

**METHODS TO DEVELOP LATENT PRINT ON HUMAN SKIN  
DURING FORENSIC INVESTIGATIONS**

by

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# CHAPTER 1

## GENERAL ORIENTATION

### 1.1 Introduction

The vision of the South African Police Service Criminal Record and Crime Scene Management is to be internationally recognized as a leader in the field of dactyloscopy (the science of fingerprint) and to provide effective support in the field of identification and individualization in the SAPS. (South African Police Service, Criminal Record Centre, 2010).

According to Du Preez and Van Staden (1996:1), dactyloscopic prints are of special significance in the criminalistic individualization process and the category of print identification, it is one of the few contact traces leading to indisputable identification and individualization. Van Rooyen (2008:13) states that individualization is only possible if it comes or go before a series of identification. It takes places through comparison and demonstrates that a particular sample is unique even among members of the same class. Van der Westhuizen (1996:5) further pointed out that a comparison is thus made to determine whether the print in dispute at the scene of murder is that of a known criminal with previous convictions whose fingerprints are on record.

Individualization as a process begins at the crime scene and end with the giving of evidence in court and the positive determination of the deceased identity (Van Rooyen 2008: 21). According to the researcher's experience, the developing of latent print on human skin can play a significant role in assisting the SAPS with the identification and linking of suspects to a crime scene.

According to experience of the researcher as a fingerprint investigator, the development of “normal” latent fingerprint, the Investigators used normal investigative methods, such as powders and reagents. During the development of latent print on human skin, the same powders are being used , but special equipment is being used to develop the print. The development of “normal” latent print takes place where the crime has been committed. The development of the latent print on human skin, takes place in a fingerprint laboratory or in a secure environment designed for that purpose.

According to Futrell (1996:1), a variety of methods and techniques were applied regarding the developing of latent print on human skin. During April 2011, the researcher has sent an e-mail to the nine (9) provincial offices of the South African Police Service Criminal Record and Crime Scene Management to request a short description or explanation about the methods they are using to develop latent print on human skin. Five provinces (5) namely Northwest, Mpumalanga, Western Cape, Eastern Cape and Gauteng responded that they are using glue fuming process to develop latent print on human skin. According to Gilbert (2004:520-521), Cyanoacrylate fuming technique, commonly referred to as the superglue method is the latest technology in chemical methods for development of latent fingerprints. The objects to be processed is placed in an airtight plastic bag with superglue for at least 12 hours, resulting in the development of latent fingerprints, the process is called glue fuming process. According to the results, there was no success, no identifiable print was developed and the method is not effective. Four other provinces Kwazulu-Natal, Free State, Limpopo and Northern Cape mentioned that no attempt was made to develop latent print on human skin.

Colonel TN Gexu ( Personal Communication May 20, 2011), Provincial Head of Northern Cape Criminal Record and Crime Scene Management of the SAPS, state that one member undergo internal training at National Crime Scene Management in Pretoria, but until now, no case was investigated, due to lack of equipment and facilities.

General-Major V Khunou ( Personal Communication April 24,2011), Component Head of the South African Police service Criminal Record and Crime Scene Management, state that there is a problem with regard to development of latent print on a human skin. He is of the view that research is needed to address the problem.

Brigadier S H Diko ( Personnel Communication, April 20, 2011), Section Head of National Crime Scene Management of the SAPS mentioned that a workshop was held at his office with regard to the developing of latent print on human skin and he believes that there is a problem regarding the methods. The researcher is of the view that this method is under utilized in SAPS due to the reasons as mentioned above and a lack of knowledge and experience of SAPS members.

The researcher further established that the members of the SAPS Criminal Record and Crime Scene Management in SAPS do not receive adequate training on the developing of latent print on human skin during in service training. Futrell (1996:2) believe that the equipment that is used to develop latent print on human skin cause problems. The earlier method used to fume an airtight plastic tent over a small area of skin or over an entire body, did not always work. It was impossible to distribute glue fuming evenly over the skin and extremely difficult to confirm all the fumes to the tent. When the plastic is removed at the end of the fuming process, it destroyed the latent print on the body.

Warrant Officer Bekker, ( Personnel Communication, March 15, 2011) criminalistic expert at Eastern Cape Provincial Cr & CSM Crime Scene Processing Team of the SAPS, state that he has used two zippered body bags which he cut open to build a makeshift tent for the Cyanoacrylate fuming. He then placed the Superglue in the aluminum cups and the water in glass containers. Then he has used a hair dryer to induce heat. He however concluded that his technique is not working very well.

The researcher is of the opinion that all possible means must be used to find and improve methods to develop latent print on human skin. If the method could be optimally utilized by SAPS, suspects will be linked to crime scene and more arrest will be made. When suspects are not identified, it may have a negative influence on the conviction rate.

## 1.2 Aim of the research

According to Leedy (1993:11), “the aim of the research is to discover new facts and correct interpretations to accept conclusions, theories or law in light of newly discovered facts or practical application of such conclusion.” Mouton ( 1996:103) explains that the aim of the qualitative research is to determine the facts, to obtain new data and establish if there are interesting patterns in the data.

The aims of this research study is to determine what the role of print identification within the forensic investigation process is and what methods should be used to develop latent print on human skin during a forensic investigation. This enabled the researcher to make certain recommendations in order to enhance the procedures followed in the development of latent prints on human skin.

### 1.3 Purpose of the research

According to Denscombe (2002:25), the purpose of research indicates the direction and focus of an investigation. It further provides the criteria on which the outcome of the research will be evaluated. The main drive behind a piece of research is sometimes the desire to solve a practical problem or to improve procedures. Maxfield and Babbie (1995:70) explain that research can have more than one purpose such as; exploration to explore the nature or rate of recurrence of a problem, description is to describe a problem, explanation to explain things, application do determine how things can be improved. Denscombe (2002:26) also mentions forecasting or prediction, to determine what will happen in future and empowerment as research purposes. The researcher has studied the research purposes as discussed by the authors and has come to the conclusion that application and empowerment will be the two research purposes for this study.

Application as purpose is applicable because the focus is on the desire to solve a practical problem and to improve procedures as also explained by Denscombe (2002:27). According to Denscombe (2002:27) with empowerment as research purpose the researcher will ask the question, how can those who are being researched benefit from the research. The researcher is convinced that all the participants who will take part in the research will benefit from the results of the research. Not only the research participants but also all fingerprint investigators in SAPS will benefit if they use the outcome of the research to enhance their skills and knowledge in the development of latent print on human skin during their investigations.



#### 1.4 Research questions

According to Denscombe (2002:31) research questions should be there to give a full and precise detailed account of the nature of the work that is to be undertaken. The following research questions were formulated to address the problem identified:

- What is the role of print identification within the forensic investigation process?
- What methods should be used to develop latent print on human skin during a forensic investigation?

#### 1.5 Key theoretical concepts

Hofstee (2006:88) mentioned that key concepts is used to ensure that the reader and the researcher has the same understanding.

The researcher has to define the terminology and then stand by whatever definition the researcher gives throughout the dissertation. The following important concepts will be defined for the purpose of clarity.

1.5.1 **Forensic investigation** : “Forensic Investigation is an investigation aimed at instituting court proceeding (criminal as well as civil) and where some or other scientific knowledge is applies to a legal problem” (Pollex, 2001:93).

1.5.2 **Latent print** : The word “latent” derived from the Latin “*latoure*” which means “to be hidden” and the latin comes from a Greek verb meaning “to escape notice”. In language of fingerprinting “ all traces made by friction skin and found at or near the scene referred to as latent prints” (Van der Westhuizen, 1996:225).

