital role in the recovery of the remains and preservation of the scene in the recovery process, thus ensuring the credibility of the context in which the findings were discovered. The role of the forensic anthropologist also includes, but is not limited to, (i) the assessment of decomposing 'human remains', (ii) maceration of 'human remains', (iii) assessment of skeletonize remains, (iv) assessment of 'human remains' on site, (v) recovery of 'human remains', as well as (vi) the assessment of 'human remains' in the laboratory. Forensic anthropologists may act as independent experts or as advisors to medical experts (Obertova *et al.* 2019). While the close relationship between these two disciplines is noted, however, my focus in this dissertation was on forensic archaeology.

The history of forensic archaeology

The roots of forensic archaeology around the world are varied. In some parts, this sub-discipline began as a branch of anthropology known as physical or biological anthropology. In contrast, forensic archaeology was initially a branch of archaeology in other geographical locations (Resende & Netto 2014). It is believed that forensic archaeology first became popular as a science in the late 1930s. This followed a publication of a number of articles in the *FBI Law Enforcement Bulletin* by Wilton Krogman. Krogman, who was from the United States of America (USA), was described by Işcan (1988) as one of the founding fathers of physical and forensic anthropology in the USA with experience in research and teaching. He is sometimes considered the first professional to engage with the police in what eventually became known as forensic anthropology (Dirkmaat & Cabo 2015). Krogman was further followed by the likes of T. W. Todd (USA), A. Hrdlička (USA), and E. Hooton (USA) in establishing the sub-field, thus providing police departments with human identification services.

In 1912, C. A. Hamann started a small collection of skeletal 'human remains' at the Case Western Reserve Medical School. T.W. Todd, whose forensic work led him to realise the value of a human bone collection for research purposes, later contributed to the expansion of this collection. He was a Professor of Anatomy at the Case Western Reserve University, a private university in the USA. This became known as the Hamann-Todd Collection, the world's largest human bone collection

(Dirkmaat & Cabo 2015; www.cmnh.org). This collection, which contains the bones of over 3,300 individuals, is housed at the Cleveland Museum of Natural History in Cleveland, Ohio. Initially, the collection was used to research human skeletal biology with a focus on age estimation using cranial sutures as well as the pubic symphysis. Mildred Trotter conducted research using samples from the same collection. Her findings resulted in the new European standards for stature estimation (Trotter 1970 in Dirkmaat & Cabo 2015).

As forensic anthropology, from which forensic archaeology developed, was not a popular field (due to the general lack of unrest in the USA), practitioners were only ever called in as a last resort in criminal cases (Dirkmaat & Cabo 2015). Such criminal cases were very few and occurred sporadically. The role of forensic archaeologists and forensic anthropologists was largely limited to confirming the biological profile of the deceased and to narrow down the missing persons list. This occurred because police first exhausted all their efforts trying various identification methods which included soft tissue comparisons, tattoo identifications, dental comparisons, and even facial reconstructions using clay molds. Only if all these options were deemed fruitless were the forensic archaeologists called in. Part of the reasons forensic archaeologists were not making a significant impact in the police investigation cases they were involved in was the state of human bones they had to work with. For example, these human bones would be altered or damaged through transportation, during autopsies or even when they were being recovered. Regrettably, the situation remains the same in modern times across all spaces where forensic archaeology is used, especially in criminal cases (Dirkmaat & Cabo 2015). What this effectively means is that forensic archaeologists were called too late to protect the archaeological context which provides value to the discovered material remains.

Globally, and within the context of criminal investigations, forensic archaeologists have played a role in the investigation of a variety of cases, ranging from domestic murder cases to genocide incidences that involved significant abuses of human rights (Blau 2004). Some crimes, such as genocide and war crimes, are under the International Law regarded as so destructive that any country may prosecute the perpetrators. This is regardless of where the criminal act was committed and the nationality of the perpetrator (Hunter & Cox 2005). Groen *et al.* (2015) suggest that the use of buried contextual evidence in the investigation of war crimes may be traced back to 1943. Under the supervision of the government of the Nazi Germany, forensic experts of representatives

from the Red Cross and the International Katyn Commission exhumed mass graves of Polish nationals who were executed and buried by the Soviet People's Commissariat for Internal Affairs (NKVD) in Russia. Later that year, 91 mass graves of citizens also executed by the NKVD were exhumed in Ukraine, also by the Red Cross and the International Katyn Commission.

Investigations of human rights abuses that involve mass killings are undertaken for two reasons. Firstly, to gather evidence so that the alleged persecutors may be prosecuted. Secondly, to possibly identify the victims and provide their families with some degree of closure (Hunter *et al.* 2001). For instance, archaeological techniques proved significant in the 1983 investigation of abuse delivered during the era of a military dictatorship in Argentina which took place under General Jorge Rafael Videla. In the case of South Africa, some forensic archaeologists (i.e. the Forensic Anthropology Research Centre established at the University of Pretoria in 2008) have worked directly with the South African Police Services (SAPS) and other local forensic pathologists on solving a number of murder related cases (L'Abbe *et al.* 2005; Dayal *et al.* 2009; Albas *et al.* 2018). In addition, forensic archaeologists have also been involved in the removal of many skeletons from historical cemeteries and archaeological sites dating back to the late Iron Age period (Bernitz *et al.* 2014).

The Forensic Anthropology Research Centre (FARC) was established within the Department of Anatomy at the University of Pretoria in 2008. By 2016, it was the largest and most involved unit in forensic anthropology work in South Africa. All the work that is conducted on the skeletal remains in this unit is done for the purpose of bettering education, the standards used in presumptive identifications and bone trauma analysis as well as improving the overall anthropological skills in the country. Some of the unique cases that the unit has had to deal with include *muti* murders, skeletal remains of an individual with Foetal Alcohol Syndrome (FAS), as well as serial murders of women (Steyn *et al.* 2016).

Besides being involved in criminal cases, forensic archaeologists have also played pivotal roles in challenging narratives about the past. For example, there was once a historical view that King Mgolombane Sandile Nqika had been killed during an ambush in the Ninth Frontier War that took place in 1878 (Peires 1992; Harrison 2008; Reed 2017). The King was shot and supposedly had his skull taken to England as a trophy. An excavation of the royal grave took place in 2005, with the main aim of confirming the identity of the individual who had been buried there and also to

establish the presence of the skull in the grave. The human bones discovered in the grave matched the physical attributions of King Mgolombane Sandile Ntsika and included a skull. The details of the grave coincided with historical knowledge of the circumstances surrounding his death and burial. However, the presence of the skull challenged the idea that his skull had been taken to England as a trophy (Hummel 1988; Nienaber *et al.* 2008).

Congram (2019) thinks of forensic archaeology as encompassing four fields: namely, (i) domestic, (ii) international, (iii) repatriation, and (iv) mass fatality. The domestic context requires the expertise for the search, mapping, the interpretation of surface remains and corresponding evidence, and/or the excavation of buried 'human remains'. This would include the discovery of human remains by people walking their dog in parks, construction workers or campers, and any similar scenario. The international context is defined by violations of international law such as war crimes, crimes against humanity, and/or genocide. The Rwandan genocide is one such example. Repatriation focuses on exhuming 'human remains' of a known identity from a geographic place with the aim of transporting them to their home for reburial. The repatriation of Moses Kotane, Moses Mabhida, and many other liberation fighters who died outside of South Africa and are now being repatriated back to their home country would fall under this category. The fourth field, the mass fatality, includes incidents of both human and natural origins such as natural disasters and accidents. Examples of the fourth field of forensic archaeology would include the 2004 Indian Ocean tsunami and earthquake as well as the 2018 train accident between Hennenman and Kroonstad in South Africa. This train accident left 21 people dead.

Globally, there have not been many publications specifically focused on addressing forensic archaeology. There are two possible reasons for this. Firstly, it is not certain whether the publications would fall under archaeological or forensic literature, thus making it difficult to find them amongst the myriad of published research articles. In addition, there are indications that some authors may be publishing their research with a preference to use Special crime Investigation as one of the keywords for their publications. Secondly, the discipline is still in its emerging stages globally, being established only in a few countries (Hunter & Cox 2005: 2). To illustrate that it is relatively within the past three decades, especially the last one, that forensic archaeology became an established field of interest in different countries around the world, I will provide a broad but brief overview of the history of the discipline in various geographical landscapes because I want

to give the reader an idea of the general state of forensic archaeology across the world. The specific countries I review briefly are Austria, Belgium, Bulgaria, Croatia, New Zealand, Czech Republic, the United Arab Emirates, Hungary, Italy, and Libya. This brief review shall be followed by a detailed analysis of the history of forensic archaeology in four countries, namely, the United States of America, the United Kingdom, Australia, and the country where I conducted my research project, South Africa. The detailed review is aimed at establishing how this forensic archaeology developed in these four identified geographical localities.

Brief review of forensic archaeology in Austria, Belgium, Bulgaria, Croatia, New Zealand, Czech Republic, the United Arab Emirates, Hungary, Italy, and Libya

The Austrian Black Cross (*Österreichisches Schwarzes Kreuz* - ÖSK) was founded in 1919. It represents the Austrian War Graves Commission (*Kriegsgräberfürsorge)* which is tasked with the management of graves and memorials of WWI and WWII soldiers whose lives were lost in Austria (Kanz & Cemper-Kiesslich 2015). The Forensic Archaeology Study Group (*Arbeitskreis Forensische Archäologie*) was established in 2005 by Peter Pesseg and Thomas Pototschnig. This group is connected to the Institute of Prehistory and Historic Archaeology (*Institut für Urgeschichte und Historische Archäologie*) at the University of Vienna. The primary focus of the group is the search and recovery of mass graves from World War II (WWII), specifically in Rechnitz in the State of Burgenland (Kanz & Cemper-Kiesslich 2015). There are no forensic archaeologists formally employed in the any of the police forces in Austria. In the guidelines set out by the Federal Monuments Office (*Bundesdenkmalamt,* BDA), who are responsible for the preservation of cultural heritage in Austria and grant permits for excavations, a forensic anthropologist or an anthropologically trained archaeologist is required for the excavations to occur. Kanz & Cemper-Kiesslich (2015) estimate that forensic archaeological investigations occur at approximately five to ten cases annually. There are currently no educational programs available in Austria for degrees in forensic archaeology or in forensic anthropology.

Like Austria, Belgium also lacks an educational program for the study of forensic archaeology. Employment opportunities in the discipline are also few, existing mainly in universities and research. Excavations of ‘human remains’ in cases of missing people and buried bodies are carried

out by the Belgian Disaster Victim Identification (DVI). The DVI task team was established in 1987 in Brussels. Its primary task has been the recovery and identification of victims in disasters, incidents, and in forensic cases. The team learnt its archaeological skills through practice, and included a police officer qualified in conventional archaeology to their team in 2007. In 1996, the DVI Belgium used what they now refer to as 'necrosearch' to investigate a forensic case that required the search and recovery of possibly buried 'human remains'. Necrosearch is the Belgian idea of forensic archaeology and has been used to solve homicide cases including those of serial killers Michel Fourniret in 2004 and Ronald Jansen in 2010 (Van Denhouwe & Schotsmans 2015).

Forensic archaeology in Bulgaria developed in the shadow of forensic medicine and criminalistics. Over time, forensic archaeology began to develop as an independent discipline in the 1980s when the grave of a national hero, Vassil Levski, was identified at the St. Petka of the Saddlers church. For the next 30 years, the discipline had no major place in the forensic industry. It was only in 2008, when forensic archaeology was introduced as a subject in the Department of Archaeology at the New Bulgarian University, that the discipline emerged as an independent field. A year later, in 2009, the Faculty of Law at the University of National and World Economy also introduced the subject (Boyanov 2015).

Croatia is one of the few countries that have actually benefited from the application of forensic archaeological principles in the past. The period during and immediately after the 1991 War in Croatia serves as the dawning of the development and implementation of forensic archaeology in the country. The Committee for Imprisoned and Missing Individuals was established in a bid to address the atrocities that resulted because of the war. This led to development of a recognised *Croatian Model for the Search for Imprisoned and Missing Persons*, which also spelled out the recovery process of individuals buried in mass graves. In 1993, the United Nations (UN) established the International Criminal Tribunal for the former Yugoslavia (ICTY), which Croatia was part of before the end of the war. The ICTY started excavations of the mass graves in 1996. The specialists used in these excavations were from other countries. Despite all this work, even though it was done by foreigners, forensic archaeologists in Croatia are still not recognised. This is because there are no existing professional societies for forensic archaeology or forensic anthropology. Therefore, there are no set guidelines for the practice of the disciplines in the country. Those who seek to specialise in any of the forensic fields need to study outside of Croatia

(Šlaus & Petaros 2015). Although forensic archaeology has not been established as an independent discipline in Croatia, archaeological techniques have been applied to crime scenes, and in cases where 'human remains' have been found buried or unearthed.

Forensic archaeology in Czech Republic is practiced in various forms, including research in the identification and clarification of events during the conflicts in pre-1993 Czechoslovakia and in Czech Republic of the 20th century. It has also been applied in the investigation of graves and tombs with the primary goal of identifying the remains of the historic persons, as well as the study of modern execution sites. There are no registered organisations or societies for forensic archaeologists, but research in the field is carried out by archaeologists who work with forensic or biological anthropologists, historians, and criminalists. The forensic archaeology field is anticipated to be accredited in the future at one of the universities in the Czech Republic. This is expected to result in the establishment of a specialised workplace department as well as professional journal rooted in the emerging discipline (Velemínský *et al*. 2015).

The United Arab Emirates (UAE) is also yet to establish forensic archaeology as an independent discipline. Although there are no forensic archaeologists in the country, the government authorities are informed about the archaeological theories and methodologies. A plane crash that occurred in 1983 highlighted the need for the presence of forensic archaeologists in the UAE. Clark (1986) recorded that in the aftermath of the crash, not only had the site not been mapped on a grid, but the human remains had also not been recorded *in situ* and the body bags were not numbered. All these steps are important in archaeological methodology and preservation of context. Al Naimi (2015) provides a number of instances where forensic archaeology could have been used, and has been used to recover human remains on the case of murder, skeletonisation, and even fire. The College of Humanities and Social Sciences (CHSS) at the United Arab Emirates University (UAEU) offers a program in Fundamentals of Archaeology and Archaeological Field Methods which falls within the context of Cultural Resource Management (Al Naimi 2015). The discipline is believed to definitely have a future in the country. It is considered to have the potential to be used in the search for buried human remains and objects with the help of geophysical techniques. Forensic archaeology could also assist in the documentation of buried human remains and varying types of evidence. Lastly, forensic archaeology could be used in estimating the PMI (post mortem index -

how much time has elapsed since the time of death) by studying depositional context (Al Naimi 2015).

Forensic archaeology is not recognised as a discipline in Hungary (Susa *et al.* 2015). Every case related to 'human remains' is referred to a forensic anthropologist, or any other forensic expert with adequate knowledge and expertise. As with many other countries, no institution of higher education in Hungary offers a forensic archaeology program, and it does not seem that they are likely to do so. A lot of the exhumations that have occurred in Hungary have been in connection with wars and political events (Éry 1990; Susa 1995, 2000). The principles of forensic archaeology have been used by forensic anthropologists in the exhumation and identification of individuals who died and were buried in unmarked graves in Hungary after 1711. The work that has been completed in the investigation of these graves has assisted in finding and confirming the facts surrounding the political history of the country (Susa *et al.* 2015).

In Italy, forensic archaeology is recognised as a discipline. However, it is not a common practice for two reasons (Borrini 2015). First, because of the complex legal system adopted by the country as well as the fact that the forensic pathologists are in charge in cases involving the investigation of deaths. Second, because there is limited knowledge on the discipline and its potential. Archaeological techniques have been used in the country in the investigations regarding burnt 'human remains' (Porta *et al.* 2013), scattered skeletonised remains (Borrini 2011: 118) and clandestine graves related to homicides (Cattaneo 2009: 42-48). Forensic archaeologists in Italy can be appointed in two capacities. First, in a freelance capacity where they are contracted through a company or as an individual. Second, in a state capacity where they work for the Ministry for Cultural Heritage as an inspector of some sort (Borrini 2015). Forensic archaeology is not offered as a degree, but is available in the form of postgraduate courses and classes at universities in Florence, Milan, and Rome.

Libya, like many other countries, does not recognise forensic archaeology as a discipline. This is even though the country has plenty expertise in archaeology, anthropology, and the forensics (Alemam 2015). With the fall of the previous regime led by Muammar Gaddafi, a lot of work involving the excavation of clandestine graves has been undertaken in the country. This excavations, however, have not necessarily been conducted by specialist forensic archaeologists. Instead, they have been carried out by regular archaeologists who are experienced in the excavation

of mass graves. Due to the extreme shortage of specialists in the forensic investigation, with only four forensic pathologists in the country and a few toxicologists, the international organisations such as the International Committee of the Red Cross (ICRC) have extended a helping hand to forensic units of Libya. In addition, there are no forensic archaeologists in the country, but there have been some interesting discoveries made by archaeologists. These include the five mummies which were discovered in 1995 at El-Jaghbub by Dr Fadel A. Mohamed (Mohamed 2007) and human skeletal remains discovered by C. M. Daniels, which he retrieved from 68 archaeological features (Mattingly 2010). Training is now underway in the country in an attempt to increase the value of the forensic archaeology discipline, especially as far as mass graves are concerned (Alemam 2015).

Besides the general use of forensic archaeology within the government sector in different countries, this important skill set has also been of importance to the non-government sector. I briefly reviewed the role forensic archaeology has played to these non-government entities such as International Committee of the Red Cross, Argentine Forensic Anthropology Team, International Commission on Missing Persons, and The Inforce Foundation.

Brief review of the use of forensic archaeology by Non-Governmental Organisations

The International Committee of the Red Cross (ICRC) is a humanitarian organisation with a primary purpose of protecting the lives and dignity of victims all over the world. Since its inception in 1863, the ICRC has also established national relief societies in nearly 100 countries. All the services provided by the ICRC are at absolutely no charge. The majority of the ICRC's forensic team comprises of experts with a background in forensic archaeology and forensic anthropology (Tidball-Binz & Hofmeister 2015). The organisation ensures that 'human remains' are handled with the proper respect and dignity. It also serves as the custodian of international humanitarian law which is a body pf public law which is implemented in times of armed conflict with the aim of reducing the suffering that results from war. As a non-governmental organisation, the ICRC is funded by governments, regional organisations, national Red Cross societies, Red Crescent societies and the public (Tidball-Binz & Hofmeister 2015).

In the time of 1976-1981, about 10 000 to 30 000 individuals were misplaced as a result of the military dictatorship that took place in Argentina. The disappearance of these individuals resulted in the formation of the Argentine Forensic Anthropology Team (*Equipo Argentino de*

Antropología Forense – EAAF) in 1984. It was then that forensic archaeology and forensic anthropology were introduced to Argentina (Fondebrider & Scheinsohn 2015). Since its inception, the EAAF has worked in about 45 other countries including Latin America, Africa, Asia, Eastern Europe and Oceania. They have also been called in by national and international courts, Truth Commissions, the International Committee of the Red Cross (Tidball-Binz and Hofmeister 2015). They also offer the only forensic archaeology course available in Argentina at the University of Buenos Aires (*Universidad de Buenos Aires* – UBA) School of Medicine (Fondebrider & Scheinsohn 2015). The program has been running for 22 years.

The International Commission on Missing Persons (ICMP) was established in 1996 with the main aim of ensuring the cooperation of governments in the location and identification of the individuals who disappeared as a result of armed conflict or human rights violations (Hanson 2015). Although the bulk of their work has occurred in Bosnia and the Western Balkans, the ICMP has also assisted in finding missing persons in other countries including Chile (Leiva *et al*. 2015), Cyprus, Kuwait and South Africa (Nienaber 2015). They have also assisted in Disaster Victim Identification (DVI) operations following the 2004 Asian Tsunami and Hurricane Katrina. The organisation provides training opportunities across the world. In 2015, they had provided eight basic training courses and numerous advanced courses in Iraq since 2009, with over 300 male and female trainees (Hanson 2015).

The Inforce Foundation is a non-governmental organisation that was founded in 2001. It is registered as a both a company and as a charity. The organization aims to provide rapid response to mass fatalities, encouraging nations to conduct their own investigations surrounding mass fatalities and the development of international standards for the manner in which mass fatalities are investigated (Wessling 2015). Like the aforementioned organisations, Inforce also provides training and workshops all over the world. They have also hosted a number of conferences covering topics that include forensic archaeology and forensic anthropology (Wessling 2015).

Having noted the initial potential of forensic anthropology in assisting with police investigations, as well having provided basic overviews of the general status of forensic archaeology across the world by government and non-governmental entities, I now focus on specific geographic locations to establish how this sub-discipline developed in the identified localities. I focus on four countries, namely, the United States of America (USA), the United Kingdom (UK), Australia, and South

Africa. My reason for choosing these countries is because I believe that forensic archaeology has emerged as an independent discipline in America, the UK, and Australia, even though the discipline is as different stages. The history of the discipline in these countries is also well-documented, especially in the USA and the UK, thus my interest in focusing more in-depth on them compared to those I briefly discussed earlier. My focus on South Africa is based on the lack of studies documenting the development and current status of forensic archaeology in the country. These four countries also have a history of human rights abuses which might have provided a 'fertile ground' for the need to use forensic archaeologists in the various investigations. A comparison of the four countries also simultaneously allows for an exploration of the history of the discipline of forensic archaeology found in the four different continents: Africa (South Africa), Europe (UK), North America (USA), and Australia.

Forensic archaeology in the United States of America

In the United States of America (USA), forensic archaeology developed in the 1970s as a technique that forensic anthropologists could use in the recovery of human bones (Crossland 2013). This was during a period when the need for the contextual information that only archaeologists can provide regarding the location of recovered remains arose (Blau 2004). W. M. Krogman, who was an emerging archaeologist at the time, had suggested that an archaeological approach to outdoor forensic scenes could benefit legal investigations (Krogman 1943 in Dirkmaat & Cabo 2015; Resende & Netto 2014). Archaeological knowledge has since been used to resolve legal and criminal cases (Schultz & Dupras 2008).

Initially, employment for forensic anthropologists was very limited. It was not a field that had offered many opportunities. As a result, the majority of specialist with forensic anthropology experience were either working at museums or were academics whose focus was more on research and teaching in the field of physical anthropology. Forensic anthropology was thus only practiced on irregular basis when the need arose (Dirkmaat & Cabo 2015). Clyde Snow, who assisted in human identification of human remains following crimes against humanities in Argentina in the 1980s, is sometimes said to have been the first practitioner to work fulltime as a forensic anthropologist. It is important to note here that W. M Krogman, as mentioned earlier, may have been the first person to engage with the police, but Snow was the first person to practice as a forensic archaeologist on a full time basis when he worked on the crimes against humanity in

Argentina. What further distinguishes Snow from his other peers and predecessors is that he worked full time unlike others who only got involved on a part time basis.

The investigation of the crimes against humanities in the 1980s was completed under the leadership of the American Association for the Advancement of Science (AAAS). Later that year, another NGO called Physicians for Human Rights was established in the USA. These organisations were established with the primary aim of helping the families of the victims of political violence to gain insight on what happened to their loved ones (Groen *et al.* 2015). The work completed by the American delegates in Argentina resulted in the development of these organisations dedicated to a common cause, and in turn also the development of forensic archaeology as a discipline.

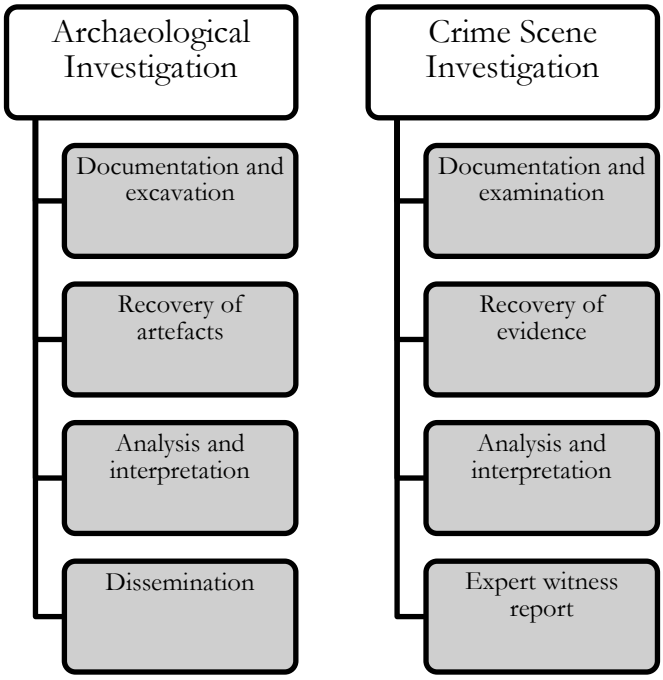
Forensic archaeologists play an important role in locating graves, the recovery, and analysis of buried human bones, and sometimes even the identification thereof. They also assist in gathering evidence that could contribute towards the reconstruction of the events that preceded the death of the deceased. Their traditional archaeological knowledge is adapted to suit the forensic context of the cases to which they are assigned (Resende & Netto 2014). Excavation techniques that archaeologists choose to use have an effect on the amount of energy and resources that will be needed, the quality of data that is found or uncovered, recording techniques as well as the interpretation of the site (Oakley 2005).

While forensic archaeology presents a significant opportunity to assist in police investigations, as there are parallels between archaeological and crime scene investigations (see Table 2), this potential has not always been adequately harnessed. At the centre of this challenge has been the use of unqualified personnel in the recovery of evidence (Hanson 2007). I think such can be attributed to the fact that in most parts of the world, forensic archaeology is still a developing field and police departments are not completely aware of the existing measures to ensure evidence recovery. This is evident in that over the years, many cases involving buried human bones have been thrown out of courts as a result of errors in the recovery process made by untrained personnel. There have also been cases where evidence has been lost, unnoticed, or even misinterpreted because of the failure to involve qualified professionals in the recovery of evidence (Hanson 2007). This has raised the need for controlled excavations by qualified and trained professionals, such as archaeologists (Blau 2004). While the nature of archaeology is destructive by its nature, the

process of collecting evidence is undertaken in such a manner that the site can be reconstructed and its collected data reviewed and used appropriately (Hunter *et al.* 2001).

There were still no formal educational programs available for a forensic archaeology degree in the USA in 2019 (Moran & Gold 2019). The majority of archaeologists who assist with forensic cases in the country have not received any formal forensic training in the discipline and currently have differing backgrounds (Connor 2019). They have experience in different sub-disciplines of archaeology and anthropology, but possess skillsets which complement one another in the practice of forensic archaeology. Forensic archaeologists of the future will however need better credentials in order it be allowed to testify in court.

Table 2. The parallels between archaeological and crime scene investigations (Moran 2019)



Forensic archaeology in the United Kingdom (UK)

In 2003, Black provided an overview of the discipline of forensic anthropology in the UK (Black 2003). It was in 1935 that the discipline was first practiced in the UK. It's roots are directly linked to the murders committed by Dr. Buck Ruxton. He had killed and dismembered his wife and a nurse maid. Forensic anthropology techniques were used to identify the victims (Blau & Ubelaker 2009).

There are approximately 30 practicing forensic anthropologists in the UK, most of whom have training in forensic archaeology (Blau & Ubelaker 2009). Some work in mortuaries while others are employed in anthropology laboratories. These forensic anthropologists work closely with radiographers and anatomical pathology technicians. Besides those employed at mortuaries and anthropology laboratories, the majority of the existing forensic anthropologists have educational and research roles at academic institutions such as the University of Birmingham, Cranfield University, University of Dundee, and University of Sheffield. It is on very occasional cases that these forensic anthropologists engage in actual case work (Blau 2004; Blau & Ubelaker 2009).

It was not until 1988 that forensic archaeology came into use, after forensic anthropology had been practiced in the UK from 1935. The person accredited with the first application of archaeological principles and methods to a crime scene in the UK was J. Hunter in the recovery of the body of a child who went missing in 1980 (http://newws.bbc.co.uk, Blau & Ubelaker 2009). He recovered the body of the child using both forensic anthropology and archaeology techniques. Forensic archaeologists in the UK assist in domestic police service cases. For example, they played a crucial role in the recovery of 12 human skeletons from three different sites in the 1990s. These were the 'human remains' of the victims of Fred and Rose West (Berrington & Honkatukia 2002; Callahan 2019, https://www.city-journal.org). The couple murdered these female victims, including two of Fred's daughters and his ex-wife, between 1967 and 1987. More than half of the victims were sexually assaulted before they were murdered. Forensic archaeology was also critical in 2007 in the recovery of two bodies that had been buried by serial killer, Peter Tobin (Hunter & Cropper 2015). Forensic archaeologists have also been important in (i) international investigations of atrocity crimes, (ii) humanitarian missions relating to the atrocity crimes, (iii) ministry of defence and Commonwealth war graves, (iv) mass fatality events, and (v) the professional training of

disaster-victim-identification response teams (Cox *et al.* 2016). They are also actively involved in the recovery of human remains during building operations (Hunter & Cropper 2015).

There are two factors that have enhanced the existence of forensic archaeology, and its status as an independent profession in the U.K. First, the discipline of forensic archaeology has been integrated into the police force. This was achieved through the establishment of the Forensic Search Advisory Group (FSAG) in the mid 1990s (Ubelaker & Blau 2009). It serves as a 24hr advisory service for the police. The UK also has the Centre for International Forensic Assistance (CIFA) which registers forensic anthropologists, forensic archaeologists, and other forensic experts. The other relevant body is the Council for the Registration of Forensic Practitioners (CRFP) which was founded in 2000. This body registers and accredits forensic archaeology practitioners. In particular, the organisation ensures that high professional standards are always maintained in the continued application of their skills in crime scenes (Blau & Ublekar 2009). In addition, there is the Inforce Foundation. It is a nonprofit organisation that was established in 2001 to provide forensic services and training to other organisations and governments globally (https://www.inforce.org.uk/). This includes organisations in the UK, Germany, Rwanda, and Colombia, to name a few. At its formation, the Inforce Foundation had only two forensic anthropologists, two forensic archaeologists, and radiographers. At the turn of the 21st century, very few degree options were offered in forensic archaeology, all of which were found only in in the UK (Moran & Gold 2019). By 2015, there was only one registered forensic archaeologist in the UK (Hunter & Cropper 2015). The numbers have since increased as a result of the discipline becoming more popular and respected in the country, with a solid space in university programs.

Second, forensic archaeology and physical anthropology are viewed as two distinct disciplines with origins from two different educational departments at universities. Forensic archaeology is rooted in archaeology and anatomy while physical anthropology is believed to be linked with forensic medicine or biology (Groen *et al.* 2015). This separation has allowed for the two disciplines to develop independently.

The Forensic Archaeology Expert Panel of the British Institute for Archaeologists (CIfA) completed its standardisation and accreditation process (Janaway 2015). Membership for IfA is divided into three levels: (i) Practitioner (Forensic Archaeology) PCIfA, (ii) Associate (Forensic Archaeology) ACIfA, and (iii) Member (Forensic Archaeology) MCIfA. The multiple grading

system for membership creates a platform for progression route (from entry level PCFIfA to the highest level MCIfA) for young practitioners, as well as mentorship programs and succession planning (Janaway 2015). The European Network of Forensic Science Institutions (ENFSI) recently created the Project Group Forensic Archaeology to examine the potential of forensic archaeology in Europe, including the UK (Groen 2015).

Forensic archaeology in Australia

Richard Wright, a Professor of Anthropology at the University of Sydney, made Australia's first big contribution to international forensic archaeology in 1990. He achieved such through the application of archaeological principles and techniques in the investigation of WWII mass graves in the Ukraine. This was done as part of the Australian government's contribution to the prosecution of war crimes (Blau 2004). There have since been a few more Australian professionals in the field of forensic anthropology who are trained in forensic archaeology, contributing to the investigation of forensic enquiries.

In Australia, forensic archaeologists have been employed in kidnapping cases as well as in the recovery of buried 'human remains' in domestic homicide investigations. They have also been employed in the gathering of evidence in investigations of war crimes, missing soldiers in the field, ethnic cleansing and genocide, political killings and mass killings associated with terrorism (Oakley 2005).

The Australian Federal Police Services has created the Australasian Disaster Victim Identification (DVI) system which has been adapted from the principles set out by the International Criminal Police Organisation (INTERPOL) for the handling of 'human remains' and supporting evidence in cases of mass disaster scenes. This guidelines set out in this system were integrated in the investigation of the aforementioned cases, and many others. Beyond the national borders, Australian forensic archaeologists have also been involved in cases of mass disasters. For instance, they were involved following the Bali Bombings of 2001, exhumations under the banner of the Regional Assistance Mission to Solomon Islands (RAMSI), and the relief duties for the Thailand Tsunami of 2004.

As it will be evident for South Africa, the expertise of forensic archaeologists are relatively underutilised in comparison to the United States of America and Europe (Oakley 2005). However,

the discipline has developed more flexible methodologies in the country and has also broadened its application over the years, and has as a result become more noticed by both the forensic community as well as the police department.

In contrast to the American Academy of Forensic Sciences and the British Forensic Services, the Australian Academy of Forensic Sciences does not have a section for neither forensic archaeology nor forensic anthropology under its umbrella of forensic sciences. There are four possible reasons for this. The first is that the demand for the skills of the forensic archaeologists are minimal in Australia. The second possible reason is that there is very little or limited knowledge on what the job or skills of the forensic archaeologists and forensic anthropologists entail. The third potential reason is that Australia has lower rates of homicide in comparison to the USA and Britain (see Table 3 for the comparison of homicide incidences in the USA, England/Wales, Australia, and South Africa). This may also be indicative of the limited need or demand for the expertise of the forensic archaeologists (Blau 2004).

Table 3. Comparison of homicide incidences in the USA, England/Wales, and South Africa

Country	Number of Homicides				
	2010	**2011**	**2012**	**2013**	**2014**
Australia	264	246	250	255	238
England/Wales	633	536	544	521	510
USA	14 722	14 661	14 856	14 319	14 164
South Africa	12 266	11 984	11 710	11 249	11 106

As a fourth reason for the limited usage of forensic archaeology, Australia has a lower number of academic institutions that offer courses in the discipline. Only two institutions, University of

Sydney and University of Western Australia, offer postgraduate degrees in forensic anthropology. Most other institutions offer forensic anthropology as part of undergraduate courses in archaeology (Blau 2004).

Although the role of forensic archaeologists on investigation of homicide cases may be limited in the country, research suggests that Australia could make a greater use of them in disaster scenes. In the case of wild fires, floods and cyclones, forensic archaeologists could be used for the detailed mapping and recording of 'human remains' and associated evidence that is recovered in the aftermath (de Boer *et al*. 2019) There are still no professionally known forensic archaeologists in Australia, even though there are a number of forensic anthropologists (Blau 2004; Blau & Sterenberg 2015).