- 1.5.3 **Fingerprint** : “A fingerprint is the reproduction of the ridge area of the first or nail joint of the finger in any manner whatever and it also includes the ridge area of the remaining joints of the fingers” (South African Police Service, Criminal Record Centre. 2000:10).
- 1.5.4 **Forensic** : The true meaning is twofold. Firstly it refers to “court of law, juristics or court directed and relating to the application of science to decide questions arising from crime or litigation”. Secondly, “it includes the function of examination or analysis” (Van Rooyen, 2008:14).
- 1.5.5 **Criminal Investigation** : “Criminal Investigation is a systematic search for the truth with the primary purpose of finding a positive solution to the crime with the help of objective and subjective clues” (Van der Westhuizen, 1996:1).
- 1.5.6 **Identification of prints** : “Identification are accomplished by comparing the ridge characteristic of one print with those of another starting with a specific ridge characteristic and tracing or counting to a subsequent one until at least seven points have been found that correspond to each other in respect of type, size, direction, place, position and relationship to each other and no inexplicable differences can be found between the two points” (Du Preez & Van Staden, 1996:25).

## 1.6 Value of the research

According to Welman and Kruger (2005:256), value entails signifying measures of research competence or problem-solving skills and to a lesser degree adding to the body of knowledge in a field of science.

Due to the unique nature of this research, organizations and individuals may benefit by considering and probably implementing the research results. It is expected for the general and specialized detectives within SAPS to benefit as it will be used to enhance investigation skills and to be used in training programmes.

The academic society, University of South Africa (UNISA) will benefit as the result of this research will contribute to academic knowledge, it will be available for curriculum development and for further research by academic and students. The South African society will also benefit if crime can be solved by using techniques from implementing the recommendations that emanate from this research.

## 1.7 Research approach

According to Bless and Higson-Smith (2006:44), a quantitative research methodology relies upon measurement and various scales. It consists of numbering from a coding system by which different variables maybe compared, while in many cases language provide a far more sensitive and meaningful way of recording human experience. In these cases, words and sentences are used to qualify and record information about the world.

According to Creswell (1998:15), the qualitative approach involves the study, use and collection of a variety of empirical material through personal experience, and interviews that describe the problems meaning in practice. The researcher has decided to make use of the qualitative research approach as it allowed the researcher to obtain information from the practical experience of police officials on the topic.

The researcher interviewed members of the South African Police Service Criminal Record and Crime Scene Management to obtain information for this research. It enabled the researcher to obtain first hand information from the practical experience of the participants on the topic as explained by Mouton and Marais (1992:162).

#### 1.8 Research design

Empirical research involves “ the idea of getting out of the chair, going out of the office and purpose fully seeking the necessary information out there” (Denscombe 1998:27). Maxfield and Babbie (1995:4) state that “ an empirical research design is one way of knowing bits and pieces of Criminal Justice and is a product of knowledge based on experience or observation.” To establish the role of print identification and what method should be used to develop latent print on human skin, the researcher has decided to make use of an empirical research design. The researcher achieved this by interviewing the participants to obtain first hand information on the topic.

### 1.9 Target population

Welman and Kruger (2005:46) state that the population is the study object, who may be individuals, groups, organizations, human products and events, or the conditions to which they are exposed. Welman and Kruger (2000:122) explain further that the target population is that to which the researcher ideally would like to generalize his or her results. Welman and Kruger (2005:46) believe that the size of a target population usually makes it impractical and uneconomical to involve all members of the population in a research project. The ideal population for this research should be all members of the South African Police Service Criminal Record and Crime Scene Management, because they are responsible for developing of latent print on human skin.

The researcher works in the Oudtshoorn area and for cost and convenience sake has decided that the target population will be members of the South African Police Service, attached to the three South African Police Service Criminal Record and Crime Scene Management units namely, Oudtshoorn , George and Beaufort West the southern area of the Western Cape Province. A total number of sixty six 66 fingerprint investigators are stationed at the three units respectively. A sample was drawn from the target population as explained below.

### 1.10 Sampling

The researcher has decided to make use of the simple random sampling method as described by Welman and Kruger (2005:46) to obtain a sample of thirty (30) from the target population of (66) sixty six fingerprint investigators for the purpose of this research. Simple random sampling is the most basic probability sampling techniques since each investigator had an equal opportunity of being included in the sample.

All that was required to conduct a random sample, after an adequate sampling frame was constructed, was to select persons without showing bias for any personal characteristics (Bailey, 1987:87). The researcher wrote the names of fingerprint investigators at the three (3) different units on equally sized pieces of paper, put them in separate boxes and drew ten names for each unit. Miller and Whitehead (1996:115) agree that the probability sample should be representative of the population from which it is selected.

### 1.11 Data collection

The researcher used the most common qualitative research techniques which are the interview, documentary sources and practical experience as described by Clarke (1999:67). For the purpose of this research, it was decided that interviews coupled to a thorough literature study will be the most appropriate techniques to use.

#### 1.11.1 Literature review

According to Bless and Higson-Smith (1995:22), a literature review consists of reading whatever has been published and appears relevant to the research topic, it provides background information about the research topic and is answering the research questions.

The researcher has conducted a literature review. It is apparent that a limited amount of literatures exists. All literature available pertaining to the topic is to be found in formal book publications, various journal articles and on the internet, thus looking at and comparing literature and information that is available internationally as well as in South Africa. The researcher also utilized available academic and training study material. Once all the pertinent information was collected from the literature review, it was possible to provide a framework that identifies the necessary information with regard to developing of latent print on human skin.

### 1.11.2 Interviews

According to Babbie and Mouton (2005:298), the basic individual interview is one of the most frequently used methods of data gathering within the qualitative approach. By employing a compilation of standard questions (Leedy & Ormrod, 2005:184) the researcher conducted interviews with relevant individuals. The proposed interviews were conducted through in-depth one-on-one interviews with thirty (30) randomly selected fingerprint investigators from the Southern Area of the Western Cape Province. The researcher used a semi structured interview schedule as described by Glesne (2011:102-103), a semi structured interview schedule is a formal orderly process that you direct to a range of interventions.

Information received during the the interviews was written down by the researcher. Permission to conduct the interviews was obtained, in accordance with National Instruction 1/2006 of the SAPS.

During the interviews, the researcher used an informal approach to gather as much information as possible from the participants. The interviews were conducted in a private office at the workplace of the participants.

The researcher has studied the general rule for face to face interviews of Babbie and Mouton (1998:249), including aspects such as the role of the interviewer, familiarity with questions, following questions wording exactly, objectivity and recording of responses. Mason (2002:79-80), state further that the interview must be conducted in an ethical way and personal or private matters should not be asked, or matters which the interviewees do not wish to discuss. Interviewers should ensure the following:

- Refrain from asking tricky questions to catch the interviewees.
- Interviewers should guarantee the confidentiality and anonymity of your interviews.

The researcher has adhered to these guidelines as described above.

According to Mason (2002:79-80), the participant must consent to the following :

- Participating in the interview
- Give the right to use the data generated through the interview
- Give the right to interpret and analyze the data making comparisons with data generated through other interactions.
- Give the right to publish or reproduce the data and the analysis
- Passing those rights on to others for example by archiving your data for other researchers to use

### 1.11.3 Personal experience

The researcher have 25 years experience in the South African Police Service. The researcher is holding the rank of Lieutenant Colonel in the South African Police Service and is currently a unit commander at Oudtshoorn Criminal Record and Crime Scene Management unit.