The origins of biological anthropology in South Africa

The British Association for the Advancement of Science held meetings with the South African Association for the Advancement of Science in 1905. It was after these meetings that physical anthropology was included as a component in the study of South African prehistory in the first institutions of higher education. These were the South African College in Cape Town and Victoria College in Stellenbosch (Morris 2012). There have been four academic institutions teaching forensic archaeology in South Africa. These are the University of Cape Town, University of Stellenbosch, University of the Witwatersrand, and the University of Free State. I discuss the teaching of forensic archaeology at these universities to provide an insight into the broader history of the sub-discipline in South Africa.

Physical anthropology has its roots in a number of museums around the country from before the 1900s. These museums are found at various locations around the country, such as Bloemfontein, Kimberley, Pretoria, Grahamstown, Port Elizabeth, and Cape Town. It was at these museums that research in physical anthropology was first conducted as they housed human skeletal remains (Morris 2012).

Robert Broom graduated as a student of science and medicine from the University of Glasgow. From 1903 to 1910, he worked at the Victoria College (now called the University of Stellenbosch) as a Professor of Zoology and Geology. When he retired from Victoria College in 1933, Brook joined the Transvaal Museum (now Ditsong Museum) in Pretoria. He remained in this position

until his death in 1951. Ditsong Museum is still the only such institution in South Africa involved in forensic archaeology.

Dart, Dreyer, Drennan, and Broom are accredited with the introduction of physical anthropology to South Africa. In the early days, the medical department of the then South African College in Cape Town (now known as the University of Cape Town) included two anatomists, namely, R. B. Thomson (from 1911) and M. A. Drennan (from 1913). The former was a professor while the latter was a lecturer who had been appointed in 1913. Drennan, who published the first South African textbook on physical anthropology in 1920, went on to become the head of the department until his retirement in 1955. Following such introduction of forensic archaeology, the South African College in Cape Town was expected to house the country's first medical school.

The sub-discipline was separated from archaeology when it began to be taught at the universities in the 1920s. When this happened, forensic archaeology formed part of the medical faculties (Morris 2012). As a result of this historical reality, the sub-discipline falls under the Anatomy Departments within medical faculties at most universities in South Africa. What I have identified from reviewing most curriculums is that the sub-discipline is defined by focus on the following areas of research: (i) human skeletal biology, (ii) palaeoanthropology/human evolution, (iii) human growth and development, (iv) forensic anthropology, (v) bioarchaeology, (vi) human biological diversity, (viii) human environmental adaptation, (ix) anthropological genetics, (x) dental anthropology, and (xi) paleopathology.

Forensic archaeology has a dark past in South Africa. Previously, human bones which were used in medical schools, research studies, museums, and personal collections were taken without consent from the deceased or from their next of kin (Mincer 2015). For example, the first skeletons that the University of Cape Town used in their research were obtained from an excavation of old graves in the Richtersveld of the Northern Cape (Morris 2012).

It was in 1919 when the then South African School of Mines and Technology (now called University of the Witwatersrand) employed E. B. Stibbe as the Professor of anatomy in the medical faculty. He was eventually replaced by Raymond A. Dart, after whom the large human skeletal collection at the University of the Witwatersrand is named.

There was initially no plan for a medical school at the then Victoria College (now called the University of Stellenbosch). As a result, human anatomy was not offered as a subject. However, the Department of Zoology had a comparative anatomy program that was run by C.G.S. de Villiers and C. S. Grobelaar in the 1920s. The latter had studied physical anthropology for a year at the South African College in Cape Town under the instruction of Drennan, but he did not complete a degree. Besides not finishing his degree, Grobelaar went on to offer undergraduate lectures in physical anthropology at the University of Stellenbosch.

The anatomy department of the then Grey University College (now called the University of the Free State) in Bloemfontein was headed by T. F. Dreyer. He is known for his discovery of the Florisblad man in the early 1930s. Dreyer had a background in insect ecology, thus his employment as a Professor in zoology and geology. Besides his training, he showed great interest in anthropology. He stayed at the institution while it transformed into the University of the Orange Free State until his retirement in 1950.

Moving away from a geographical analysis of the origins of forensic archaeology in South Africa, biological anthropology began following the growing interest to develop 'typologies' in human species. The 'type' was defined as "an ideal individual who possessed all of the important characteristics of the race" (Morris 2012: 157, Morris 2000 in Legassick & Rassol 2000). These typologies proved critical during the Apartheid era, significantly playing a role in the implementation of racially-defined government policies. They were used to classify people of South Africa according to their physical differences. Typologies are no longer used in the investigation of human variation (Goodman 1995; Morris 2000).

As alluded to by Morris (2012), there was no credible scientific information to either support or oppose findings that had been reached through the application of such typologies (Morris 2012). No statistics were used to reach the conclusions applied in creating the typologies and there was also no use of big sample sizes to reach unyielding conclusions. This occurred mainly because the need for separation of groups was based on cultural differences, and not necessarily scientific grounds. Noting the significance of using 'academic' research by physical anthropologists for ulterior motives, Philip Tobias once stated that there were no physical anthropologists used by government in the development of the racial classification (Morris 2012).

His statement that: "no South African physical anthropologist was involved in providing scientific underpinning for the government's race classification processes" (Tobias 1985:32) was according to Morris (2012) true in the sense that no physical anthropologists in the apartheid era submitted tenders to the government, nor were they involved in the administration of the classification system and its legislative processes. The physical anthropologists were not employed by the government to assist with the development of the apartheid classification system. Even if they had been employed, many of the anthropologists who were at the forefront of the discipline were the Afrikaans-speaking *volkekundiges.* The only way to ensure that no mixing occurred was through Apartheid (Sharp 1981).

While Tobias is known for having opposed the typologies set out by anthropologists, he continued to publish typological writings until 1959 (Morris 2012). Judging from the continual use of typologies by Tobias, it could be argued then, that scientists passively participated in the implementation of the racial classification processes through their beliefs which were influenced by the prevalent scientific ideas of that time.

It was not until the 1950s that a significant shift away from the application of typologies took place. Researchers began to use a statistical approach (Morris 2012). This approach placed emphasis on genetics and the dynamic forces of populations instead of static types. It was argued that such an approach would allow for more concrete and scientific conclusions to be reached through the use of larger sample sizes. However, this new way of doing biological anthropology had no effect on the policies of the South African government. Failure to utilise the statistical approach in the drafting of South African policies was largely based on the Afrikaans *volkekundists* that had a bigger impact. *Volkekunde* was a descriptive type of anthropology that was based on the German 'ethnos' and proved to be the complete opposite of biological typology in that it differentiated between groups by placing emphasis on the description and geographic distribution of their cultural characteristics (Morris 2012). Sharp (1981) believes that *volkekunde* was ultimately the result of an Afrikaans outlook on life. Each '*volk*' or person was believed to have their own culture that was linked to inherited physical and mental attributes. Groups were differentiated from one another by the description of these attributes and the geographical location (Sharp 1981; Morris 2012; Bank 2015). By separating social anthropology from physical

anthropology, thus focusing on statistical approach, physical anthropologists could now exclude social issues in their arguments.

Currently, there are four South African institutions of higher education that offer a course in forensic anthropology. At all four institutions, the qualification is completed as a postgraduate qualification at an Honours degree. The University of Pretoria offers a BSc Honours in Physical Anthropology. A qualification in Biological Anthropology is offered at three other universities, namely, Stellenbosch University, University of Cape Town, as well as at the University of the Witwatersrand. At the University of Pretoria, a Physical Anthropology qualification is offered. At these institutions, the qualifications offered all form part of the Clinical Anatomy division of the institutions.

A review of all the lecturing staff in the aforementioned departments at the various South African institutions reveals that staff composition is highly untransformed, with White people significantly dominating. The University of the Witwatersrand has only two staff members who are defined as a coloured male and Black African male under South Africa's racial classification. They are both employed as lecturers in the School of Anatomical Sciences. All the other eight staff members are white. The University of Cape Town's Department of Biological Anthropology has employed two Indian individuals, a male and a female, as well as a Black African female. All these three professionals are employed as lecturers. The other 13 staff members are White. There are two African male employees at the University of Pretoria's Department of Physical Anthropology. One is responsible for macerations of the 'human remains' that come into the system. He has no formal academic training. In a conversation with him in 2017 when I was a Honours student, he revealed to me that he started off as an ordinary cleaner and learned his way around the laboratory through observation. He was gradually taught the maceration process by his superiors and is now trusted to conduct the process independently. At the time, in 2017, he had been at the institution for over 15 years. The other is employed as a technical assistant and tasked with lecturing and administrative responsibilities.

With specific reference to the University of Pretoria, it was noted that the racial classification of their postgraduate students registered for an Honours Degree in Physical Anthropology does not correlate with that of lecturers. Out of the four postgraduate students registered in 2017, only one of these was White. In the same year, there were two masters students registered, both of whom

were Black African individuals. The female candidate did her study on dentition, while the male candidate did his study on forensic archaeology, with a focus on excavation techniques.

In the past, government policy required that Coloured, Indian, and Black African students who wanted to register at UCT, or any other previously white institutions, to study medicine had to request permission to be allowed registration in the so-called white universities (see Ndlovu & Smith 2019). Special permission was, therefore, needed from government (the Minister of Internal Affairs) for the so-called white universities to admit African students for registration (O'Malley 1959). This would not, therefore, have provided a large base of Coloured, Indian, and Black African students who could have ventured into physical anthropology and thus specialised as forensic anthropologists or archaeologists.

Because of racially-defined segregation, universities were established for Africans (including Coloureds and Indians) to receive their tertiary education, as registering in the so-called white universities was challenging for them. An institution meant for the Indian population, University of Durban-Westville, was established in 1974. The University of the Western Cape at Belleville (established in 1959) was meant to cater for the Coloureds, while the University of Fort Hare (established in 1916) provided education to the amaXhosa people. The University of Zululand at Ngoye was established for amaZulu and amaSwazi while the University of the North at Turfloop in the former Transvaal provided tertiary training for the Sotho groups (Meyer 1974). It was only in 1976 that the Medical University of Southern Africa (MEDUNSA) was established to provide tertiary education and training facilities in medicine for African students (Noble 2015). Generally, the universities that catered for African population did not necessarily provide access to forensic archaeology and anthropology. Amongst these, only the University of Fort Hare and University of Venda provided training in archaeology. Fort Hare only introduced an archaeology program in 1971 (Ndlovu & Smith 2019). This explains the very low numbers of African scholars in the discipline of forensic archaeology.

Even though African students could be allowed registration at the so-called white universities under the Extension of University Education Act, Act 45 of 1959 (Table 4), government decided to set a cap on the number that could be allowed to register to study in each category in 1983. While the so-called Afrikaans universities obliged to this, the other universities (Wits, Rhodes, University of Natal, and UCT) apparently refused to accept this decision (Saunders 2000). For

example, the Department of Anatomy at UCT continued to accept students based only on academic merit. This resulted in the department receiving a substantial inflow of Black students in the second half of the 1980s, a number of whom were using the Department of Anatomy as a backdoor entry into Medical School. For clarity, the aforementioned University Amendment Bill was passed in July of 1983. However, as a result of the backlash and opposition that was received from the English medium universities as well as from the so-called Bantu universities, it was only implemented in special cases. An example of a special case would be that of Medicine and Land Surveying at UCT which were already offered at and MEDUNSA and Fort Hare University respectively (Morris 2004). The history of South Africa is interwoven into the political landscape that prevailed during the Apartheid era. As a result, it is important to look at racial profiles of the students who were allowed entry at different academic institutions, particularly the African students.

One of the professional respondents who taught at UCT over the years, worked with a number of African individuals. Besides not being White, these students studied in the Department of Anatomy. Although not many were specifically trained in anatomy over a period spanning 30 years, there were African students who used the Department of Anatomy to study medicine. Morris remembers eight out of the nine African students that trained in the Department of Anatomy. All of the ones he still remembers were trained after 1994. Amongst those students were: (i) A Coloured male who graduated with his Honours Degree in 1992. He went on to complete his PhD in Archaeology at the University of the Witwatersrand where he is now employed as the lecturer in the School of Geography, Archaeology, and Environmental Studies; (ii) a Black male who graduated his Honours Degree in 1997, went on to obtain his PhD also at UCT – this former student is now employed as a lecturer at the University of the Western Cape; (iii) a Black female who eventually obtained her PhD and is now working in Zurich at the anthropological unit of the University of Geneva; (iv) a Black male from Uganda who obtained his PhD in 2000 and returned home soon thereafter; (v) a Black male who obtained his Masters Degree in Science in 2008 and is now working at the Medical Research Centre; (vi) a Coloured female who obtained her Masters Degree in Science and PhD. She is now employed at the institution as a lecturer; (vii) a Coloured male who completed his Honours and is now working for the SAPS forensic unit as a forensic anthropologist; (viii) an Indian female who obtained her PhD and is now working for the missing

persons in Pretoria; and (ix) a Black male who is currently completing her PhD and is employed by the Cradle of Humankind.

Table 4. Number of Black, Coloured, and Indian students granted permission to study at white universities between 1980 and 1983 (politicsweb.co.za 2012)

Race	Year	Applicants	Granted	%	Refused	%
Black	1980	1046	410	39.2	636	60.8
	1981	1391	667	48.0	724	52.0
	1982	1545	723	46.8	822	53.2
	1983	2605	954	36.6	1651	63.4
Coloured	1980	1175	989	84.2	186	15.8
	1981	1221	1126	92.2	95	7.8
	1982	1314	1172	89.2	142	10.8
	1983	1371	1255	91.5	116	8.5
Indian	1980	1013	919	90.7	94	9.3
	1981	1049	924	88.1	125	11.9
	1982	1724	1374	79.7	350	20.3
	1983	1679	1323	78.8	356	21.2

The purpose of the above review has been to illustrate that as the years have progressed, there was an increase in the number of non-white individuals showing an interest in archaeology and anthropology, and being allowed to study in the said fields. The main scope of forensic anthropology, and thus forensic archaeology in South Africa, is currently set in academia. Many of the individuals who become qualified in forensic anthropology end up in academia. There are many qualified individuals working in universities and in research. In contrast, there are much

fewer professionals working either for the South African Police Service, the ICRC, or the MPTT within the NPA. The racial composition of students in the forensic anthropology departments has transformed over the years, and this has spilled over into the staff at the various institutions. Although it is not quite there yet, the racial composition of the current staff at the different institutions is still evidently in the process of being transformed. Furthermore, the curriculum producing experts in forensic anthropology has mainly been dominated by anatomy. As a result of this bias towards anatomy, forensic archaeology has always been taught as a subdiscipline of the forensic anthropology.

Training of forensic archaeologists

It is important to reiterate that there is not one specific qualification that exists for forensic archaeology in South Africa. Training in forensic archaeology is offered as part of the forensic anthropology and biological anthropology Honours degrees with small component of archaeology in the modules. Currently, one cannot attain any qualification or a certificate for completing a course in forensic archaeology.

Unlike other South African universities, the University of Cape Town (UCT) does not appear to have a cap on the number of students allowed to enroll in their Honours program annually. There seem to have been no students registered for the 2015 and 2016 academic years. Between 2017 and 2019, UCT had nine, three, and nine students respectively. In contrast, ten students are annually accepted at the University of the Witwatersrand (Wits) to study towards an Honours Degree in the Department of Biological Anthropology. According to information supplied by Wits, the ten students have all successfully finished their qualification every year. Unlike Wits, only a maximum of six Honours students are accepted annually at the University of Pretoria. However, it was only in 2016 and 2018 that the maximum number of six students were registered for the course. The minimum number of students who were registered between 2015 and 2019 was three, which was in the 2015 academic year. Table 5 is a summary of the number of students enrolled at the various anthropological departments from each institution for the past five years. I could not get access to the racial composition of these students from the three institutions of higher learning.

Table 5. Number of Honours students from the University of Pretoria, the University of the Witwatersrand, and the University of Cape Town in the past five years					
Institution	**Year**				
	2015	**2016**	**2017**	**2018**	**2019**
University of Pretoria	3	6	4	6	4
University of the Witwatersrand	10	10	10	10	10
University of Cape Town	-	-	9	3	9

Professional associations for forensic archaeologists and forensic anthropologists

There are no national associations for forensic anthropology or forensic archaeology in South Africa. However, there is a national association that covers the broader scope of the two sub-fields. This association is called the Anatomical Society of Southern Africa (ASSA) (Obertova *et al.* 2019). It's membership encompasses professionals from anatomy departments of countries which include South Africa, Zimbabwe, Namibia, and Mozambique. The association also includes the Forensic Anthropology Interest Group (FAIG). There are an estimated 12-20 known forensic anthropology practitioners in South Africa (Obertova *et al.* 2019). The Association of Southern African Professional Archaeologists (ASAPA) also registers and accredits archeologists in the CRM sector to be specialists in 'grave relocations'. The purpose of ASAPA, as a regional body of professional archaeologists, is to establish, maintain and promote archaeology in southern Africa (www.asapa.co.za 2020).

In my Honours year in 2017, we had a forensic archaeology field school which was administered by one of our lecturers, Coen Nienaber. I think that he may have been the only forensic archaeologist in the country at the time. All other professionals with training in forensics identify themselves as biological/physical anthropologists. In that week, we were given a 'crash course' on forensic archaeology which included the (i) detection and recovery of human remains; (ii) human remains in the archaeological, (iii) historical and forensic context; (iv) grave identification; (v) archaeological search techniques; (vi) the recovery of forensic remains; (vii) documentation of

evidence; (viii) decomposition; (ix) taphonomy; (x) geophysical search techniques; (xi) using GPR to find and asses graves; groundtruthing; (xii) surface scattered body recovery; (xiii) grave exhumation; (xiv) South African legislation for graves, and (xv) human remains as well as case reporting.