The researcher will make use of his personal practical experience that he has gained at Criminal Record and Crime Scene Management of the SAPS in the Western Cape Province to the benefit of this research. The researcher has a National Certificate in Forensic Criminalistic, National Diploma in Police Administration, Bachelor of Technologiae in Forensic Investigation and an advanced Diploma in Management. The researcher has completed all internal training courses regarding dactyloscopy (science of fingerprint) and was issued with a certificate in Criminalistics.



## 1.12 Data analysis

Cooper and Schindler (2003:454) state that in the research design stage or at least by completion of the proposal, decisions should have been made on how to analyze the data. Mouton (2001:108), explain that analysis involves the “break-up” of the data in manageable themes, patterns, trends and relationships. The main objective of analysis is to understand the various constitutive elements through an inspection of relation between concepts, contracts or variables, and to see whether there are patterns or trends that can be identified or isolated, or to establish themes in the data. The researcher has made use of the data analysis spiral to analyse the data.

According to Leedy and Ormrod (2005:153), and Creswell (1998) the data analysis spiral is applicable to a wide variety of qualitative studies. The following are the steps to be followed in the spiral data analysis process:

- Organize the data, perhaps using index cards, manila folders, or a computer database. You may also break down large bodies or text into smaller units, perhaps in the form of stories, sentences, or individual words.
- Peruse the entire data set several times to get a sense of what it contains as a whole. In the process, you should jot down a few memos that suggest possible categories or interpretations. If your data are in a proper form, you might write comments in the margins or use Post-it notes to capture your preliminary thoughts. If your data are in electronic form, you might use the insert comment feature available in many software programs, or you might add your initial impressions in a different font or colour or (for a spreadsheet or database) in a separate column or field.
- Identify general categories or themes, and perhaps subcategories or subthemes as well, and then classify each piece of data accordingly. At this point, you should be getting a general sense of patterns – a sense of what the data mean.

- Integrate and summarize the data for your readers. This step might include offering propositions or hypothesis that describes relationships among the categories. It might also involve packaging the data into an organizational scheme such as a table, figure, matrix, or hierarchical diagram.

### 1.13 Methods taken to ensure validity

Validity concerns the accuracy of questions asked, the data collected and the explanations offered. Generally it related to the data and the analysis used in the research (Descombe 2002:100).

The researcher has used the interview schedule as an instrument to conduct the interviews and obtain information for the research. The researcher ensured that measures were taken to ensure that the interview schedule meet the requirements of validity. The questions in the interview schedule were guided by the aims and the research questions. The supervisor scrutinized the interview schedule to ensure that the questions were relevant and correctly formulated. The researcher made use of piloting to refine the interview schedule and ensure correctness of the questions as described by Marshall and Rossman (2011:95-96). Three (3) fingerprint investigators that were not part of the sample were interviewed for the pre-testing.

The literature search was guided by the research questions and aims. It ensured that the researcher obtain relevant information to enhance the validity of the research. According to Bui (2009:185), data triangulation is one form of triangulation where multiple methods of data collection are used to study one phenomenon. For example a researcher could use multiple data sources such as observation and interviews to answer the research questions. The point was ot to combine the data, but rather to find the intersections or connections between them. In doing so, the researcher was able to confirm and corroborate findings between data sources and have a holistic picture of the phenomenon.

The researcher obtained information from more than one source, namely interviews and a literature study. The use of the data analysis spiral to analyze the information obtained from the interviews and literature also ensured validity.

#### 1.14 Methods taken to ensure reliability

According to Denscombe (2002:100), reliability relates to the methods of data collection and concern that they should be consistent and not distract the finding. Commonly it entails an evaluation of the methods and technique used to collect the data. Leedy (1985:26) is of the opinion that “reliability deals with accuracy”. Accuracy will be ensured through the faithful measurement or representation of the truth, correctness and a precision showing negligible or permissible deviation from the standard.

The interviewer did not influence the interviewees’ responses in any way, be it by means of body language, tone of voice, facial expression or by means of leading questions. The researcher ensured that the interview schedule that was used to collect data was administered in a consistent fashion (Leedy & Ormrod, 2005:93). The same interview schedule was used for all the interviews and the same questions were asked to all the participants. Strict attention was given to reliability, the extent to which the technique or instrument gives the same results repeatedly (Wellman and Kruger 2000:138).

The researcher created a relaxed interview environment whereby participants were encouraged to be open and frank in their responses. A semi structured interview schedule based on the aims and research question was designed as a measuring instrument to record the experience and expertise of the participants in this study. The fact that the same questions were asked to all the participants will have the effect that if another researcher repeats the research, they will most likely obtain the same results.

The participants for the interviews were selected by using the simple random sampling method. During the sampling, every member had an equal opportunity to be included in the sample. The participants were not forced to answer any questions. Procedures were documented by the use of proper notes and presented in such a manner that if another researcher were to use the notes, they will be able to obtain the same results. According to Noak and Wincup (2004:171), the process of the collection, analysis and writing are intricately bound. The literature that was used in this research also related to the aims and research questions. The literature is reliable since it was obtained from libraries and academic institutions, nationally and internationally and it is acknowledged throughout the report.

#### 1.15 Ethical consideration

The researcher is aware of the importance of ethics in research. He has familiarized himself with the Guidelines for Ethics in Research, Unisa (2007:9-16). The guidelines address the following important aspects:

- Basic principle for research
- Relationship between researchers and participants.
- Informed consents.
- Privacy, anonymity and confidentiality.
- International collaborative research involving human participants.

The identity of the respondents will be protected in accordance with the National Instruction 1/2006 of the SAPS. The researcher further adhered to all the requirements of this instruction.

According to Mouton ( 2001: 239) researchers have the right to collect data through interviewing people but not at the expense of the interviewees right to privacy. This was achieved by emphasizing the following aspects of privacy : the right to refuse to participate in research, right to anonymity and confidentiality, the right to full disclosure about the research (informed consent) the right not to harm in any manner physical, psychological or emotionally. A proper standard was maintained by implementing correct referencing techniques, under no circumstance did the researcher change any data, data was recorded and the researcher avoided plagiarism.

The researcher obtained permission from South African Police Service Criminal Record and Crime Scene Management component to conduct the interviews at the SAPS Criminal Record and Crime Scene Management units at Oudtshoorn, Beaufort West and George.

#### 1.16 Chapter Outlay

The research will be divided into the following four chapters.

Chapter 2: The role of print identification within the forensic investigation process.

This chapter will also concentrate on aspects such as history of Forensic Service, the purpose of forensic science, criminal investigation objectives of criminal investigation, scientific approach towards crime investigation, gathering of evidence, the role of print identification, history of print identification, identification of the suspects, identification of unknown deceased person, ground for the 7 point criteria for the individualizing of fingerprints, locard principle, individualization of crime, legal aspects with regards to print identification, constitution of Republic of South Africa, 108 of 1996 criminal procedure act, act 51 of 1997.

Chapter 3: Methods to develop latent print on human skin during a forensic investigation.

This chapter will focus on methods that can be used to develop latent print on human skin during forensic investigations. It will also incorporate information on current methods used by SAPS. Legal considerations relevant to the development of latent print on human skin will also be dealt with in this chapter.

Chapter 4: Conclusion

This chapter will reveal the results obtained from the literature study, the information from the interviews and own experience of researcher. The findings and recommendations will be based on the research questions and aims. Recommendations for further research will also be made in this chapter if there is a need for it.

## CHAPTER 2

### THE ROLE OF PRINT IDENTIFICATION WITHIN THE FORENSIC INVESTIGATION PROCESS

#### 2.1 Introduction

According to Savino and Turvey (2011:100), Forensic science is regarded as the application of scientific knowledge and principles to the resolution of legal disputes, whether criminal or civil. Hopwood, Leiner and Young (2012:325) explains that forensic science is the application of science to legal matters. The author further stipulates that one of the earliest application of forensic science dates back to the 7<sup>th</sup> century when fingerprints on loan documents were used to prove debtors' identities. Since that time, forensic science has become much more sophisticated, especially with the explosion of scientific knowledge in the 20<sup>th</sup> century.

Purpura (2011:448) believes that the fundamentals of forensic science are from the scientific method. Investigators often apply the scientific method to reconstruct the past within an investigation. Van Rooyen (2008:14) refer to forensic investigation as an application of science, including the functioning of examination and analyzing. Saferstein (2011:4) points out that Forensic science is the application of science to the criminal and civil laws that are enforced by police agencies in a criminal justice system.

Lambert (2001:13) believes that scientific knowledge must be applied to a legal problem to be classified as a forensic investigation. The author explains that forensic investigation is aimed at the instituting of court procedures both for criminal and civil litigation. Saferstein (2011:44) is of the opinion that forensic science begins at the crime scene.

If the Investigator cannot recognise physical evidence or cannot properly preserve it for laboratory examination, no amount of sophisticated laboratory instrumentation or technical expertise can salvage the situation.

Kruger (2006:20) explains the meaning of forensic investigation as an inquiry aimed at ascertaining the facts which will lead to the reconstruction of a crime scene. According to Swanson, Chamelin and Territo (2003:3), forensic methods and techniques are utilized during the investigative process in order to gather evidence and information.

According to Fingerprint (2012:2) print identification is the process of comparing two instances of friction ridge skin impressions from human fingers, the palm of the hand or even toes to determine whether these impressions could have come from the same individual. Du Preez and Van Staden (1996:25) point out that print identification is accomplished by comparing the ridge characteristics of one print with those of another starting with a specific ridge characteristic and tracing or counting to a subsequent one, until at least seven points have been found that correspond to each other in respect of size, direction, place, position and relationship to each, and no unexplainable differences can be found between the two prints. The researcher believes that print identification plays a vital role in the investigation process.

According to Gilbert (2004:29), all investigations must be cognizant of the prescribed legal guidelines applicable to every step of the detection process. Criminal investigations are only as good as their adherence to the law. The Constitution and Bill of Rights serve as historical foundations and evolving contemporary guides for modern investigation.



In this chapter , the researcher will focuses and elaborates on the important points regarding forensic and criminal investigation process . The purpose and objective of criminal and forensic investigation . The chapter will also reflects on aspects such identification of unknown person, individualization of crime , perpetrator and culprit, Locard principle (contact theory) and gathering of evidence. Identification of suspect, the role of print identification, ground for the 7 point criteria for the individualization of fingerprints, legal aspects with regard to print identification , Constitution of the Republic of South Africa, Act 108 of 1996, and the Criminal Procedure Act, Act 51 of 1977.

## 2.2 Forensic Investigation

In South Africa, the term forensic investigation is widely used, but appear to be different views about the interpretation of the true meaning of the word. Forensic (2009) and Levy (2008:4) both explain that the word forensic stems from the Latin word “Forum or Forensics” and it means related to court or “public” or “of the forum”. According to Van der Westhuizen (1996:9), forensic refers to a specific competency that is aimed at providing law enforcement with specific scientific knowledge. New English Usage Dictionary (2001:318), define the term forensic as “used in a court of law or in the tracking of criminals” . The Concise Oxford Dictionary (1990:460) describes forensic as being used in connection with the court of law- which appear to be in agreement with the definition offered by New English Usage Dictionary (2001:318).

The researcher is of the view that forensic and criminal investigation are working concurrently, whereby all information and exhibits are gathered and presented in a court of law. Van der Merwe (2008:97) and Berning (2008:76) explain that forensic investigation is conducted in order to institute criminal and / or civil proceeding in a court of law which supports the view of the researcher.

According to the researcher's experience is that the police and media are currently using the word forensic investigation to all sorts of investigations. Saferstein (2011:1) explain that forensic science depicts the application of science into law. Strauss (1991:1) adds further that forensic science is the study of nature and behaviour of natural things with regard to the law. Erzinglioglu (2000:14) explain that forensic investigation deal with a specific way of thinking. A rational way of thinking is very important, as it will determine which method or technique will be used to solve the crime to be investigated.

### 2.3 Criminal Investigation

According to Marais and Van Rooyen (1990:17), crime or criminal investigation means “ to observe intensively to question systematically and to gather information that will reveal the truth”. Marais (1992:1) discusses the meaning completely and state that criminal investigation is the lawful of searching humans and objects. It directly and indirectly contributes to the reconstruction of crime scene by giving information regarding the persons involved in the crime.

According to Girard (2011:6) the collection and preservation of evidence are essential for any successful criminal investigation. Comer (1977:271) give a wide and unspecific definition of an investigation as a process that involves the detection, through to the resolution of the crime by criminal prosecution or some other course. The researcher supports the view of both these authors, meaning that a criminal investigation is a structured search for the truth, aimed at solving a crime. According to Berning (2008:76), criminal investigation is a structured search for the truth aimed at solving a crime. A criminal investigation however, only refers to investigation of a criminal, while a forensic investigation can also include an investigation into a civil matter.

Oxford South African Concise Dictionary (2010:277) describes criminal as a person who has committed a crime or constituting a crime, while Collins Thesaurus A-Z Discovery (2005:152) defines criminal as: “unlawful, illicit, wrong, illegal, corrupt, crooked, felonious, immoral etc”. The Concise Oxford Dictionary (1990:17) describes “Investigation” as a “formal examination or study”. Investigation is defined by The New English Usage (2001:435) as “an enquiry or research”. Oxford Advanced Learners Dictionary (2000:632) describes investigation as “carefully examine the facts of a situation, an event or a crime, to find out the truth about it”. Monk (1998:56) defines crime as “any act committed in violation of a law that prohibits it and authorises punishment for its commission”.

According to the experience of the researcher, as a criminalist expert knows that investigation of crime is conducted according to tested and trusted investigative methods and techniques in order to ensure that evidence is complete and orderly gathered to pass the test of admissibility in court. Schmallegger (2005:237) believes that it is a the process of discovering, collecting, preparing, identifying and presenting evidence to determine what happened and who is responsible when crime occurs.” McDevitt (2005:5-7) explain that investigation of crime is a process that started at client service centre, at the reporting of crime and is only completed after the suspects is convicted or the case is concluded due to some or another reason.

Van der Westhuizen (1996:21) explain that the investigation process consists of three phases namely:

- The pre-investigative phase. First Responder arrive at crime scene, crime scene management and gathering of evidence from the crime scene.
- The investigative phase. Complete investigation of the matter by obtaining witness statements forensic reports and identifying of the suspects.

- The post-investigative phase. Arrest of the culprit and handing case docket to court for litigation purposes.

The researcher is of the opinion, based on experience as a forensic investigator and information from the literature study that forensic investigation and criminal investigation work concurrently as both investigations are aimed at instituting court proceedings. The difference between the two concepts lies therein that the application of scientific knowledge is a pre-requisite for an investigation to be classified as a forensic investigation.

#### 2.4 Objectives of Criminal Investigation

The researcher is of the opinion that a Criminal Investigator should be aware of the purpose and objectives of an investigation, as this forms the cornerstone of the investigations process. McDevitt (2005: 3-5), Marais (1992:1) and Marais and Van Rooyen (1990:17) come to one conclusion that the primary objective of criminal investigation is to arrest criminals after enough evidence has been gathered. Van der Westhuizen (1996:4-11) comments that the purpose of an investigation is to identify the crime that was committed, gather the evidence, individualise the crime scene, arrest the suspect, recover the stolen property and assist in the prosecution process.