South Africa recognises forensic archaeology only for the function of body recovery. This is often a duty undertaken by technicians who are normally mortuary staff members with no role in the investigations of connected scenes. Grave exhumations, for the purpose of reinvestigating disputes, are also often completed by untrained staff. Steyn *et al*. (1997) noted that many authors had applied archaeological techniques to the recovery of human remains in forensic settings (see Nienaber 2015). However, it is clear that no constitutional or legal framework exists for them. As a result, Steyn suggested that the crime scene investigators be trained in the relevant recovery techniques (Nienaber 2015).

The forensic anthropology centres that have been established at the universities of Cape Town and Pretoria have functional relationships with SAPS and the South African Heritage Resources Agency (SAHRA). They offer their specialised skills for their recovery of human remains to them by mens of contractual work and memoranda of understanding (Nienaber 2015).

Legislation protecting human bones in South Africa

Noting the different approaches that have defined the study of physical anthropology, the human bones in question are protected by various legal statutes. South Africa's Human Tissues Act (no. 65 of 1983) permits anyone to donate his/her body for tissue transplants, medical training, and research. This law extends to unclaimed bodies in public hospitals. As a result, human bones less than 60 years old are protected under this legislation unless they have political or royal significance.

Much older human bones, such as those that are part of collections belonging to museums and tertiary institutions, are protected under the National Heritage Resources Act (NHRA). It does not matter how they were recovered. In the case of South Africa, the NHRA also protects graves belonging to the victims of conflict, royal graves, as well as those of historical and ancestral significance. One is required to have an archaeological permit issued as per Section 36 of the NHRA to work on these human bones. In order to be granted a permit, one must show evidence

of having made efforts to connect with all interested and affected parties, especially family members of the buried individuals where such is possible. Amongst the people with interest may be descendants where this information is known and/or community members.

Human Bone Collections in South Africa

Modern human bone collections normally have three main sources from which they obtain their remains. The first category includes both forensic cases and dissections of cadavers. The second category is defined by human remains from known cultural contexts as well as those acquired through the research of typologies. The third category is that of unknown cultural contexts, archaeological excavations, as well as unidentified bodies (Morris 2007)

South Africa houses three human bone collections. These are located in Stellenbosch, Johannesburg, and Pretoria. The largest of these three is the one in Johannesburg. These are respectively named the Kirsten Collection (Stellenbosch), the Raymond A. Dart Collection (Johannesburg), and the Pretoria Bone Collection (PBC). There are other significant human bone collections in the country. Among these are those curated at the Ditsong Museum in Pretoria, Iziko Museum in Cape Town, University of Cape Town, and the National Museum in Bloemfontein. I, however, chose to discuss the aforementioned three in detail.

The Kirsten Collection is housed in the Department of Anatomy and Histology at the Faculty of Medicine and Health Sciences, Stellenbosch University. It was established in the late 20th century in honour of Professor J.F. van E. Kirsten and presently has the world's largest bone collection of the so-called coloured people. Almost 50% of the population demographic of the Western Cape is comprised of coloured South African individuals. The collection currently consists of approximately 1161 known individuals which are mostly derived from the cadaver intake program, where the institution receives unidentified 'human remains' from local teaching hospitals such as the Tygerberg, Karl Bremmer, and the Groote Schuur Hospitals. Approximately 60% of these remains are those of coloured individuals. Some of the individuals are of archaeological and forensic origin and approximately 67% are unclaimed bodies from local government hospitals (Albas *et al.* 2018).

The Raymond A. Dart Collection is located in the School of Anatomical Sciences at the University of the Witwatersrand, Johannesburg. The collection, which was started by Raymond Dart in the

1920s, is one of the largest in the world (Dayal *et al.* 2009). It has approximately 2605 skeletons forming part of it. The collection also has approximately 350 skeletons which form part of the Teaching Collection. These are used for academic purposes, helping in the teaching of students. About 26% of the individuals in this collection are Black South Africans, while 15% are white, 4% are coloured, and 0.3% are Indian. Of these human bones, about 71% of the individuals are representative of males.

The Pretoria Bone Collection is housed in the Anatomy Department of the Health Sciences Faculty at the University of Pretoria, Pretoria. By 2005, the bone collection had 290 complete skeletons, 704 complete skulls, and 541 post cranial human parts. The Pretoria Bone Collection grows at approximately 50 skeletons annually (L'Abbe *et al.* 2005). The collection also includes human bones used for teaching purposes. In order to be included in the research collection, the age, sex, and population affinity of the individual must be known and documented as this information becomes crucial when selecting research samples (L'Abbe *et al.* 2005). In the study collection, not all the aforementioned characteristics need to be known.

Some of the human bones in these three university collections originate from donations and unclaimed bodies information (L'Abbé *et al.* 2005). Initially, these bone collections were used for the purpose of studying and recording traits and their variations across populations. This later extended to differences in traits between people in different geographic locations, between sexes as well as different age groups. These bone collections have also been used to further research in the fields of forensic anthropology, population biology, human variation, dentistry, medicine, clinical anatomy, skeletal biology, paleoanthropology and related disciplines (Dayal *et al.* 2009; L'Abbe *et al.* 2005; Albas *et al.* 2018). The collections are now also used to study the skeletal manifestations of diseases and age-related changes in the skeletal elements (L'Abbe *et al.* 2005).

Chapter 3: Methodology

In this chapter, I will be discussing the different ways in which I collected data for the research project. In my consideration of these methods, I further review the advantages and disadvantages associated with each method, and how I overcame the applicable challenges throughout the research project. I made use of a mixed method which comprised of desktop research, interviews, and questionnaires. The reason behind my choice of methods was informed by the nature of the data I needed for the research project. For example, the history of the forensic archaeology discipline is documented in published literature, and through desktop research undertaken, I was able to review such available publications. I had further decided to have conversations with practicing professionals whose activities are broadly linked to forensic archaeology. Due to the outbreak of the COVID-19, I had to reconsider this decision. As a result, I interacted with those practicing professionals electronically. Similarly, I had further intended to converse with university students as I consider them to represent the future of forensic archaeology which in my view lies in the hands of those who are studying it. I ended up sending questionnaires instead. My aim was to, beyond published sources, ascertain what is the current state of the discipline in South Africa. Such conversations were thus not defined by a physical meeting, but were in the form of questionnaires. I discuss these methodological approaches in detail below.

Desktop study

Desktop as a method of research is described as one that makes use of already existing information, some of which may have been published (Cheng & Phillips 2014; Johnston 2017; Walliman 2017). This study is also referred to as secondary research. In this method, data can be collected from newspapers, clippings, academic journals, reports, books, directories, the internet, and even through interviews and questions (Johnston 2017; Walliman 2017). What thus distinguishes this approach to gathering data from other methods is that it does not require the use of fieldwork for data collection (Kothari 2004).

As an advantage of using this methodological approach, information is readily available (Koziol & Arthur 2011) and easily accessible from places such as libraries and other platforms. Desktop study has been found to be cost-efficient and time saving, particularly in instances where a research assistant spends time analysing and collecting the necessary data which the researcher utilises in the given research project (Kothari 2004, Koziol & Arthur 2011; Walliman 2017). As an advantage, the data

used that has already been published in pre-existing studies often does not require extensive validity (Koziol & Arthur 2011; Arthur 2011; Walliman 2017).

While noting its benefits, this method of research is not without limitations. There are a number of weaknesses that have been noted: (i) not all these available information may be recent and updated, (ii) the success of a desktop study relies heavily on the quality of research that would have been done in compiling the primary sources of data, and (iii) information is difficult to obtain in developing countries due to the lack of funding (Koziol & Arthur 2011).

To address these limitations, I used a few means of validation. First, a number of my sources were published in acclaimed academic platforms (i.e. journals and books). What this means, therefore, is that they were peer reviewed and would have been verified by other scholars in the discipline. This is not to argue, however, that all publications that have been through a peer review process are without challenges. Some authors are known to have fabricated their data to suit a particular analogy (see De Groote *et al.* 2016; Iltis 2017; Mouton 2017; Mouton & Valentine 2017; Ndlovu 2019; Pennisi 2020). However, in the absence of another system other than peer review, I considered it to be the best litmus test there is at the moment besides its shortfalls. Thus, the publications I made use of had academic credibility and are presumed to have been informed by the reliable compilation of primary data. There was a dearth of literature, however, on the development of the discipline of forensic archaeology in South Africa and Australia. This is largely because the discipline is still in its embryonic stage of development in both these countries.

Generally speaking, sourcing publications was not much of a challenge. I was able to discover a number of publications through the academic platforms such as Google Scholar and the library services at the University of Pretoria. Besides the credibility of the data, I noted that some of the publications were relatively recent, and thus reflective of the current situation with forensic archaeology in my study area and other related geographical landscapes.

Interviews

Interviews are defined as a method of oral-verbal stimuli and reply in terms of oral-verbal responses (Walliman 2017). They are, therefore, a method of data collection that allows for the sampling of the opinions of the respondents (Cohen *et al.* 2013). This method is characterised by a question-based conversation where the interviewee answers, in detail, questions posed by the interviewer. Amongst

the benefits of this methodological approach to gathering research data is that interviews (i) allows the interviewer to obtain more in-depth information, (ii) provides a degree of flexibility such as a change in the sequence of questions or addition of questions, (iii) enables the interviewers to control their sample selection, and (iv) creates a possibility that the language used during the interview can be adapted to suit the education level of the person being interviewed (Khotari 2004).

There are various types of interviews, ranging from those conducted in person or through a telephone. In the case of the former, the interviewer and interviewee would generally be face to face with each other, with the interviewer asking questions. This method of interviewing is normally structured, following a particular sequence of questions. It is also known as a direct oral exam (Kothari 2004). Telephonic interviews require the interviewer to contact the respondents telephonically (Kothari 2004). As a result, there is flexibility compared to the mailing method in that this approach is much faster in obtaining information than others. Requiring no field staff, this method provides for a lower cost per response than the personal interview.

Like any other methodological approach that can be used, telephonic interviews are not without challenges. For instance, (i) respondents have little time to think their answers through, (ii) it is generally not suitable in cases where comprehensive answers are required, (iii) the approach favours those with telephone facilities, and (iv) it can be expensive across a large geographical area.

In making the choice over which type of interview to use, I would have based the decision on the availability of the interviewee and the expense involved in conducting interviews. I had planned to interview those who were easily available through a meeting I would have had with them to enable face to face conversation. Generally, these face to face interviews can be expensive particularly if the interviewer has to travel some distance to meet up with the interviewee (Kothari 2004; Walliman 2017). In the instances where I had a distance barrier, I would have made use of the telephonic interview to overcome this potential challenge.

In conducting my interviews, whether telephonically or face to face, the idea was to make use of both open and closed questions. Closed questions do not provide much scope to the interviewee to give very broad responses. These type of questions are best answered by specific short answers. In contrast, open questions allow the interviewee an opportunity to provide detailed answers, responding in as much detail as they deem necessary (Walliman 2017). I preferred the open to the closed questions

because they allowed respondents to provide detailed elaboration on the topic at hand. They thus allowed respondents to give more information than what I would have asked. Unfortunately, I could not make use of the interview method as planned. As indicated earlier, the change of plan resulted from the state of emergency that emerged in South Africa following the discovery of COVID-19 in the country. The country officially entered lockdown towards the end of March as a government strategy to deal with the spread of COVID-19 or the CoronaVirus. This required the minimisation of human contact through the application of social distancing, self-isolation, and quarantine in order to minimise the spread of the virus. With schools, institutions of higher education, and a lot of the work commitments coming to a halt, I was also forced to go home to the Free State province. As a result, I was geographically displaced, thus at a distance significant from my potential interview candidates. To combat this problem, I decided to send questionnaires to the the Anatomy 315 students and professionals I would have interviewed through face to face meetings. The questionnaires were sent through making accessible a link I emailed to the respondents. I thought that was an effective alternative to the interviews. I also engaged in email exchanges with some of the respondents in order to obtain the additional information that I could not gather through the questionnaire.

Questionnaires

The questionnaire method consists of multiple questions which are drafted in a particular order on a form or a set of forms. Questionnaires are given to the respondents who are then expected to answer each question on their own. There are two types of questionnaires, namely, closed or structured and open questionnaires. A closed or structured questionnaire allows one to identify patterns and conduct comparisons (Khothari 2004). While using this form of questionnaires may result in frequencies that can be used in statistical analysis, they do limit the respondent to the given categories (Cohen *et al.* 2013). Open questionnaires, in contrast, allows respondents to have a greater ability to answer the questions asked, and they are not limited to specific categories in their responses. Therefore, open questionnaires allow respondents to qualify their answers with remarks and explanations (Cohen *et al.* 2013).

The use of questionnaires provides a number of benefits: (i) they have a relatively low cost despite geographical barriers, (ii) are free from the bias of the interviewer, (iii) allows respondents adequate time to consider their answers, and (iv) can provide a large sample for the particular study in question. There is a risk, however, in that not all informants could return the completed questionnaires, or some

responses could be ambiguous or have sections that have been omitted. In addition, using questionnaires could be a very slow method of data gathering, thus delaying the research process (Kothari 2004).

To gather the research data I used for my research project, and in addition to desktop study, I sent questionnaires to a number of other stakeholders. These were the Anatomy 315 students at the University of Pretoria and professionals in various sectors (i.e. those in the academia, museums, and Cultural Resource Management (CRM) companies specialising in grave relocations). I specifically chose to engage the Anatomy 315 students because of the course content. The module is a prerequisite for anyone who wishes to take physical anthropology in their postgraduate studies. It is a brief introduction to forensic anthropology as well as forensic archaeology. I approached the coordinator of the Anatomy 315 module for her permission to have the student questionnaire uploaded on the module's ClickUp homepage. My request was granted. This enabled, therefore, access to all students registered for the module. Through engaging students via their ClickUP page of the Anatomy 315 module, I was able to gather information on who is studying forensic archaeology, how they were introduced to the discipline, and their career aspirations as the future of the field lies in the hands of the students who are being trained to take over. There were 53 students registered for the module in 2020, and yet only 14 responded to my questionnaires. I found the ratio of respondents to number of students who were registered for ANA315 to be a little bit of concerning. However, there were credible reasons for this. With the lockdown being in effect from March, many students no longer had direct access to the university's communication platform, ClickUp. They, therefore, had no access to the link of the questionnaire which was posted on there. I had also planned to attend one of their classes to personally explain the nature of my research and ask for their participation, but the lockdown resulted in the cancellation of contact classes, and I could therefore not follow through with that plan. One also always runs the risk of not receiving responses from everyone when distributing a questionnaire online (Khothari 2004; Cohen *et al.* 2013). While I have noted the low number of students who responded to my questionnaires, I am of the view that the insights they provided were still valuable. This enabled me to compare insights gained from students with those of the academics. I was still able to make strong recommendations to conclude the research project I undertook.

Amongst the academics, I principally focused on practicing forensic anthropologists (i.e. Anatomy 715 lecturers) and archaeologists employed at museums and companies specialising in contract

archaeology. I included the forensic anthropologists because I am aware that in South Africa, they are trained in and required to have training in basic forensic archaeology. These were staff at the different university departments in the country. Questions to the academics largely focused on establishing the extent to which the skills of forensic archaeologists are used in South Africa and how the sub-discipline might have changed over the years. Of the 15 archaeology and anthropology professionals and museum staff I approached, I received feedback from nine. This means that I did not receive any feedback from six of those I had invited. One of the respondents worked at a museum. In terms of museums, I selectively chose those institutions with staff members trained in forensic archaeology or those who deal with human remains curated in these institutions. My questionnaires to professionals and museum practitioners also focused on establishing their academic training, as well as the past and ongoing use of forensic archaeology. I also wanted to explore what their views were regarding the future trajectory for the discipline.

All respondents received questionnaires through the email system in order to engage. I identified many of them through the help of my supervisor as well as a colleague who works at a CRM company. The others I had met in my previous years of studying. The expertise of the professional respondents ranged from museum staff, to academics, contract archaeologists, as well as forensic anthropologists. I did not target people of a specific expertise or gender, but anyone with a background in archaeology, physical anthropology and/or biological anthropology.

Ethical considerations

As per university regulations, the process of gathering data was approved by Ethics Committees from both the Faculty of Humanities and the Faculty of Health Sciences at the University of Pretoria. I am registered in the Department of Anthropology and Archaeology which is under the Faculty of Humanities. I further needed approval from the Faculty of Health Sciences because I was interviewing students registered for Anatomy 315 module.

As part of this ethical approval, I made use of a consent form. This allowed informants to be briefed in details on the nature of the project, know of their rights to withdraw participation at any time if they feel uncomfortable, as well as for the electronic recording of the face to face and telephonic interviews I would have conducted. Respondents would, however, have been allowed to refuse such recording devices if they so choose.

The questionnaires were reviewed by the University of Pretoria's Research Ethics Committee in both the Faculties of Humanities and Health Sciences. The purpose of these reviews was (i) in order to ensure that the respondents are protected, (ii) taking into consideration the research risks and potential benefits, (iii) how informed consent would be obtained, (iv) the viability of the research project, (v) the study design to be used, (vii) how the data would be managed as well as the manner in which privacy and confidentiality of respondents would be protected, and (viii) the overall safety of the collected data (Iltis 2017). I secured approval from both the Faculty of Humanities and the Faculty of Health Sciences at the University of Pretoria before I commenced with research activities.