According to Newburn, Williams and Wright (2011:98), Criminal Investigation, in the standard case, are orientated towards cracking unsolving crime, identifying perpetrators, launching prosecutions, proving guilt at trial and bringing offenders to Justice.

Bennett and Hess (1981:1- 9) are of the view that by observing intensely, questioning systematically and gathering information, the truth will be revealed. Marais and Van Rooyen (1990:13) point out that the purpose of an investigation is to individualise from the commission of the crime until the guilt or innocence of the perpetrator has been positively proved.

Grau (1981:1-9) and Marais and Van Rooyen (1990:17) believe that the purpose of an investigation is whereby facts for positive investigation are detected, identified, collected, preserved and prepared for the judicial process. The researcher supports this view as it is generally accepted that the purpose of an investigation stand as it is explained by the authors.

According to Horgan (1979:9-10), Bennett and Hess (1981:8), Persad and Jorbert (2001:225), Lyman (2002:14), Marais and Van Rooney (1990:19), Smit, Minnaar and Schnetler (2004:161), Marais and Van Rooney (1990:17) and Marais (1992:1), mentioned that the objectives of an investigation are the following:

- Identification of the crime scene: it also known as situation identification whereby it is ascertained whether a crime has been committed, and initial observation at the crime scene are note.
- Gathering of evidence: this begins at the crime scene, whereby the experience of witnesses is documented, and other physical clues and evidence are gathered.
- Individualisation of the criminal: This entail linking the offender with the crime, through available information, so as to justify an arrest.
- Arrest of criminal. This should occur upon positive individualisation and identification of the offender, to ensure his or her presence in court
- Recovery of stolen property. To present the recovered property as evidence during the trial.
- Involvement in the prosecution process. This is whereby the investigator presents the collected evidence and ensure that witnesses are present at court.

According to the researcher the above discussion has outlined the most important objectives and purposes, which will properly guide investigators in the search for the truth.

Ward (1975:120) believes that an evaluation of gathered information will determine not only whether it is relevant or decisive, but also whether it has any positive meaning to reveal the complete truth of what took place. The researcher agrees with this view as it is certainly the overall objective of any investigation.

## 2.5 A scientific approach towards Crime Investigation

The New English Usage Dictionary (2001:771) defines science as “knowledge gained by the observation of natural laws and behaviour and arranged according to a system.”

Vold, Bernard and Snipes (1998:317) emphasise that the investigation of crime is based on a scientific approach towards the problem of crime and that the approach must be advanced to the benefit of the science.

According to Ogle jr (2012:1), the scientific examination of physical evidence and its application to criminal investigation was first described in the publication in 1893 of *Handbuch für Untersuchungsrichter als System der Kriminalistik* by Hans Gross, a prosecutor and Judge in Austria. (later published in English under the title *Criminal Investigation*). The publication of this work by Gross, marked the beginning of “criminalistic” and the various forensic science as professions.

Savino and Turvey (2011:100) state that the purpose of forensic science is to provide an objective foil to investigative theory. Saferstein (2011:23) explain that the functions of the forensic scientist rely primarily on the scientific knowledge and skill, only half of the job is performed in the laboratory.

The other half takes place in the courtroom, where the ultimate significance of the evidence is determined. The most important part of the forensic scientist is

not only to analyse physical evidence but also persuade a jury to accept the conclusions derived from that analysis.

James and Nordby (2009:247) support the argument of Saferstein that the role of the criminalist is to provide investigative lead through scientific evaluation of physical evidence and crime scene reconstruction, report results and conclusions of scientific evaluations, and provide expert testimony concerning those results and conclusions. Siegel (2011:23) explain that scientific evidence is analyzed in the laboratory or sometimes at the crime scene, but the real drama is played out in the courtroom. This what makes forensic science . all legal systems put constraints on what evidence can be received at trial and who can present evidence. Expert witness must produce all the documents that are relevant to the case: reports, graphs and notes made during their analysis of the evidence.

James and Nordby (2009.248) discusses the role of the expert. “Experts are the most important auxiliaries of an Investigating Officer, in some way or other they nearly always are the main factor in deciding a case. True it is that the Investigating Officer has not skilled experts always at his immediate disposition, but in important cases, he is able to refer to experts at headquarters. On the other hand, persons who are not strictly speaking “experts” at all, but who have special knowledge, can give excellent results, everything depends upon knowing how to make use of them. Indeed, it is often less important to know who is to be questions than to know how upon what and when questions must be put .

Gilbert (2004:560) states that more cases will be solved if evidence processing was more complete. The author is of the opinion that specialised crime scene processing will resolve the problem. The author’s point of view is that a scientific approach with well-trained personnel is needed to locate and effectively gather maximum evidence and clues from a crime scene. Van der Westhuizen (1996:357), argues that successfully prosecuted and convicted cases has improved substantially, since the South African Police Service adopted a

scientific approach towards criminal investigation. This has led to the utilisation of scientific methods, techniques, models and resources. The researcher agrees that science is important in addressing crime because he has first hand experience of how print identification is used to identify and connect a suspect to a crime scene.

Gilbert (2004:565) indicates that the continuous and meaningful research will be necessary to expand scientific approach toward crime investigation. The author states that the ingenuity and perseverance of investigators and researchers will determine how successful they are in the application of science to the investigation of crime.

James and Nordby (2009:13-649) lists the following examples of forensic investigation methods that have a scientific baseline:

- Forensic Pathology
- Forensic Nursing
- Forensic Toxicology
- Forensic Odontology
- Forensic Anthropology
- Forensic Taphonomy
- Forensic Entomology
- Evaluation of the crime scene
- The identification and characteristic of blood and bloodstains
- Identification of biological fluids and stains
- Forensic DNA; Technology, Applications, and the law
- Microanalysis and examination of trace evidence
- Fingerprints
- Forensic footwear evidence
- Forensic Tire tread and tire track evidence
- Firearm and tool mark examinations
- Questioned documents



- Analysis of controlled substances
- Forensic engineering (Structural failures, Basic fire and explosion investigation, Vehicular accident reconstruction)
- Cyber technology and Forensic science (Information in forensic, Computer crime and the electronic crime scene)
- Forensic Psychology, Forensic Psychiatry (social science)

## 2.6 Gathering of evidence

Van Heerden(1982: 184-185) explain that evidence may be defined as any lawful means other than legal argument by which the truth concerning any factual matter can be proved or revealed during a judicial investigation. Direct or original evidence is factual evidence in the form either of an eye-witness account or the actual production of an object. The actual fact constituting physical clues are visible and tangible phenomena that can be observed, measured and counted. The sensory observation of these facts by experts therefore constitutes direct evidence. The gathering of facts which might serve as evidence associating a suspect with the crime is the basic purpose of crime investigation.

According to Schmidt (1989: 3) the term evidence it encompasses in its normal meaning all the information presented to a court in order to enable it to settle a factual dispute so that it include the written and oral statement by witnesses as well as objects submitted for inspection.

According to Queensland Police (2012), the police have three important aims when they gather evidence:

- to assist in establishing what offence(s) have been committed
- gather evidence of crime
- search for clues to identify or to confirm the identity of the offender

Girard (2011:6) believes that physical evidence is usually collected by the police crime scene technician and includes any and all relevant materials or objectives

associated with a crime scene, victim, suspect or witness.

Gilbert (2004:58) explain that evidence serves two very important and different functions. Inculpatory evidence is incriminating, for it tend to establish guilt whilst exculpatory evidence exonerates or clears a person of blame or legal guilt. The majority of criminal investigations focus on locating inculpatory evidence, it is easy to lose sight of the dual functions of all investigations. Many investigations produce both types of evidence, or the same item of evidence may be used to achieve both objectives. For example, a latent print may clear several suspects who believed to be guilty while establishing the clear guilt of another.