Data analysis

The data I collected through the questionnaires was both qualitative and quantitative, thus warranting a mixed method approach to data analysis. Although most of the data was qualitative, where possible, the feedback was converted into quantitative data. The quantitative data allowed me to further emphasise certain aspects of my research findings. The statistical summary of the response by the different informants creates a visual reading of my research findings, thus providing a general idea on those specific questions I had asked. These were determined by a focus on the frequency of certain words in the responses received. This included responses to questions that have closed answers, such as yes and no. For instance, I tabulated the number of African students who were admitted to the Department of Anatomy at the University of Cape Town over many years, and provided numbers and percentages of various aspects of the data attained from both student and professional respondents.

With regards to analysing the qualitative data, I first noted the responses to each question individually. From this I was able to identify the main and underlying themes that came up from respondents. Overall, a total number of eight themes were identified. These were: (i) the influence of media, (ii) the conflicting relationship between religion/culture and the practice of forensic archaeology and forensic anthropology, (iii) dominance of white practitioners, (iv) the influence of apartheid on forensic archaeology and forensic anthropology, (v) limited career opportunities for trained professionals, (vi) limited knowledge about the history of forensic archaeology and forensic anthropology in South Africa, (vii) future prospects of forensic archaeology, and (viii) setting the minimum requirements for the training of forensic archaeologists and forensic anthropologists. I discuss these themes in detail in Chapter Five.

From the data I collected, I was also able to complete a gap analysis. This means that I was able to review the data I had collected and identify areas in which the South African forensic fields can expand on in future research projects. These included: (i) the possible effect the practice of forensic archaeology and forensic anthropology could have had on Apartheid, (ii) the feasibility of a forensic science school that encompasses all the aspects of the field, resulting in forensic science specialists, and (iii) the establishment of a committee by the forensic anthropological community of Southern Africa in order to regulate and accredit specialists in the field, including forensic archaeology.

Chapter 4: The People's Voices

The results presented in this chapter, as indicated in the methodology chapter, were sourced through the application of various methodological approaches. My research data was sourced from the questionnaires provided to Anatomy 315 (ANA315) students at the University of Pretoria, lecturing staff, and professionals in the country dealing with human bones. I had to adapt my methodological approach following the world-wide outbreak of the COVID-19 pandemic. As a result of lockdown in South Africa, interviews with lecturers and professionals that had originally been planned were cancelled. I thus used questionnaires for all stakeholders to source the results that are presented in this chapter. It is my considered view that findings that resulted from the use of this amended methodological approach were still adequate. Through such findings, I was still able to make informed conclusions on the various aspects of the research project I conducted. The findings from the questionnaires are presented according to the two categories of interviewees, beginning with the ANA 315 students from the University of Pretoria.

Students from the University of Pretoria

Even before the outbreak of COVID-19, I had decided to send out questionnaires to students. My view was that doing so would allow me easier access to students who normally have demanding schedules during the day attending lectures and other academic commitments such as assignments and tests. Through the use of questionnaires, my view was that I would still be able to (i) gather information on who is studying forensic archaeology, (ii) understand how they were introduced to the discipline, (iii) explore the reasoning behind their interest in the discipline, (iv) establishing what they knew about the history and development of the discipline, and (v) learning about their career aspirations as the future of the field lies in the hands of the students who are being trained to take over. Of the 53 number of students registered for the Anatomy 315 class in 2020, I received responses from 14.

To source data from the ANA 315 (Forensic Anthropology) students, I successfully sought approval from the course coordinator to upload a link on Clickup to the student questionnaire. This approach, implemented at the beginning of the semester in February 2020, was supposed to be an effective solution to access most, if not all, of the students registered for the module. However, the rate of response was extremely low. For instance, after having uploaded the link for two weeks, only one student had responded. I intervened by seeking the assistance of the course co-ordinator

to send out another reminder to all the students. This was a helpful intervention as I was able to receive seven more responses, bringing the total to eight.

As an additional plan to source more responses, I had planned to attend one of the ANA 315 contact sessions to address the class briefly. However, I had to discard this idea following the outbreak of Coronavirus which led to all academic activities at the University of Pretoria coming to a halt before I could follow through with my plan. To counter this problem, I decided to email the eight students who had already completed the questionnaire. The purpose of my email was to thank them for their responses and asked that they please forward the link to their classmates. This seems to have worked, as I was able to source six more responses to the questionnaires within few hours of having sent the email, bringing the total number of responses to 14 students.

The demographic breakdown (according to the South African racial classification system) of the student respondents was as follows: 5 (36%) Black, 5 (36%) White, 3 (21%) Indian, and 1 (7%) chose not to disclose his or her demography. All of these respondents are South African citizens. From the entire group, only 3 (21%) said that they did not have prior knowledge of forensic archaeology/anthropology before coming to university while 4 (29%) of the respondents said to have had prior exposure to forensic archaeology/anthropology before coming to university. One of the issues that can derives from the demographical analyses is the contradictions informed by cultural beliefs. African communities generally find it difficult dealing with the dead in the manner forensic archaeologists and forensic anthropologists would do.

Dealing with the dead: some contradictions

The majority of the student respondents were Black and White individuals, with five participants from each of the two racial categories. With the Black and Indian respondents, I had a total of 8 (57%) respondents who formed part of the previously disadvantaged populations. In the past, and as indicated in chapter two, South African universities had more white students enrolled in the forensic anthropology program. The reasons for this may vary from apartheid and its enforced quotas to the lack of accessibility to funding for higher education in the previously disadvantaged populations. I am also aware that Black African communities are not always comfortable working with the dead. When my parents first found out what I wanted to study, they were concerned about the repercussions of disturbing the dead. When other Black people find out about my career choice, they often ask if I have no fear at all of the dead, and whether or not I do not fear being bewitched.

I suppose that this sentiment is shared across the forensic anthropology, forensic archaeology, and archaeology fields.

As a follow up, I sent out emails to four of the Black student respondents asking them about the stance their families take with regards to them working with the dead. The one student comes from a spiritual, rather than a religious family. They believe in ancestors and witchcraft. She and her family have great concerns about what may be transferred to her from the 'human remains' should she pursue this line of work. That is the general concern from a lot of the Black people in my community as well. My family, however, continues to support my endeavours besides their concern at the beginning. The second student's family also had reservations because they believe in respecting the dead and leaving them undisturbed once they are buried. However, even with their reservations, they have grown to respect her professional choices. The third student comes from a more westernised family that has supported her chosen field of study without holding any reservations. I have not received any feedback from the fourth student as yet.

I now present the reviewed analysis of responses by the ANA 315 students. These responses were informed by a number of specific questions that informed the questionnaire: (i) who is studying forensic anthropology? (ii), what sparked your interest in forensic archaeology?, (iii) why the interest in the discipline?, (iv) what knowledge do you have about the history and development of the discipline?, and (v) career aspirations.

Who is studying ANA 315 (Forensic Anthropology)?

Currently, it appears that the group of students studying physical anthropology into third year has diversified. The group consists of individuals from more than just the White community. I was not able to note the gender profile of the respondents, but in my efforts to reach out to the Black respondents, I realised that all of them were females. Even in my Honours year (2017), three out of four students were females. Almost the entire teaching staff of the department was also composed of females, except for one male lecturer. They were all White but the department has since hired a Black male lecturer to complete the teaching team.

It is my thinking that the biggest contributor to the changes in the racial composition of students over the years has been the *Apartheid* regime. The end of the era has allowed for other, previously disadvantaged, races to enrol in courses that they previously had no access to in their designated

universities as enforced during *Apartheid*. In my Honours year (2017), three of the four students were Black, and both the Masters students at the same period were also Black.

I think that another possible factor is the shift from patriarchy in the South African context. It is now becoming common for women to be independent and not rely on men for survival. Education equips us with skills that allow us to engage in the economy and make an income in industries and positions that were previously dominated by males (Dichabe 2017). In the past, women aspired to get married and become mothers. Now, we want to make names for ourselves too. Education has become an important tool for the girl child to gain her independence, and this has led to an increase in the number of women who are continuing with education past their high school years. Other reasons for the shift in the gender demography of universities include the political changes implemented in the democratic South Africa in a bid to increase the number of women in higher education as well as the increase in the availability of research grants awarded to women (Naicker 2013).

What sparked your interest forensic archaeology?

A few things came up repeatedly when the respondents were asked what sparked their interest in the field. These included crime stories, documentaries and TV shows, school subjects, and university modules. I could relate to these responses because my own interest in forensic archaeology and anthropology was also sparked by watching crime stories, documentaries, and TV shows. In fact CSI, the American show about a team of criminologists and investigators who solved a series of cases committed by a variety of criminal masterminds, inspired me to become a forensic pathologist. However, to become a forensic pathologist, one must first become a qualified medical doctor before specialising in the field. Unfortunately, in my matric year, I was diagnosed with epilepsy. As a result of my medical condition, I could no longer further my studies in medicine. By that time, I had become a huge fan of the TV show called Bones, which centred around the life of a female forensic anthropologist named Dr Temperance 'Bones' Brennan. She solved cases by examining the skeletal remains of victims. I then figured that the best alternative field of study to pursue my interest in forensic pathology, was forensic anthropology. Indiana Jones is another character that people think of when you first mention archaeology. Dr. Henry Walton 'Indiana' Jones, Jr. is a fictional professor of archaeology. The series was first released in 1981.

The pay-to-view satellite DSTV has two channels dedicated to these types of shows, namely, channel 170 (CBS Justice) and channel 171 (Discovery ID). There was a deep sense of dissatisfaction in October 2019 from South Africans when DSTV announced that they stop the use of channel 170 (www.iol.co.za). I interpret this severe dissatisfaction as a good indication that a large number of South Africans are being exposed to the forensic science fields as a whole, even if it is only through their television screens. More so, this response was a further confirmation of the interest in forensic science in the country, which links very well with the responses I was getting from students in terms of how they were first introduced to forensic archaeology.

Why the interest in the discipline?

As far as the reasons behind students continued registration for anatomy modules until a third year level, their responses stated that it was either because it was a core module for the completion of the BSc Medical Sciences degree and to get into the Physical Anthropology Honours degree or they enjoyed or showed a genuine interest in forensic sciences. I also took the anatomy modules right up until third year level because I was 'dead set' on eventually completing my Honours in Physical Anthropology. This was motivated by my long-held interest in physical anthropology as a result of the documentaries and TV shows I had been watching over the years.

Anatomy (ANA) 122 (Human Osteology), Anatomy (ANA) 215 (Paleoanthropology), and ANA 315 (Forensic Anthropology), are modules that are taken by the BSc Medical Sciences students. All three modules form part of the core modules in first, second, and third year of study, respectively. ANA 315 is a prerequisite for ANA715 (Physical anthropology) at the University of Pretoria. Unlike most ANA 315 students, I did not obtain a BSc undergraduate degree. Instead, I obtained a BA Humanities in Anthropology and Archaeology because I had taken the Anatomy modules as extras throughout my three years of studying. This allowed me to transfer to the Health Sciences Faculty for ANA 715 in my Honours year. Entry into ANA 715 is extremely competitive. From an ANA 315 class of approximately 40 students, only two of us were registered as BA students. Both of us were successfully accepted into the Honours program.

Towards the end of the 2019 academic year, I received notice that BA students would no longer be permitted to enroll for ANA 122. The reasons put forward for this included the (i) poor performance of students, (ii) the increase in numbers of Anatomy students, and (iii) accessibility of 'human remains' in the Pretoria Bone Collection (PBC). The last group of BA students to pass

ANA 122 was in 2017, and these cohort completed ANA 315 in 2019 and were not allowed to further their studies into postgraduate levels in forensic anthropology. Therefore, none of the ANA 315 students I interviewed were from the Humanities Faculty.

What knowledge do you have about the history and development of the discipline?

As it will become evident with the professionals' responses, not much is known by the ANA 315 students about the history and development of the field of forensic archaeology. I personally attribute this to the fact such content is not included in the syllabus of any of the undergraduate Anatomy courses, or that of archaeology modules. The reason for this is because the discipline of forensic archaeology in the country is in its embryonic stages and there is very limited academic literature on the subject. I have discussed this in more detail in Chapter 2. None of the respondents knew much about the history of forensic archaeology and anthropology, although one did allude to racial divisions. I do not recall any lecture facilitating this historical content in any of my undergraduate years, or in my Honours year in 2017. The introductory lectures given had the main purpose of defining the field and outlining its principles and methodologies.

Career aspirations

Eleven (79%) of the students said that they would be interested in studying forensic archaeology/anthropology into postgrad level. Ten (71 %) of the students said that they would consider working in the field too. This decision was based mostly on the fact that they found the discipline to be intriguing. The respondents appeared to be aware of the limited employment options for forensic archaeologists and anthropologists. They saw opportunities in the South African Police Services (SAPS) - particularly the Victim Identification Centre (VIC), the academia, as well as research organisations and institutions of higher learning.

Professionals working with 'human remains'

The purpose of the interviews with professionals working in the domain of 'human remains' was to obtain information about the extent to which the field has developed over time. Not all these professionals had training in forensic archaeology. My interest in interviewing a broader range of professionals working with 'human remains' was to a have holistic overview of individuals working within what can broadly be defined as forensic archaeology. In particular, I wanted to understand a number of issues from engaging professionals active in forensic anthropology and

archaeology: (i) understanding whether their families ever expressed concerns about their chosen professional interest, (ii) finding out if there was ever a potential contradiction between their culture or regain and their professional training, (iii) understanding what could have changed within forensic anthropology since these professionals were first introduced to the discipline, (iv) questioning them on what they use their professional skills for in South Africa, (v) establishing whether these professionals are aware of the history of forensic archaeology in South Africa and the extent to which it may, or may not have been used by the apartheid government, (vi) exploring whether they have even been called up to work on cases involving the abuse of human rights, (vii) questioning whether their training in forensic archaeology, those who have it, was of significant benefit to them, (viii) understanding what they consider to be the future prospect of forensic archaeology in South Africa, and (ix) establishing how long they had been working in the field of forensic archaeology.

As mentioned earlier, these interviews with the professionals were conducted through dispensing questionnaires to 15 professionals of varying expertise. I was able to get responses from nine of the professionals, many of whom work in academia and at Cultural Resources Management (CRM) companies. Those working in CRM provide their expertise to advice infrastructural developers of how best to mitigate against identified heritage resources, which may involve previously unknown burial grounds or those identified during Phase I surveys. The respondents were recommended to me by my supervisor, who in turn referred me to more of their colleagues. A fellow Masters student who works for a CRM company also assisted me to reach an even greater number of respondents by sending out the link to the questionnaire to her colleagues as well. The demographic composition of these respondents, according to the racial classification system of South Africa, was as follows: 0 (0%) Black, nine (100%) White. I did not receive any feedback from the other groups because they did not respond to my request for their participation. I assume that the main reason for not receiving feedback from some of the respondents that I had approached was the fact that I had used their work emails to dispense the link to the questionnaire. With the COVID-19 restrictions put in place, some people did not have access to those emails. Amongst the 15 respondents I had sent the questionnaires to were two Black professionals. Eight (89%) of the respondents were South African citizens, while 1 (11%) was a Canadian citizen working in South Africa. Four (44%) are professors, one of whom has retired, and two (22%) are academic

doctors. Other respondents (32%) held Masters degrees in their specified fields of Archaeology, Biological Anthropology, Physical Anthropology, and Genetics.

Being introduced to the discipline

In contrast to the students who already knew of forensic archaeology and anthropology prior to studying at tertiary level, the majority of the professional respondents had no such knowledge. They were introduced to the disciplines as undergraduate students at their various tertiary institutions. There were two other means through which the professional respondents I interviewed were introduced to forensic archaeology and anthropology. First, there were those who were inspired to go into their profession by the Indiana Jones movies. Second some respondents indicated that it was childhood access to articles and books as well as practising professionals on the subject of forensics that encouraged them to make the choices they made regarding their tertiary training. It would seem, therefore, that forensic archaeology and forensic anthropology are much more easily known to potential students because of an increase in the television programs focused on solving many cases involving murder and the like.

What did you study at university/college?

The professional respondents I engaged in my research project come from varying academic backgrounds. Most have undergraduate degrees in Archaeology and Social Anthropology from the University of Cape Town (UCT), the University of Stellenbosch (US), the University of South Africa (UNISA), University of the Witwatersrand (Wits), as well as the University of Pretoria (UP). They also have qualifications in History, Palaeontology, Palaeobotany, Bioarchaeology, Ancient Cultures, Zoology, Criminology, Biological Anthropology, Ancient DNA, and Medicine. Every single one of the respondents has a postgraduate degree of some sort. Only two of the respondents, Respondent B and Respondent E, obtained some of their qualifications abroad. They both studied in Canada before coming back to work in South Africa.

How long have you been in the forensic archaeology industry?

Respondent B and F have been practicing in the industry the longest. They have been active in the field of forensic archaeology for approximately 25 years and 30 years respectively. Both respondents are in academia and their responsibilities change between those of lecturing, research, and CRM work in both the sub-fields of forensic archaeology and forensic anthropology. The other

respondents are relatively new to the forensic industry with experience varying between four to fifteen years. As it shall be evident when reviewing the nature of responsibilities these respondents generally have, their employment covers a variety of aspects, ranging from academic (teaching and research), curation at museums, and contract archaeology. The majority of the respondents work in the academia.

What does your job entail?