## 2.7 The History of print identification

According to Dutelle (2011:157), Pepper (2010:78) and James and Nordby (2009:357), since the beginning of humankind, there has been a desire and attempt to identify individuals. The use of print identification can be traced back through the ages with the first appearance on early Chinese documents and handmade Japanese pots. But while artefacts upon which this historical premise is based are thousands of years of age, modern study and understanding of print identification has its foundation in 1684. Development of fingerprint science in Europe dates back to the 17<sup>th</sup> and 18<sup>th</sup> centuries.

Saferstein (2011:534) state further that the Chinese used print identification to sign legal documents, whether this practice was performed for ceremonial custom or as a means of personal identity remain a point of conjecture lost to history. In any case, the example of print identification in ancient history are ambiguous, and the few that exist did not contribute to the to the development of fingerprints techniques as we know it today.

The history of fingerprints (2012) explain that picture writing of a hand with ridge patterns was discovered in Nova Scotia. In accient Babylon, fingerprint were used on clay tablets for business transactions. In 14<sup>th</sup> century, Persia,

various official government papers had fingerprints (impressions) and one government official, a doctor observed that no two fingerprints were exactly alike.

South African Police Service Criminal Record Centre (2000:24), mentioned that the fingerprint science as an identification medium was accepted in principle in South Africa in 1900. The first case in Natal, in which fingerprint evidence was heard, was on the 16<sup>th</sup> of February 1905. A charge of housebreaking was laid against a native with the name Umfubayana. Interesting evidence was given by sub-inspector Pinto-Leite, the fingerprint expert. Umfubayana was found quilt and was sentenced to six months hard labour and ten strokes. On the 6 of September 1935, the South African courts for the first time, accepted the use of palm prints in the case “Die Koon teen Gert Pretorius”. Evidence regarding impressions from the soles of the feet was accepted for the first time in the South African courts in the state versus Nokayoyo Limekayo on the 22 of October 1968.

According to Van der Westhuizen (1996:240-242), the Bible also contains many direct or indirect allusion to fingerprint and skin pattern. The apostle Paul used his own fingerprint to sign his letter (II Thessalonians 3:17). A brief chronology of fingerprint follow:

- 1684 Nehemiah Grew published a report which was read before the Royal Society of London. He described the ridges and pores of the hands and feet.
- 1685 G Bidloo published a treatise describing sweat pores and ridges
- 1751 Hintze wrote about ridge formation, but dealt with the subject from the viewpoint of anatomy rather than identification.
- 1764 Albinus followed along the same lines as Hintze.
- 1788 JCA Mayer stated in his book Anatomische Kupfertafeln Nebst Dazugehörigen: “Although the arrangement of skin ridges is never duplicated in two person, nevertheless the similarities are closer among some individuals.: He thus became the first to state that the prints of two different persons are never alike.

- 1823 Johannes E Purkinje, professor at the University of Breslau, Germany, Published a thesis (in Latin) describing the ridges, giving them names and establishing certain rules for classification. He identified nine different patterns. He did not, however, refer to fingerprints for use as identification.
- 1856 Herman Welcher took the prints of his own right palm. In 1897 (41 years later) he printed the same palm to prove that prints do not change.
- 1883 Kollman, an anthropologist, wrote his book on ridges and pores. He did not Associate fingerprints with identification.
- 1858 Sir William Hershel, in Hoogly, District of Bengal, India, printed the palms of natives in order to avoid impersonation among the labourers. Prints of the entire palms were used instead of signatures. The first person Hershell printed appears to have been one Raiyadhar Konai.
- 1877 Sir Hersjhel Requested permission to fingerprint prisoners in jail, but permission was denied.
- 1880 Henry Faulds, stationed at Tsukiji, in Japan, wrote on the subject of fingerprints. He advocated their use in the detection of crime.
- 1888 Sir Edward Richard Henry, succeeding Sir William Hershel at his post in India, became interested in fingerprints and arrived at a classification of his own. Haylock (1979:28) indicates the role of KBA Haque as co-contributor in the development of the Henry systems.
- 1889 Sir Edward Richard Henry, at Dover, England, read a paper detailing his systems before the British Assosiation for Advancement of Science.
- 1891 Juan Vucetich developed his own system of classification. This was officially developed in Argentinia and is used today in most Spanish-speaking countries.
- 1892 Sir Francis Galton, an English biologist, wrote his first textbook; he devised a practical system of classification and filing. Much of his material is still in use in some parts of the world.

- 1894 Sir Francis Galton's reports on fingerprints as identification, along with his devised system, was read at the Asquith Committee of London, England. His system was officially adopted on February 12, 1894.
- 1900 Edward Richard Henry published his system in book form.
- 1900 Alphonso Bertillon's system of measurement had by this date spread through the world.
- 1901 Edward Richard Henry was appointed Assistant Commissioner at Scotland Yard. His system was also acclaimed and officially adopted in Wales as well as throughout England. The system was so applicable that Henry emerged as the "father of fingerprints". Fingerprints were officially adopted in France, replacing Bertillonage (Field 1959:3).

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## 2.8 The role of print identification

According to South African Police Service Criminal Record Centre, (2000:31), " Identification of fingerprints are accomplished by the comparison of the ridge features of one print with those of another by starting at a specific ridge features and tracing or counting to a following one until at least seven features is found that correspond concerning type, size, direction, place, position and relation, and no unexplainable differences can be found between the two prints

Wright (2007:9) explain that the investigation and prosecution of a crime depends largely upon forensic science to assemble the facts that prove a crime occurred and that a certain suspect or suspects committed it. Important evidence collected at the crime scene include fingerprints and foot prints.

The history of fingerprints (2012) explain that fingerprints offer an infallible means of personal identification. That is the essential explanation for fingerprints, having replaced other methods of establishing the identities of criminals reluctant to admit previous arrest.

According to The History of fingerprints (2012), the science of fingerprint identification stands out among all other forensic science for many reasons including the following

- has served government worldwide for over 100 years to provide accurate identification of criminals. No two fingerprints have ever been alike in many billions of human and automated computer comparisons. Fingerprints are the very basis for criminal history foundation of every police agency on earth.
- remains the most commonly used forensic evidence worldwide. In most jurisdictions fingerprint examination cases matches casework combined.
- continues to expand as the premier method for positively identifying persons.
- worldwide, fingerprints harvested from crime "scenes lead to more suspects and generated more evidence in court than all other forensic laboratory techniques combined.'
- other visible human characteristics tend to change fingerprint do not change. Barring injuries or surgery causing deep scarring or disease such as leprosy damaging the formative layers of friction ridge skin, but finger and palmprint features have never been shown to move about or change their unit relationship throughout the life of a person.

Gilbert (2004:513) state that a primary task of a print identification is to identify the perpetrator, because many of the cases referred to the investigator are of the unknown-suspect category. The suspect's actions are known, but personal identification has not been made. There are two basic types of suspect

identification: positive and tracing. Positive identification refers to information that identifies an individual beyond question and is legally acceptable as pertaining to and originating with that particular individual. Tracing information refers to all other information that may be indicative of the personal identity of an individual. There are relatively few positive indicators of personal identity that are encountered at crime scene or otherwise obtained. Fingerprints have traditionally been considered the single most positive indicator of personal identity.

According to Pepper (2012:92), the fingerprints recovered from the crime scene will be analysed, compared, evaluated and Verified (ACE-V) by the fingerprint examiner, until match against the fingerprint from recorded offenders, and the suspects will be identified.