Those in academia have a variety of responsibilities. First, to impart their knowledge through lecturing using various modes, such as oral presentations and field schools. Second, through constantly undertaking research and supervision of postgraduate research projects. Third, through hosting collaborative projects with stakeholders such as the SAPS, the aim being the investigation of forensic cases. Those working in museums are normally archaeologists who are employed for research, curation, the upkeep and maintenance of the stuff in the museums. Five (56%) of the respondents are or were employed in academia, two (22%) in museums, and the other two (22%) by Cultural Resource Management (CRM) companies.

Six of the respondents I engaged with are employed in academia, museums, and also conduct Heritage Impact Assessments for various clientele. These are Respondents, A, B, C, E, F, and H. Two respondents (Respondents A and C), amongst other responsibilities they have, work for museums. Respondent A is involved in research and the coordination of research projects in the Northern Cape. The specific areas of responsibilities include, amongst others, conservation of collections and sites, outreach in terms of displays, education (i.e. lecturing at Sol Plaatje University, SPU), and developing archaeological sites for public presentation (i.e. Wildebeest Kuil Rock Art Centre). Respondent A has also conducted Heritage Impact Assessment reports for a number of developers. Respondent B works for an academic institution and is engaged with various research activities. Respondent C is the curator of archaeology and physical anthropology collections at a national museum and is therefore the custodian of these collections. He is responsible for taking care of them, providing access to them, conducting research, providing education, developing exhibitions, and returning them to descendant communities (if required to do so). Also involved with teaching is Respondent E. Besides teaching, Respondent E is also active in research, and administration. Respondent F is a senior academic who is involved in management, research and teaching. He also actively does forensic anthropological case work and

research involving skeletons (forensic and archaeological). Respondent H is the fifth informant who also conducts a lot of work in Heritage Impact Assessments, while also involved in grave exhumations and relocations.

The remaining informant, Respondent G, is responsible for a number of specific tasks. Amongst these are safeguarding of archaeological 'human remains' (not from forensic contexts as these fall under SAPS jurisdiction), drafting policy on how to manage these human remains, engaging communities on best ethical practice in the management of human remains. In addition, Respondent G engages with national and international bodies on policy and best practice.

Do you consider yourself as an archaeologist or an anthropologist?

Of the responses I received, I had someone, Respondent F, who considered themselves to be both an archaeologist and an anthropologist, but neither a forensic archaeologist nor forensic anthropologist. The respondent justified this by saying he shares the same views as Ingold who sees archaeology as part of anthropology. Adding further, the respondent said "both as being a study of an inclusive 'us', and thus reject any connotations of anthropology being a study of 'others'/colonial peoples" (although these conceptions have been part of its history). I had five respondents, Respondents D, E, G, H and I, who identified themselves as archaeologists, one of whom is also formally trained in forensic anthropology. I further had one physical anthropologist (Respondent C) and two biological anthropologists (Respondents A and B). Generally, no one considered themselves to be a forensic archaeologist specifically, although some were trained in the necessary techniques and methodologies. I think that the greatest contributor to this is the fact that the discipline is in its development stages in the country and not many people are aware that it can exist as a career path independent from forensic anthropology.

What in your opinion differentiates anthropology from archaeology?

There were a number of views expressed regarding what differentiates anthropology from archaeology. To ensure that the meaning of each opinion expressed by a particular respondent is not lost, I decided to present the views per each informant. Where possible, I provide the quoted wording as expressed by the specific respondent.

Respondent A primarily views archaeology as "the study of the material traces of past human life" including the recent past (thus encompassing forensic archaeology). The same respondent

considers social anthropology as a field that deals with the living people that also engage with materials. With these two definitions, the respondent believes that the two fields of study overlap. The respondent defined forensic anthropology as a field of study that is grounded in the anatomy (as with physical anthropology) of living humans "with the knowledge of taphonomy and site formation being major areas of overlap with archaeology."

Respondent B defines an archaeologist as someone who studies the cultural and social aspects of living cultures, populations or ethnic groups. The respondent says archaeology is "study the material remains and past environments of ancient human societies to reconstruct human behaviour in the past and to objectively illuminate the behaviour and identity of prehistoric communities as a way of defining our sense of identity in the world." Respondent B further defines palaeoanthropology and physical anthropology as "stricter definitions referring to the biological study of human evolution or forensic anthropology (odontology osteology and DNA analysis), respectively."

For respondent C, there is not much of a difference between the two fields. The respondent reckons that it is dependent on the research questions that need to be answered. "If these questions are based in archaeological theory and discourse, then they are archaeological no matter what discipline you draw on. Likewise, anthropological theory may drive anthropological investigations. In terms of physical anthropology." The respondent finds that anthropology can lend itself to answer a myriad of archaeological questions.

Respondent D, who is qualified in both archaeology and physical anthropology, defines a physical anthropologist as "a specialist who works on the human body in one form or other." The respondent indicates that while the domain of the archaeologist is the context of the human remains, the human remains serve as the primary data for the physical anthropologist.

An archaeologist, according to Respondent E, is trained in the recovery and interpretation of material culture of past human societies. Biological anthropologists on the other hand, study the biological remains of past people, this can be their bone, teeth, and genes. As opposed to the former, the human remains are the subject of the study for the latter. The respondent however

believes that both archaeology and biological anthropology work to better understand populations and their ways of life.

Respondent F simply believes that working with biological human variation often in the form of skeletons, is what differentiates biological anthropologist from archaeologists who work with culture and physical evidence of past life ways.

Respondent G defines forensic archaeology in the context of my research project as a discipline with a focus on the retrieval of human remains or evidence pertaining to a crime using archaeological method and theory. However, the respondent mentions another subfield of archaeology, called bioarchaeology, which also deals with human remains and understanding these remains within their archaeological contexts. This is something different to forensic archaeology, but is often used to denote the same thing. She defines the context of forensic/ physical with a focus on the actual human remains (in all its forms e.g. mummified, cremated, skeletonised etc.) and what can be learned from these remains in terms of the deceased's biological profile (age, sex, stature) as well as possible insights into how the individual lived and died (activity patterns, diet, disease, trauma etc.)

Respondent H believes that the differences lie in that the archaeologist studies material remains while a social anthropologist normally studies the actual people through ethnographies. The biological anthropologist studies human remains.

Respondent I considers archaeology as a standalone profession that requires plenty of research with minimal human interference, while anthropology relies heavily on the human factor together with cultural and traditional factors to guide you in the research study that is being undertaken.

The general consensus from the respondents is that the forensic archaeologist is responsible for the recovery of the human remains found at any crime scene as well as the supporting evidence. The forensic anthropologist is responsible for the analysis of the recovered remains. Forensic anthropologists are often trained in archaeological search and recovery methods, but the forensic archaeologists are not usually trained in the forensic anthropology processes. The two fields of study tend to borrow from one another and often work hand in hand.

Do you find yourself applying any of the archaeological principles to anthropology, or vice versa? Are you trained to do so? Also, how often does this happen?

Respondent A, who is not trained as a physical or forensic anthropologist, has undertaken some work in rescuing development-impacted human remains. This was done in the capacity of being an archaeologist. In these cases, physical anthropologists have formed part of the bigger team. The job of the forensic anthropologist primarily focuses on the analysis of the recovered skeletal human remains and compilation of a biological profile if the remains are those of unknown individuals.

As archaeologists, half of the respondents are trained to apply archaeological principles to the identification and recovery of osteological human remains and have been employed in this capacity in forensic/physical anthropology cases by SAPS, should they be contracted to do so.

The physical anthropologists find themselves applying archaeological techniques in the recovery of human remains. They emphasise the importance of archaeological context to understanding forensic information and have been trained in archaeological techniques and analysis. Like the physical anthropologists, the biological anthropologists are also trained in archaeological principles, especially excavation techniques.

Respondent G works as a consultant to the SAPS in the recovery of human remains from forensic contexts, and is constantly making use of archaeological principles in the workplace. The respondent works in both the anthropology and archaeology fields and finds that the two are both used constantly as they support one another.

The professionals do sometimes find themselves applying archaeological principles to anthropology, especially those working in CRM companies and with the SAPS and the VIC. Cases may be few and far between, or rather the need for the specialists in the investigation of the cases and the recovery of the remains and corresponding evidence. As a result, it may appear that the two disciplines seldom borrow techniques and methodologies from one another. I think that this is based more on the frequency of the cases that the professionals are called to assist with. If they were presented with more cases, the answers to this question would be a little different. However, those working solely with SAPS and VIC, will have a higher frequency of instances where they borrow principles from one discipline or the other.

How often do you use your forensic archaeology skills?

For the majority of respondents, forensic archaeology is not a skill they use regularly. Some have rarely used the skill set while one respondent has never used this training. For instance, Respondent E uses his forensic archaeology skill set 12 to 15 times a year and supervises several research projects in the area of forensic taphonomy. Similarly, Respondent A seldom uses his acquired forensic archaeology skills. In contrast, Respondent F has, in the past few years, never used his set of skills. While Respondent C also does not use his skill set regularly, he is more hopeful that there will be a need for the application of certain aspects of the discipline of forensic archaeology in his line of work when dealing with repatriations and reburials. Only three respondents, Respondents B and H, uses their skills more regularly. Respondent B uses his skills more in his teaching responsibilities. This is particularly so when delivering lectures on the evolution of early *Homo* and occasionally when assisting SAPS with the identification of potential human or animal skeletal remains. Respondent H uses the skill set from forensic archaeology regularly because she does grave relocations as a contract archaeologist. Respondent G uses forensic archaeology every single time she does some contract archaeology work. It is not clear how often this happens.

Were forensic archaeology and forensic anthropology in separate departments or faculties at the institution at which you studied? Why do you think this is?

In the 1980s, neither of the two subjects was formally taught in South Africa, nor were they available in early 2000s. This shows how recent the development of the physical anthropology and biological anthropology departments is in the country. Physical anthropology at UCT was in the anatomy department of the Medical School when one of the respondents was a student at the institution, and remains so today. At UP, social anthropology and archaeology are in the Faculty of Humanities, while physical anthropology was in the Faculty of Health Sciences. This has also remained so over the years.

As far as one respondent is concerned, forensic anthropology has always been presented at a more specialised level in medical schools in South Africa. On the contrary, in archaeological departments, forensic anthropology is always included as part of archaezoological training with a focus on osteological identification and interpretation. It is important, however, to remember that on the undergraduate level, archaeology and anthropology are not always separated. The two disciplines both fall under the same department in the Faculties of Humanities at UP and UNISA.

At Wits, archaeology is found in the Faculty of Science and anthropology within the Faculty of Humanities. The UCT offers archaeology as a major in both their Faculties of Humanities and Science. Similarly to other academic institutions of higher learning in the country, anthropology at UCT is offered under the Faculty of Humanities.

Forensic archaeology, forensic anthropology and forensic taphonomy have always, in South Africa, been done through the Departments of Anatomy. The status quo remains. The main reason why forensic archaeology and forensic anthropology are split between two faculties today is the fact that for forensic archaeology and forensic anthropology you would need to have knowledge of human osteology. For this reason, you ideally need access to donated individuals' skeletal remains. These are by law (Human Tissues Act and National Health Act) only allowed to be stored at medical schools. Forensic archaeology and physical/forensic anthropology are both applied sciences. Another important fact to remember is that forensic archaeology is not offered as an independent course at any institution of higher education in South Africa, but rather, as a subsection of Physical anthropology and Biological anthropology.

Do you think one can separate forensic anthropology from forensic archaeology in South Africa?

Of the nine informants interviewed, four Respondents (E, F, G, and H), are of the view that the two fields can be separated in the South African context. Having had a ‘taste’ of both disciplines, I agree with them. The one (forensic anthropology) cannot complete its duties without the expertise of the other (forensic archaeology). According to the respondents, the two disciplines have already been separated, even though the individuals in each one have connected across the disciplinary divides. Archaeology has a variety of specialisations (such as archaeozoology) and the trend is for research projects to include teams that encompass a range of specialists around the questions at hand. Wits archaeology has already made the distinction between the two disciplines. Even though forensic archaeologists require a basic knowledge of human osteology, a cross-faculty course could be developed to facilitate learning of both osteology and archaeology.

The respondents pointed out that physical anthropology is more associated with forensic sciences used in solving homicides, while forensic archaeology is more aligned with academic studies that focus on ancient human behaviour and/or human evolution. It was emphasised that forensic

archaeology should specifically be applied to archaeological contexts and strictly for the purpose of identifying human skeletal remains for anatomical, anthropological and genetic studies.

The amount of work in burial removal, repatriation and restitution in the future, would make it beneficial to have a fully trained forensic archaeologist, or two. There is also growing need for the discipline of forensic archaeology in the construction industry. The increase in development and burial ground disturbance is a factor that must also be considered. Although important, this may not necessarily be of a forensic nature. The two disciplines can be separated depending on the purpose of the separation. The separation will work if it is for job creation as well as for academic purposes.

There is also the idea that although currently separated, in an ideal world, the two disciplines should not be. While forensic anthropology has always been, and continues to be, taught via anatomy and forensic medicine, archaeological field methods are only incidentally and briefly taught. The two disciplines appear to be drawing closer to one another.

Do you think that the two fields should be separated?

The two disciplines should be separated for the purpose of catering for different expertise and bodies of knowledge, as well as for practical reasons such as "not having cadavers stored in the corner of an archaeological store room." With that said, mechanisms should be put in place to bridge and allow the two disciplines to connect as one sometimes works across both.

In instances where archaeology is presented as a BSc qualification, and not a BA, it may be to the advantage of the student to be exposed to physical anthropology as a topic that is presented through an accredited medical school for the purpose of identifying human skeletal remains in an archaeological context. Someone actually suggested that the institutions that offer courses in the two disciplines should encourage students to take both.

Anthropologists do not always have the mandatory archaeological skills to secure and retain archaeological context at the given site. In past experiences, there have been many cases where an archaeologist is evidently required but is absent, the skeleton was just removed with the primary aim of securing the bones instead of the integrity of the site.

On the other hand, there are currently no opportunities for the two disciplines to be taught as a unified topic in South Africa. A possible solution to this problem would be the creation of a Department of Forensic Sciences where all these forensic topics are taught in an applied sense. Should it prevail, the graduates from this department would not be deemed forensic archaeologists or forensic anthropologists but rather just forensic specialists.

There is also the notion that the two fields should be separated as they complement one another. However, as the focus of each is often very specific (forensic anthropology would focus more on the biological profile, whereas forensic archaeology would focus more on the retrieval of remains using archaeological principles) they can be practiced separately.

Did you receive your Forensic Archaeology training in South Africa?

A number of respondents have not received formal training in forensic archaeology. Instead, their participation in forensic archaeology has been based on practical experience they are received over the years while actively involved in the field. As a result, Respondent A emphasises that he does not consider himself a forensic archaeologist, and did not receive any formal training. However, he did learn through paying attention to material traces in his line of work. Respondent C also received no formal training in forensics, neither did Respondent I. His knowledge on the matter is an incidental result of skeletal biology done in assisting the police in the investigation of skeletonised remains (refer to Morris 2011, Missing and Murdered). The four other respondents did receive some form of training in forensic archaeology. Respondent B received his training in forensic archaeology in his postgraduate level at both the University of Stellenbosch as well as at the Duke University Medical School. Similarly, Respondents D, E, F, G and H have all received some kind of training in forensic archaeology while completing their postgraduate qualifications at their various institutions.

I find that the older respondents received their forensic archaeology training through experience in the workplace, while the younger professionals were fortunate enough to be able to be introduced to the discipline through tertiary education. The obvious reason for this is because forensic anthropology and forensic archaeology were not, as indicated earlier, taught at the universities in the past.

Does your institution still offer that academic program? If not, do you know why they stopped?

Based on all the responses received, UCT still offers both Anthropology and Archaeology at the undergraduate level. And they still offer a forensic focus at the postgraduate level. In fact, their Human Biology Department has apparently, over the years, developed a short course in forensic archaeology at the Honours level. Although no forensic archaeology was offered at Wits in the past, their program has recently expanded. The institution now offers Forensic Archaeology as a branch of Anatomy. It is also offered in a lesser research intensity at Forensic Medicine, as an introductory course. The Department of Archaeology at the University of Stellenbosch (US) closed down in 1999 following the retirement of the only Head the department ever had (Ndlovu & Smith 2019).

Which other institutions do you know of that offer the academic program?

The respondents list the Wits, UP, UCT, University of the Free State as well as the University of the Western Cape as the institutions that offer forensic archaeology as an academic program. Of these academic institutions mentioned by the respondents I engaged with, Wits, UP, and UCT have highly acclaimed medical schools that offer either physical anthropology or physical anthropology as postgraduate courses. I am not aware and could not find evidence that the University of the Free State as well as the University of the Western Cape offer any of the two courses even though they are mentioned by respondents. A developing Heritage and Archaeology program at the Sol Plaatjie University (SPU) in Kimberley is considered to provide an opportunity for the introduction of a forensic element in their postgraduate studies. This has not yet happened, as the university is still in its infancy and their degree program in archaeology was only approved recently by the South African Qualifications Authority.

What are the minimum requirements to practice in forensic archaeology?

It does not appear that there is a set requirement to practice forensic archaeology South Africa. It is possible that the reason behind this is the fact that the field is in its embryonic stages. The responses received suggested that a Master's degree with specialist training could suffice, perhaps coupled with 5 years' experience in the discipline. Respondent E was of the opinion that a PhD would be better preferred to a Masters qualification. Knowledge of human osteology, archaeological excavation techniques and the criminal legal system of the country were also

highlighted as important requirements. The importance of being registered with a professional association as an archaeologist or an anthropologist was also mentioned.