Van der Merwe (2009:399) discuss the manner in which fingerprint evidence is obtained. A fingerprint expert will lift prints by means of folien from the object and compare with fingerprints taken from the suspect, if the two prints are identical. The experts will mount enlarged photographs of the two sets of prints side by side and mark points of similarity. If the expert attends court, he will re-take the accuser's fingerprints and compare them with the prints found on the scene. Seven points of similarity are sufficient to prove beyond doubt that the prints were made by one and the same person. Dutelle (2011:3) state further that, in law enforcement, identification of the suspects is always made by trained and often certified examiners.

According to Dutelle (2011:173), fingerprint identification rest on four premises:

- Friction ridges develop in their definitive form when humans are still in the womb.
- Friction ridges remain unchanged throughout life with the exception of permanent scars.
- Friction ridge pattern and their details are unique.

- Ridge patterns vary within certain boundaries that allow the patterns to be classified.

Erzingliolu (2000:10) explain that Locard's principle simply states: every contact leaves a trace. For example the burglar who touches a window pane with his bare hands leaves his fingerprints behind. Yacine and Gellag (2012:14) concur with Pepper that Locard principle is applied to crime scene in which the perpetrator of a crime comes into contact with the scene. So the perpetrator will bring both something into the scene and leave with something from the scene.

According to Van Rooyen (2008 :20), the tracks or clue at the scene of the crime can be used to reconstruct or recreate, the crime scene and to individualise or positively link the perpetrator. For instances, when a suspect touches a victim during crime as murder or rape, traces from the suspect such as fingerprints transferred to the victim's skin. Reciprocal traces from the victim such as hair transferred to the suspect's cloth. The Locard principle means that a criminalist expert can confidently assuming there will be always clues at the crime scene.

According to Newbarn, Williamson and Wright (2007:665) in forensic science, individualization is regarded as the establishment of an association between a trace and single unique source of that trace. 'Criminalistics' is the science of individualization. Van der Westhuizen (1996 :5-6) believes the emphasis here is the involvement of the perpetrator or alleged criminal in the act committed and based on the establishing probability, from the information and facts collected that the crime was committed by a specific person..

Stauffer (2006) explain that individualization is achieved through a comparison process: the comparison of the characteristics exhibited by the source and the characteristics exhibited by the trace. Sarsfontien (2011:88) explain that evidence that can be associated with a common source with an extremely high degree of



probability is said to process individual characteristics. Examples of such association are the matching ridge characteristics of two fingerprints..

## 2.9 Identification of unknown deceased person

According to Walliams(1991), fingerprint identification is not only used to solve crimes, and one of its main uses is in identifying unknown bodies from accidents and major disasters. Prints are taken from the body of a victim, and then Forensic scientists will go to the home of someone feared killed in the accident to see if matching prints can be found among their personal effects.

Gilbert (2004:296) explain that if a person died and there is no identification papers on the victim`s person, as is often the situation, fingerprints should be used as a means for identification. Wright (2007: 102-103) state that the body of a nude young woman was discovered in Los Angeles. Detectives had no idea who she was. They took fingerprints and gave them to the Los Angeles Examiner, which enlarged and sent them to the FBI in Washington, DC. Their database then had 104 million on file, mostly criminals. This time they were lucky, matching them to Elizabeth Short, 22, who had been fingerprinted twice.

Kobilinsky, Liottie and Oeser-Sweat (2005:3-4) explain that print identification is another type of physical evidence for identification of unknown deceased person. According to Stewart (2010: 58) in some cases, if the body has not been submerged for too long, it might be possible to get fingerprints. The fingertips of a submerged body usually are misshapen and wrinkled from being in the water. A fingerprint technician can get good results by injecting the fingers with a liquid called "tissue builder". That solution can cause the fingertips to swell to a normal shape so they can be fingerprinted, and be used as a means for idemntification.

## 2.10 Grounds for the 7-Point criteria for the individualizing of fingerprints

According to Van der Berg (1993: 2-3) it is a known fact that different criteria for the individualizing of fingerprints are used across the world, and the South African Police Service Criminal Record and Crime Scene Management is aware of the fact that the South African criteria differs from that used in other countries.

The author state that the official South African criteria for the individualising of finger, palm or footprints was formulated as follows:

At least seven (7) ridge characteristics can be identified on both prints that correspond concerning types, size, direction, position and relation to each other, and no unexplainable differences can be found between the two prints.

According to Innes (2000:123) English law requires a minimum of 16 matching characteristics to establish identity in the ridge pattern of fingerprint or palm, or 10+10 in two prints: the probability of two persons having the same fingerprint is 1 in 10, 000, 000, 000, 000. In France, 17 matching points are required. Only 12 are required in Greece, Switzerland or Spain and in Sweden 10 are acceptable.

The United States abandoned any formal standard requirement in 1973. Robertson and Vignaux (1995:144-145) explain that in the United States the emphasis today is on maintaining standards of professionalism rather than on counting points. The evidence given is a professional judgement that two impressions were made by the same finger. This judgement is supported not by a point-count, but by the experience of the witness and his performance in the blind testing which is regularly carried out.

## 2.11 Fingerprints used to prove previous convictions

Geldenhuis and Joubert (1996:237) state that after conviction, the state will indicate whether the accused has many convictions. The Criminal Procedure Act deals with this procedure, is section 271 to 273 of the Criminal Procedure Act, Act 51 of 1977. If there are previous convictions, they are usually proved simply by handing in the accused's fingerprint record (Sap 69) which according to section 272 of the Criminal Procedure Act, Act 51 of 1977 is prima facie proof of previous convictions. The court shall enquire from the accused whether he or she admit the previous convictions. Should he or she deny them (which rarely happen), the prescutor may tender evidence to prove that the previous conviction are his or hers.

According to the South African Police Service Criminal Record and Crime Scene Management (1999:48), as soon as the Investigatin Officer becomes aware of the denial of the previous convictions, a new set of fingerprints must be obtained from the accused and be completed in full. A covering minutes must be attended to the new set of fingerprints and forwarded to the SAPS Criminal Record and Crime Scene Management (stating that the accused denies his/her previous convictions).

According to South African Police Service Criminal Record and Crime Scene Management (1999:51), explain that on the day that the previous convictions must be proven, the expert must take the fingerprints of the accused before the start of the proceeding and compared with all the prints on all documents in the possession of the court. This will ensure that all the documents correspond with the person before the court. The expert can testify to prove the denial of the previous convictions.

## 2.12 Legal aspects with regards to print identification

It is important for all police members who are dealing with print identification to consider and be familiar with the legal aspects with regard to print identification. According to section 205(3) of the Constitution of the Republic of South Africa, Act 108 of 1996 the objects of the police service are to prevent, combat and investigate crime, to maintain public order, to protect, and to uphold and enforce the law. All police officers should be familiar with section 35 of the Constitution which contains the rights of arrested, detained and accused persons.

Section 36 of the Constitution of the Republic of South Africa, Act 108 of 1996 provides guidelines on the limitation of rights as to how, when and to what extent the fundamental rights of an individual can be infringed. Although the Constitution is the Supreme law, the rights in the Bill of Rights are not absolute and can be limited. When executing their powers, the police sometimes have to lawfully infringe on the constitutional rights of the individual, e.g. when the police search and seize property, infringing, inter alia, the right to privacy and to property.

Section 35(3) of the Constitution of the Republic of South Africa, Act 108 Of 1996, makes provision that every accused has the right to a fair trial. Section 35(5) of the Constitution of the Republic of South Africa stipulates that evidence obtained in a manner that violates any right in the Bill of Rights, must be excluded if the admission of that evidence would render the trial unfair or otherwise be detrimental to the administration of justice.