Although there are currently no formal minimum requirements for the field of forensic archaeology, Respondent F thinks that should they exist. This respondent further argued that the minimum requirements should be the same as any other form of archaeology. According to the Association of Southern African Professional Archaeologists (ASAPA), the minimum requirement for an archaeology-trained graduate is an Honours degree. To provide for a professional structure, the Forensic Anthropology community in Southern Africa are currently setting up a committee that would regulate and accredit specialist in the field. This will include forensic archaeology.

What do you know about the history of forensic archaeology in South Africa?

The discipline has a shallow time depth because it is in its early stages of development, especially in South Africa. The use of conventional archaeological methods in forensics is in all probability less than 20 years old. It has however come into its own in relation to the investigation of Apartheid crimes, with some notability in other criminal cases.

Not know much is known about the history of forensic archaeology, except that it may, in terms of scientific research, have been carried out with the use of unethical methods in the past. Units at UP and UCT have both dabbled with modern and archaeological forensic work. Respondent E and F are both very knowledgeable about the discipline. In fact, the latter was intimately involved with developing the field along with the forensic anthropology, which is his main field of work and study. Respondent G thought it necessary to distinguish between forensic archaeology and forensic anthropology, stating that both were practiced. However, forensic anthropology was more formalised. Forensic anthropology has a dark and sad history during the apartheid era. In that era, physical anthropologists (forensic) would use physical attributes to discriminate and dehumanise those that were oppressed. This practice has since been eradicated and research has followed strict ethical guidelines that conform to promote human dignity and justice. Forensic archaeology has not been used that extensively in South Africa during apartheid. Legislation requiring the protection of heritage (including human remains) was not yet in place and as such much of what was done back then was not necessarily done by accredited archaeologists.

I think that the general lack of knowledge about the discipline is a clear indication of how limited the academic literature is on the field. The lack of literature can be attributed to the short historical timeline that the field has since its inception, as well as the limited number of practitioners in the discipline. I also don't recall being given a lecture or lesson on the history of the discipline. The week-long field school I attended in 2017 only served to define the discipline as well as outline its basic principles and methodologies.

Do you think forensic archaeologists/anthropologists could have been used in apartheid? If so, what impact could they have had?

It is possible that some sort of applied anthropology may have been used in the same or similar manner in which '*volkekunde* 'was definitely used as stronghold for the apartheid ideology as well as the tribalism that abetted separate development. It has been learnt through recent research that the forensic work conducted by the Truth and Reconciliation Commission (TRC) has shown falsification of documents through forensic archaeological work.

A number of archaeological studies conducted in the first half of the 20th century give the impression that human remains were, at times, collected and studied under unethical conditions. It also suggests that they were used to produce racially-oriented and racially biased research.

I think that something that is important to note here is that *Apartheid* was implemented before the rise of forensic archaeology and forensic anthropology in South Africa. The two disciplines would have fallen under Forensic Medicine in the 1950s and 1960s and the practitioners of the two would have been forensic pathologists. The forensic pathologists were not trained in the necessary methodology at all. There are video clips from as recently as the early 2000s showing forensic pathologists simply pulling bones up from the ground with their hands. This goes to prove that forensic archaeology could not have been used by the *Apartheid* government.

What is forensic archaeology presently used for in South Africa?

Based on the responses from the informants, forensic archaeology in South Africa is currently being used for a wide range of purposes. These range from (i) criminal investigations, (ii) tracing missing persons who were victims of crimes by the state, (iii) determination of the nature of crimes in question, (iv) ensuring complete body recovery and all evidence from scene, (v) human

evolution studies, (vi) anatomical studies, (vii) anthropological studies, (viii) genetic studies, (ix) to provide information on health and diseases, diet, social practices, and migration, (x) grave relocation, (xi) grave identification, (xii) Environmental Impact Assessments (EIA), (xiii) assist the Red Cross with the recovery of missing persons within and outside of SA borders, as well as the (xiv) retrieval of remains of individuals that died during natural disasters.

Have you ever been called in to work on cases of human rights abuses?

Only two of the respondents have been called to work on cases of human rights abuses, Respondents D and F. The former, Respondent D, has worked with the Missing Persons Task Force of the NPA as well as historical cases such as those of Sarah Baartman and Hintsa. Respondent F did not divulge much on the matter.

Respondent A mentioned that he has been involved as an archaeologist in the investigation of the accidental disturbance of human remains from unmarked graves which provided evidence of what could be referred to as human rights abuses in the past (structural violence). For example, the abuse against late 19th century migrant workers in the mining contexts.

Have you ever worked or provided your skills to a company specialising in contract archaeology?

Only five of the respondents have worked with companies that specialise in contract archaeology. Respondent A has carried out some CRM work, Respondent C has worked in cases of grave relocations, and Respondent D has written and completed skeletal reports for archaeologists doing contract work. The other respondent who has been involved in contract archaeology is Respondent F. Respondent G works for a CRM company and her main responsibilities include grave relocations and the completion of Environmental Impact Assessments (EIAs).

Do your family and community have any reservations about your profession?

The only respondents whose family or community has any reservations about their profession are Respondents C and G. Some of Respondent C's family members are very religious. As a result, they do not like that the respondent works with the dead. They also do not appreciate that he thinks that some things are older than what is dictated by the scripture.

For many, dealing with the dead is regarded as taboo and very few understand the importance of what needs to be done. Respondent G believes that this may in part be because in popular

perception those that work with the dead do it because of a morbid curiosity. Popular culture instilled by television programs such as Bones and CSI often dehumanise the victims, reducing them to mere objects also known as 'bones'. Being a diverse country with diverse cultural practices, it is important to stay humble and to respect, not only the deceased's cultural/religious wishes, but also those of families they leave behind

Respondent D does however point out an interesting anomaly. There is am extremely interest in forensic work that is connected to crime and current cases, however, the same methods are not accepted if/ when they are applied in a historical context. Although the kinds of analyses are exactly the same, the main difference lies in the political context.

Does your culture or religion affect your practice in any manner?

None of the respondents are affected by their religion or culture. It appears that the professionals have been able to separate their religious beliefs from their work as they knew what they were getting themselves into when they chose to get into their line of work. I think that the reason none of the respondents were affected by culture is because the respondents were all white. I think I would have had a different response form a black individual.

How has your training, if you have it, in forensic archaeology been of benefit to you?

As a Quaternary palaeontologist, forensic archaeology has not been very beneficial to Respondent B since his research does not focus on physical anthropological issues. However, for those working with CRM companies and SAPS, the acquired skillset has become extremely beneficial as their jobs depend on it for thorough and effective recovery and investigation to occur.

What do you consider to be the future prospect of forensic archaeology?

Forensic archaeology is a skill set in archaeology/ anthropology that can assist in criminal investigations. The SAPS has such skill sets amongst their personnel, but it is often abysmal. A few archaeologists and anthropologists have witnessed evidence being destroyed right before their eyes. There is a massive demand for forensic anthropology and that should therefore extend into forensic archaeology too.

With proper legislation governing the scientific research on human remains, South Africa can establish an appropriate means to correct the wrongs of the past. This will also allow for the

identification of possible descendant communities and gaining of a deeper understanding of past lives and knowledge systems. In turn, this will result in mutual respect and also facilitate nation building. Forensic archaeologists may, in the future, ultimately be sought after specialists in identification, relocation and repatriation, especially when disputes and mediation requirements arise.

The discipline will have a future in South Africa if it (i) encompasses forensic anthropology as a whole (ii) if government recognises its value and creates employment opportunities in the Victim Identification Centre (VIC) and the Forensic Pathology Services (FPS). If government changes the legislation in order to enforce the need for forensic anthropologists and proper forensic scene recovery, the future prospects mentioned above can be recognised and brought to life.

Some of the respondents are however, uncertain about the future prospects of the discipline. There have been previous attempts to bring the discipline into the mainstream for years, but they have not been as successful as they were with forensic anthropology. It is difficult to make this successful when the country's resources are so limited. As a potential essential service, forensic archaeology but will continue to grow slowly in South Africa until the standards of the industry are improved and the economy grows.

What forensic archaeology data do you curate?

The respondents (D, E, F And G) curate a couple of collections between them, for various purposes too. There are records relating to the salvaging excavations where human remains had been accidentally disturbed. Forensic issues of archaeological excavations arise when looking into the history and information on the unethically collected human remains from the Colonial era. The Matjies River Archaeological Collection is curated by one of the respondents. The physical anthropologists also curate the skeletal reports that they complete in their work with SAPS.

How did the institution acquire this data?

Some of the data data that is being curated was acquired through salvage, excavations, research and CRM work. Salvage means that the curated data or material was rescued from potential destruction or from getting lost. When conducting excavations for the purpose of research one needs to curate your findings in order to be able to go back for analyses yourself, or for the next

person who wishes to look through your findings. Excavations are mostly done for archaeological purposes or as part of CRM work.

How many interns does the museum have employed in this field?

There appears to be a general absence of formal interns at museums; there are none for forensic archaeology. The main reason for this is because access to provincial funding has been limited and continues to be on the decline. Since 2008, posts for qualified personnel have become unfunded when they are vacated. Museum staff structures are shrinking, numbers of personnel are declining and opportunities are also becoming limited. People working at the museums do wish that they could get a few interns into the system to assist them. One of the respondents has actually started a volunteer program for students who wish to gain some form of experience in the fields of forensic archaeology and forensic anthropology.

Conclusion

This chapter has allowed us to hear the voices of those safeguarding the future of the forensic archaeology discipline in South Africa. I was able to find out who are the people currently studying forensic archaeology and whether or not they are interested in possibly staying and working in the discipline. I was also able to identify recurring issues within the discipline, and the shortfalls that could be hindering its development within the country. The respondents also provided solutions to the aforementioned issues. Insight was given into the current uses of forensic archaeology in the country, as well as its future prospects. Through the responses of the student and professional participants, I was able to identify eight underlying themes and three areas in which South African forensic archaeology could possibly expand. The Underlying themes are discussed thoroughly in Chapter Five, while the recommendations have been discussed in Chapter Six.

Chapter 5: 'Unearthing 'the insights from the study participants

The main aim of this chapter is to present the discussion on the results that I presented in the previous chapter. My discussion is informed by the research questions that provided the scope of the study. As a result, I will discuss the eight emerging themes that were identified in chapter 4 where I presented the results from my research project. These are: (i) the influence of media, (ii) the conflicting relationship between religion/culture and the practice of forensic archaeology and forensic anthropology, (iii) dominance of white practitioners, (iv) the influence of apartheid on forensic archaeology and forensic anthropology, (v) limited career opportunities for trained professionals, (vi) limited knowledge about the history of forensic archaeology and forensic anthropology in South Africa, (vii) future prospects of forensic archaeology, and (viii) setting the minimum requirements for the training of forensic archaeologists and forensic anthropologists. I discuss these themes in details below.

The influence of media (television shows and documentaries) in creating an interest in the fields of forensic sciences

For many students, myself included, an interest in the field of forensic science was initially sparked through watching television (TV) shows as a child. My interest in forensic archaeology and anthropology was also sparked by watching crime shows and documentaries. As mentioned earlier, CSI, the American show about a team of criminologists and investigators who solved a series of cases committed by a variety of criminal masterminds, inspired me to become a forensic pathologist. However, to become a forensic pathologist, one must first become a qualified medical doctor before specialising in the forensics. Unfortunately, in my matric year, I was diagnosed with epilepsy and as a result, it was no longer an ideal option for me to further my studies in medicine. By that time, I had become a huge fan of the TV show called Bones. Bones is a TV show centering around the life of a female forensic anthropologist named Dr. Temperance 'Bones' Brennan who solves cases by examining the skeletal remains of victims. Indiana Jones is another character that people think of when you first mention archaeology. Dr. Henry Walton 'Indiana' Jones, Jr. is a fictional professor of archaeology. The series was first released in 1981. Overtime, the initial Indiana Jones view of archaeology and anthropology has changed into that of 'Bones' and 'CSI' (Mires & Scott 2019).

DSTV has two channels dedicated to these type of shows, namely, channel 170 (CBS Justice) and channel 171 (Discovery ID). South Africans were left fuming when DSTV announced that they would be removing channel 170 in October 2019 (www.iol.co.za 2019). The strong reaction by the public against that decision is a good indication that a large number of South Africans are being exposed to the forensic science fields as a whole, even if it is only through their television screens.

Although it is great that these television shows create an interest in the field, as well as give an insight into how the day to day lives of forensic investigators go, it is worth mentioning that the job is often glamorised in these shows. As Respondent G pointed out, the shows tend to dehumanize 'human remains' and simply depict them as objects such as 'bones'. Articles have also been published all over the world where professionals discuss the misconception created in these shows. This misconception is known as 'the CSI Effect' (Heinrick 2006; Jones & Bangert 2006; Mitrokostas 2019).

Heinrick (2006: 59) defines the CSI effect as "a phenomenon where television "educated" jurors are more likely to not convict someone who is guilty because procedures and techniques they observed from the fictional television show were not applied in the case." I think that the principle can also be applied to other things that the shows may impact. This will include the changes in the gender demography of the forensic and scientific fields, misconceptions of crime scene investigation, as well as the corresponding processes used in the investigations.

The CSI effect is, however, credited for the increase in the number of female professionals in the forensic and scientific fields. Television shows such as CSI, Bones, and Jordan Crossing were the first to depict women at the forefront of investigations, giving equal representation of males and females in the workplace. The increase in the visibility of women in the same positions as men in the workplace has resulted in an increase in the influx of females in the universities in a bid to obtain qualifications for the workplace (Jones & Bangert 2006).

Access to crime scenes is not as easy it appears to be on TV, and it is not always the same one or two people solving cases. In fact, although detectives are present at crime scenes, they are not involved in the analysis of the human remains in the laboratories. Everyone who accesses crime scenes is also logged upon their arrival as well as their departure. It takes a team of different specialists to solve crimes. Investigations also take a lot longer than depicted on the shows, ranging from weeks to years (Mitrokostas 2019).

Going into physical anthropology, I had high expectations for the level of technological advancement within the laboratory. However, most real-life police departments aren't actually working with the cutting-edge technology one sees on TV (Mitroskas 2019). This is particularly the case in developing countries like South Africa. I learned this very quickly when I started my Honours year. A lot of forensic anthropology work is hands-on measurement using calipers and other measuring devices.

In real life, professionals can actually be affected by the work that they do, whether emotionally or psychologically (Mitrokostas 2019). One of my Honours supervisors once told us about a dream that she had had in the past. After completing about 120 macerations in a short period of time, she was exhausted, and perhaps a little traumatised. She dreamt that she was in the laboratory and had prepared everything she needed for maceration. The boiler was on, the chemicals were in place and the only thing missing was the body that needed to be macerated. Instead of fetching the body, she approached the boiler and used a ladder to get herself into it, closing the lid on herself. She shared her experience with us in a bid to highlight the importance of occasionally seeing a professional in order to deal with the traumas that we will be faced with in that line of work. These are experiences not reflected in the same media that has attracted so many other students into the disciplines of forensic archaeology and forensic anthropology.

Conflicting relationship between religion/culture and the practice of forensic archaeology and forensic anthropology

In my engagement with informants, they revealed challenges they faced because of careers they had chosen. This is because their professional training was considered to be in conflict with religion and culture, and thus was particularly emphasised by the Black African interviewees. In highlighting the conflicting relationship between religion/culture and the practice of forensic archaeology and forensic anthropology, one of the respondents pointed out that her family was opposed to her line of work because it contradicted the beliefs of their religion. As Christians, they believe that there is a specific timeline for the chain of events that resulted in life as we know it. The findings of bioanthropology and archaeology tend to contradict these beliefs. Science has established a timeline that contradicts the beliefs of some religions where the beginning of life is concerned. Some human and material remains have been dated to before the Christian calendar. In my culture, we do not believe in disturbing the dead. Ancestors play an important role in the lives of many Black South Africans. While there is scope

for an increase in the number of Africans entering forensic archaeology and forensic anthropology, they are still in the minority.

The dominance of white practitioners and the increase in the number of Black, Coloured and Indian students post 1994

I discussed, in chapter 2, the demography of South African universities during the *Apartheid* era. At the time, government imposed restrictions on who could study where, and set quotas for non-white students who were allowed to study at the white universities. Strong motivation had to be provided, indicating that their preferred courses were not being offered at the designated institutions set aside for Africans. For example, archaeology was only offered at white universities until University of Fort Hare began offering the discipline, thus becoming the first university established for Africans to teach the course. Since then, the course has also been offered at the University of Venda (Ndlovu & Smith 2019).

As discovered from the interviews, there were institutions which did not immediately implement the quotas proposed by the state. Amongst these were the University of the Witwatersrand, the University of Cape Town and Rhodes University. The other, more Afrikaans institutions immediately made the transition and implemented the proposed quotas. This lasted until the end of the *Apartheid* administration. Since then, and as also evidenced by the impact of media, there has been an increase in the number of students of previously disadvantaged races enrolling in university courses in general. While there has been an increase in the number of Africans entering forensics, their representation in the disciplines is still meager compared to that of their white compatriots.

I think that the reason the discipline is currently dominated by white individuals is because they have had opportunities awarded to them in the past. The African population is still working its way up the ranks. Should the industry expand, I think that we will be able to see more people of other races emerging in the discipline. In my Honours year (2017), all the post graduate students completing their Honours and those registered for the Master's degree were Black, bar one Honours student. As an indication of the increasing numbers of African students entering the discipline post-1994, one of the white student respondents mentioned that they would not be pursuing a career in forensic archaeology. The decision was informed by what the student perceived to be limited job opportunities in the field. This was excarcebated by what the student considered to be an employment policy favouring non-

white students because of Black Economic Empowerment (BEE). This is an initiative aimed at providing opportunities to those who were disadvantaged during Apartheid, thus ultimately trying to correct the wrongs of the past. The discipline of forensic archaeology has thus been affected by the racially-defined policies of Apartheid.

The influence of Apartheid on forensic archaeology and forensic anthropology

The topic of race in South Africa from a biological anthropology standpoint is not really taught in the university modules. I for one knew nothing about '*volkekunde*' until I started conducting research for the literature review chapter of my research project.

However, forensic archaeology and physical anthropology were used in the aftermath of the regime. The Truth and Reconciliation Commission (TRC) was set up to address and perhaps rectify the injustices inflicted on people during the *Apartheid* era. The TRC reports make mention of cases where forensic documents were falsified in order to support the narrative that was created by the police so that they are not found guilty of breaking the laws themselves through human right abuses (refer to TRC report volume 5). Forensic archaeology could have been used to contribute to the process of confirming or disproving these allegations if the inconsistencies in the available reports were not enough information to go by.

According to Aronson (2011), there were about 2,000 individuals missing as a result of activities conducted during the *Apartheid* era. Only 477 were recognised by the TRC Human Rights Violations Committee. This figure excludes the number of disappearances that were mentioned in the amnesty hearings, and is therefore considered to be an undercount. The National Prosecuting Authority (NPA), which was established in 1998, set up a Missing Persons Task Team (MPTT) in 2005. The decision to do so was based on the recommendations outlined by the TRC. By 2011, more than 66 people had been exhumed. More than 50 of those exhumed have been identified and returned to their loved ones by the MPTT. These included the case of the Mamelodi 10, the Mamelodi 4, and Looksmart Ngudle who was the first person to be killed under the 90-day detention law in 1963. For the NPA to get involved in a specific case, the South African Police must hand over the docket to a prosecutor. It is the role of the NPA, therefore, to determine whether or not the cases handed over by the police have been thoroughly investigated, and have adequate evidence for them to be heard in court. In cases where there is a victim, the NPA is tasked with consulting with them before presenting the case to the court (Matthews 2009). The Missing Persons Task Team (MPTT) is therefore playing a critical role in the

country, especially considering that many families lost their loved ones during the struggle against the Apartheid government. These families need closure in discovering the bones of their family members who were killed by the Apartheid government. The MPTT has done a lot of work with practitioners from Argentina.

Limited employment opportunities for forensic archaeologists and forensic anthropologists

It is clear that one of the main reasons so few people are interested in continuing to find work in forensic anthropology and forensic archaeology is because of the limited job opportunities in the fields. Most of the professionals in forensic anthropology are now employed by universities and are thus working in academia. They dabble in forensic cases when they work with SAPS in their various investigations. Others are working at the Victim Identification Centre (VIC) of SAPS and for Cultural Resource Management (CRM) companies.

I think that government should look into hiring forensic anthropologists and forensic archaeologists in the Forensic Pathology Services (FPS) as well. Every province in the country has its own FPS in the Department of Health. The departments are already understaffed and have a great backlog of cases. This would also require funding to pay the additional workers, should this option be considered. Same would apply for the employment of assistants within the museums that house forensic archaeology collections. They would also be a need for funding to be allocated for remuneration. Eradicating the positions at museums has resulted in minimal opportunities to gain experience in the field. There are also no opportunities for young and recently graduates interns within museums. One of the possible reasons given for the shortage of interns in museums is the lack of funding. If there isn't money to pay people for their time, such positions would not exist within the organograms. As a result of the lack of funding, when the vacancies do exist, they are not advertised. In fact, in recent times the positions are being removed. The removal of these positions is also resulting in very few opportunities for students to gain experience in an already marginalized developing field. What this highlights is that there is a highly limited use of forensic archaeology in South Africa.

Limited knowledge on the history of the discipline of forensic archaeology and forensic anthropology in South Africa

I suppose that very little is known about the history and development of forensic archaeology in South Africa because of the discipline being in its embryonic stages. This lack of knowledge spans from

students right through to practicing professionals. The lack of knowledge about the history of forensics is an illustration that its roots in Southern Africa have not been as deep as they are in other geographical localities. I came across one academic publication, by Nienaber (2015), that paints a vivid picture of the status of forensic archaeology in a South African context. Even in that article, there is no breakdown of how the discipline developed to where it is now, but he does mention some cases where application of archaeological principles proved to be beneficial. An article by Bernitz *et al*. (2014) gives an overview of the status of forensic science in South Africa. The resource delves into different fields of forensics sciences, including forensic ballistics and forensic anthropology, but it does not include forensic archaeology.

I think that forensic archaeology is used in more instances than we think, but it has not yet been identified as an independent field and that is why progress in the discipline in South Africa is not being documented. With that said, although many forensic anthropologists are trained in the methodologies of the discipline, they do not necessarily identify themselves as professionals with the field. As mentioned in chapter 2, it is my considered opinion that my former lecturer, Coen Nienaber, is probably the only person I know from South Africa who identifies himself as a forensic archaeologist. With him having moved to the Netherlands to work as the forensic archaeologist, I thought that there are currently no forensic archaeology practitioners in South Africa. I think that this one of the contributing factors to it not being used frequently in the investigation of crimes. Forensic archaeology techniques are however used in the recovery of 'human remains' in construction sites, in grave exhumations as well as in repatriation. The people involved in these cases, however, do not necessarily identify as forensic archaeologists. It also does not help that the field is still only recognised as a sub-discipline of anthropology. The lack of 'identity' for forensic archaeology could be based on the reality that there is not a documented history of the discipline in the country. Such will help highlight its importance and relevance which is yet to be highlighted. I have since learnt of Claudia Bisso, an Argentine forensic archaeologist and anthropologist who is employed by the Missing Persons Task Team of the National Prosecuting Authority.

I realised also, that throughout my years of studying, I was never taught about the history of the discipline, or required to do my own research on it, until now at my Masters level of study. My interpretation of the reason behind this scenario is that it is because of the lack of academic publications documenting the field. Even for my research project presented in this dissertation, I

struggled to find publications to help me provide context to the study I undertook (Chapter 1) or the detailed literature review of the discipline (Chapter 2). Without the help of some of my respondents, I would have not been able to acquire much of the information that I was able to obtain.

The lack of practitioners in forensic archaeology also means that we do not have adequate authors on the subject matter. People generally do not go into research on topics in fields that they do not necessarily have an interest in. I think that increasing awareness on the discipline, highlighting its importance, and allowing it to develop as an independent field will definitely attract more practitioners. This will, in turn, result in an increase in academic publications on the subject and they will no longer be found 'hidden' in the archives of the wrong discipline. Perhaps another way to increase the number of people qualified do the job of a forensic archaeology is by ensuring that individuals who want to study forensic anthropology, physical anthropology, and physical bioanthropology are well trained in the field, its techniques, and principles. I do not refer to the introductory classes that already exist. There is a need for a far more detailed course.

One of the professional respondents mentioned the development of a forensic archaeology course that is currently running at the University of the Witwatersrand. I think that it will be a good idea for the University of Cape Town and the University of Pretoria to follow suit and develop their own courses for the discipline as well. There has also been an interest expressed by the Sol Plaatjie University to introduce a forensic training into their archaeology program. The more institutions we have offering training in forensic archaeology will ensure that there is a growing number of trained professionals coming through the ranks. An increase in the demand for forensic archaeologists should result in an increase in the number of prospective students for the course. But all this shall be successful only with forensic archaeology becoming recognised and established as an independent discipline.

Future prospects of Forensic archaeology

Emphasising the importance of education, Moran and Gold (2019) suggest that the best place to start in order to get forensic archaeology recognised in the forensic industry is with educational outreach. The discipline must be defined clearly, as well as the responsibilities of the practitioners defined, for everyone to understand. We must differentiate between what the discipline entails and what it does not include. Moran (2019) further suggests that it is possible that a clear definition for forensic archaeology will be able to distinguish it as a separate field. It will also be beneficial to the discipline

to expand its body of research and publications in order to allow it to occupy its own academic space (Moran 2019).

Moran (2019) says that the week-long workshops that are provided should be used to create awareness on the discipline instead of replacing experienced practitioners. Technological developments are creating opportunities for conversations to occur between crime scene personnel and archaeologists. These include three-dimensional scanners, remote sensing, and the use of tablets and smart devices.

Skinner *et al.* (2003: 81) even propose the use of a new working title the 'forensic bio-archaeologist'. The idea is that the purpose of such a title is "to unite the roles of physical anthropologist and archaeologist because it usefully implies a broader skill base including the biological sciences" (Groen *et al.* 2015). I think that if the government gets involved in supporting and encouraging the process of ensuring that the discipline develops independently from anthropology by highlighting its importance and potential role within the criminal justice system, it may have a bright future in South Africa.

As mentioned in chapter 4, the real niche for forensic archaeology in South Arica would be in the investigation of criminal cases, the Victim Identification Centre, as well as the Forensic Pathology Services. The discipline can also successfully be implemented in the attempts to correct the injustices of the past. This would include the investigation of human rights abuse that occurred in the *Apartheid* era, as well as the investigation of the forensic reports that were submitted with inconsistencies. If the remains of the victims are buried in known places, they may be exhumed by the forensic archaeologists and then reexamined by the qualified individuals.

While future prospects will be determined by how the discipline is transformed, in terms of opening it up and training more forensic archaeologists, there is a need to set minimum requirements for the training of professionals.

Setting the minimum requirements for the training of forensic archaeologists and forensic anthropologists

Connor (2019), Moran (2019), and Groen *et al.* (2015) think that forensic archaeologists must at the very least be a qualified and experienced field archaeologist. They should, furthermore, be registered as professional archaeologists at their corresponding associations and/or boards. Moran (2019) also points out the importance of the ability to adapt their excavation skills to the recovery of both fleshed

and skeletal human remains. They also need to be trained in human anatomy and osteology, taphonomy, the decomposition process, and sampling strategies.

I think that the minimum requirement to practice as a forensic archaeologist will be identified and set once the field gains its independence from anthropology. Physical anthropologists and archaeologists have boards that they are registered under. I think that the forensic archaeologists should be registered under the same boards with their roles and responsibilities clearly defined. These boards should have the responsibility of setting out the minimum requirements for the training and guidelines that will permit practitioners to practice as forensic archaeologists. Because they will be dealing with 'human remains' like the physical anthropologists, I think that they should also be registered with Health Professions Council of South Africa (HPCSA) in order to practice.

Conclusion

I hope that this chapter has been successful in creating an informative discussion centered around the eight underlying themes that were identified earlier. The purpose was to shed light on the strengths and weaknesses found within forensic archaeology in South Africa. I aimed to share these things, and also discuss the possible reasons that led to their existence. I also hope to have been able to provide solutions where applicable. In the next chapter, I highlight the main findings of this research project and discuss the recommendations for future researchers in the discipline of forensic archaeology.

Chapter six: Concluding remarks and Recommendations

This chapter reflects on the 'journey' traveled as per the scope of the research questions, aims and objectives of the study I conducted. My aim here is to assess the extent to which my research study was successful as guided by the framework I presented in chapter one. In this concluding section, I will summarise my key findings and present recommendations for potential future research projects that can be helpful in further advancing the discipline of forensic archaeology.

Reflection

There were two research questions, and one aim and one objective that informed the study. These were: (i) What has been the role of Africans in the development of forensic archaeology in South Africa? and (ii) Does forensic archaeology have a future in South Africa? The aim of my research project was to review the history of forensic archaeology in a South African context with a focus on the role played by Africans, if at all, in the development of the sub-discipline. The objective of the study was to specifically explore the growth of forensic archaeology in South Africa, especial after 1994.

As part of my research study, I conducted an overview of the history of forensic archaeology on a global scale in order to develop an informed understanding of the development of forensic archaeology around the world. I began by providing a brief overview of the history of the sub-discipline around ten specific countries, namely, Austria, Belgium, Bulgaria, Croatia, New Zealand, Czech Republic, the United Arab Emirates, Hungary, Italy, and Libya . It was my review of four countries that provided a detailed analysis of forensic archaeology in those specific geographical locations: the United States of America (USA), the United Kingdom (UK), Australia, and South Africa. In both instances, the purpose of reviewing forensic archaeology was to (i) establish origins of the discipline, (ii) explore its key role players, (iii) understand its uses in the various regions, (iv) review the education systems supporting the discipline, and (v) explore existing organisations for professionals practicing in the field. This was successfully achieved in Chapter two.

It has been very clear to me that forensic archaeology is still in its embryonic stage of development in most countries all over the world, except in the United Kingdom (UK). In the UK, forensic archaeology has successfully been established as an independent discipline. In some countries it is recognised as a sub-discipline of forensic anthropology, while it is totally disregarded in others. In

South Africa, forensic archaeology is a recognised field of study that is being used intermittently in various capacities. Amongst these are (i) the investigation of criminal cases, (ii) recovery of human remains and corresponding evidence, (iii) locating of missing persons, as well as (iv) grave identification.

Amongst the major role players in the development of biological anthropology as a discipline in South Africa have been R. Broom, R. B. Thomson, M. A. Drennan, C.G.S. de Villiers, C. S. Grobelaar, E. B. Stibbe, R. A. Dart, T. F. Dreyer and P. Tobias. All these individuals were employed either at the institutions of higher education or at museums in the country. In the long run, it was through the efforts of Professor Alan Morris and his colleagues that the discipline was established as an independent field in the country. Efforts to establish forensic archaeology independently were not quite as successful in the past. However, it is a developing field and the principles thereof have been 'kept alive' through short courses and training for those studying biological anthropology and physical anthropology. The efforts of those working in the Missing Persons Task Team (MPTT) and the South African Police Service (SAPS) have also played a prominent role in the development of forensic archaeology in South Africa. The establishment of a forensic archaeology course outside of the physical anthropology and biological anthropology courses also opens a window for a more in depth training in the discipline. The existing programs have always been introductory courses to the discipline. This, that Sol Plaatjie University (SPU) has apparently proposed to introduce a forensic archaeology element to their postgraduate program. The continued use of forensic archaeology shows the contribution of South African professionals in the ongoing development of forensic archaeology within the country.

The objective of the study was to explore the growth of forensic archaeology in South Africa, especial after 1994. This project has highlighted the diversity that has occurred within the fields of forensic anthropology and forensic archaeology, both in terms of gender and racial demography. I was able to discuss the possible use of forensic archaeology in the attempt to rectify the wrongs of the *Apartheid* era. The group of students studying forensic archaeology and forensic anthropology has diversified over the years, especially post-1994. The teaching staffs at the various institutions of higher education in the corresponding departments have diversified too. This can mainly be attributed to the political changes that have taken place in the country following the political transition of 1994. There are also approximately 25 students graduating annually from the Honours programs in Biological Anthropology and Physical Anthropology at the University of the Witwatersrand, the University of

Pretoria, and the University of Cape Town collectively. What this highlights, therefore, is that the future of forensic archaeology is promising when one considers how many individuals are being trained to practice in the field of forensic archaeology. The interest in working in the field exists, but the opportunities are minimal. It is however, up to the South African government to create a space for the discipline to develop on its own. This would include the creation of job opportunities within the field, availing of funds for the educational programs and internships, and ensuring that the necessary standards are put in place for those wishing to practice professionally.

I was also able to discuss in great detail the influence that TV and social media have on creating interest in particular professional fields, and how they also distort the reality of the job for the viewers. The influence of culture and religion on who was studying and practicing forensic archaeology was also highlighted. I was able to establish that cultural beliefs and practices definitely had a larger impact in the decision making of Black Africans when it came to practicing forensic archaeology and the handling of 'human remains'.

The dissertation highlighted the lack of a formal forensic archaeology course in the country that goes beyond the introductory level. The lack of publications and academic literature in forensic archaeology in South Africa also makes for a great concern for the growth and depth of the discipline.

Recommendations for future research

Considering that forensic archaeology is still in its embryonic stage of development, it presents many research opportunities. For instance, I argued that there is a significant limitation in terms of research publications in forensic archaeology. During my data analysis process, I was able to identify areas which the South African forensic fields can expand on in future research projects. I reflect on three specific recommendations below.

First, the feasibility of a forensic science school that encompasses all the aspects of the field, resulting in the production of forensic science specialists. This would just mean that we have people working in the existing structures with actual training in their field of expertise. Instead of just policemen or technicians who go to scenes to remove the bodies. Also, I think it would be convenient if the people in those places were qualified to assist in more than just one capacity because crimes are solved using different expertise. One of my respondents suggested that the country looks into establishing a forensic

science school that focuses on all aspects of forensic science, and those who graduate from the program are then referred to as forensic biologists, as an umbrella title.

Second, there is a need to study the possible effect the practice of forensic archaeology and forensic anthropology could have had on *Apartheid*. It would be insightful to try and find out how the racial segregations would have been implemented if the defining parameters were scientifically based. I think that it would also be interesting to find out how else forensic archaeology and forensic anthropology could have been used to perpetuate or combat *Apartheid* and its atrocities beyond the Truth and Reconciliation Commission (TRC).

Third, the establishment of a committee by the Forensic Anthropology community of Southern Africa in order to regulate and accredit specialists in the field, including forensic archaeology. As mentioned earlier, it is absolutely necessary to set guidelines that spell out the minimum requirements necessary for professionals to practice as forensic archaeologists and forensic anthropologists. This will allow officials and organisations to regulate the quality of professionals working in the discipline, provide a scope for growth so incoming professionals have attainable goals to aspire towards as well as create mentorship dynamics between individuals so knowledge within the field can be shared by, and with all.

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