According to James (2007), during the court summary in the Inge Lotz trial, Justice Van Zyl was highly critical of the police handling the case. He called more than one of the cops testimony “unreliable”, “evasive” and “dishonest”. He also state that some aspects of the investigation were “unscientific”, “incompetent” and “unprofessional”. Justice Van Zyl then pronounced that Fred Van der Vyver was found not guilty.

In a verdict in *SV Mthembu (2008) JOL 21609 (SCA)*, the supreme court of appeal ruled that the conduct of the police was of such a nature that it would compromise the integrity of the judicial process and dishonour the administration of justice if the evidence is not excluded from the proceedings. It resulted in the exclusion of the inadmissibly obtained evidence in terms of section 35(5) of the Constitution of the Republic of South Africa, Act 108 of 1996.

In order for print identification to be applied fairly and to minimise criticism it is important for users of print identification to be knowledgeable about and cognisant of the law that is applicable to the system. Additionally it is equally important for the members of the South African Police Service Criminal Record and Crime Scene Management to adhere to the internal directives of the South African Police Service in order to apply the system correctly.

According to the South African Police Service Criminal Record and Crime Scene Management (2003:12) policy 5/2003 subparagraph 2.15.1, state that the members of the South African Police Service Criminal Record and Crime Scene Management are not allowed to take the prints of suspects, in order to avoid the suspicious of forgery and transplanting. Subparagraph 2.16.1 explains the procedure about access to dockets and registers by the defence. There is no automatic access and an application to this effect must be presented to the Information Officer. Documentation can be perused locally, preferably at the court, in the presence of the South African Police Service Criminal Record and Crime Scene Management member. If any costs are involved to meet the requests of the defence, the existing instructions must be followed. The court can order the exhibits to be placed in the possession of the defence.

South African Police Service Criminal Record and Crime Scene Management (1999 :1-10), stipulates that section 37(1) of the Criminal Procedure Act 51 of 1977 allow any police official to take the fingerprints, palm prints or foot prints or

may cause any such prints to be taken of any person arrested upon any charge, of any such person released on bail or on warning under section 72, of any person arrested in respect of any matter referred to in paragraph (n) (o) or (p) of section 40(1), of any person upon whom a summons has been served and or any person convicted by a court.

Section 37(3) of the Criminal Procedure Act 51 of 1977 stipulates that any court, before which criminal proceedings are pending, may order that fingerprints, palm prints, foot prints or blood may be taken. Section 37(4) of the Criminal Procedure Act 51 of 1977 explains that any court which has convicted any person of an offence, may order for fingerprints, palm prints, foot prints or photographs, to be taken. Section 37(5) of the Criminal Procedure Act 51 of 1977 explains that fingerprints, palm prints, and foot prints will be destroyed, if such person is not found guilty in a criminal proceeding.

Section 212(4) of the Criminal Procedure Act 51 of 1977 stipulate that whenever any fact is established by any examination, or in the identification of fingerprints, palm prints or foot prints is or may become relevant to the issue at criminal proceeding, a document purporting to be an affidavit made by the expert shall upon its mere production at such proceeding, be prima facie proof of such fact.

Section 212 (6) of the Criminal Procedure Act 51 of 1977 explain that in criminal proceedings in which the finding of, or action taken in connection with the place or position of fingerprint, palm print or how the print was dealt with stated in an affidavit, written by expert, will be considered prima facie proof that such fingerprint or palm print, was so found or was dealt with.

Section 212 (8) of the Criminal Procedure Act 51 of 1977 stipulate that in criminal proceedings in which the receipt, custody packing, delivery or despatch of any

finger or palm print, forensics etc, a document purporting to be an affidavit made by the person, shall upon mere production thereof be prima facie proof.

Section 225(1) of the Criminal Procedure Act 51 of 1977 state that the comparison of finger, palm prints during a criminal proceeding will be admissible in court, while Section 225(2) of the Criminal Procedure Act 51 of 1977 says that evidence in connection with fingerprint taken, will not be inadmissible, by reason only, if it was not obtained in the correct manner.

## 2. 13 Summary

From the above exposition, it is obvious that print identification can play a significant role in identifying the suspects that committed an offence and unknown deceased body. Hence it is a forensic method to investigate crime, since the method is based on scientific knowledge. Additionally print identification works concurrently with the individualisation of the crime scene and Locard principle.

South African Police Service Criminal Record and Crime Scene Management use the ground for the 7-points criteria for the individualizing of fingerprints, differently to other countries, since regards itself as an independent authority in the field of the fingerprints science. It is of vital importance for the members of the South African Police Service Criminal Record and Crime Scene Management to adhere to the principles of law and standard operation procedures in order for their evidence to be accepted during judicial proceeding.

The following chapter will deal with methods used to develop latent print on human skin during a forensic investigation.

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**METHODS TO DEVELOP LATENT FINGERPRINT ON HUMAN SKIN DURING FORENSIC INVESTIGATION**

SECTION A

Personal Details

1. What is your full name?
2. How old are you?
3. State the name of the unit you are attached to.
4. For how long have you been employed within the Criminal Record Centre?
5. What is your current position?
6. Have you undergone any training with regards to Investigation of fingerprint at the crime scene. Yes/ No

7. What is your tertiary qualification?
8. What do you understand about the term Forensic Investigation?
9. What is the difference between Forensic Investigation and Criminal Investigation?
10. What are the objectives of a Forensic Investigation?
11. What is the purpose of conducting a Forensic Investigation?
12. What does scientific approach towards crime investigation mean to you?
13. What is the role of print identification during criminal investigation?
14. What is print identification?
15. What is the purpose of section 37 of the criminal procedure act 51 of 1977?
16. When does section 37 of the criminal procedure Act, Act 51 of 1977 allow police officials to take the fingerprint of a person?
17. What is the purpose of section 22 (statement) of the criminal procedure act 51 of 1977?
18. If the suspect denies previous convictions during court proceedings, what role does the member of the criminal record and crime scene management play, to assist the court that the suspect have a previous record?

## **METHODS TO DEVELOP LATENT PRINT ON HUMAN SKIN DURING FORENSIC INVESTIGATION**

19. What does it mean to “develop latent print”.
20. What is latent print?
21. Name two layers of human skin.
22. In which layer does the fingerprint develop?
23. What methods are used to develop latent print on human skin during Forensic Investigation.
24. Have you ever investigate fingerprint on human skin, if the answer is no, state the reason why
25. Mention different powders that can be used to develop latent prints on human skin.
26. What is glue fuming process?
27. Do you think glue fuming process can be utilized to develop latent fingerprints on human skin.
28. Do you have any equipment in your office to process glue fuming?
29. Do you have any equipment in your office, where corpses can be investigated for fingerprint?

30. What methods do you think can be most effective to develop latent print on human skin?
  
31. Name the most important aspects that should be kept in mind, when developing latent print on human skin.

26/7/6/1

## INFORMATION NOTE

To : The Divisional Commissioner  
**FORENSIC SERVICES**

**APPLICATION FOR AUTHORITY TO ACCESS FACILITY TO CONDUCT RESEARCH INTERVIEWS:  
MASTER DEGREE IN FORENSIC INVESTIGATION : LIEUTENANT COLONEL SM MATLALA :  
LOCAL CRIMINAL RECORD CENTRE OUDTSHOORN**

1. **Purpose**

1.1 The purpose is for the Divisional Commissioner : Forensic Services to grant permission for Lieutenant Colonel Matlala to conduct interviews on members attached to the Local Criminal Record Centre environment in George, Oudtshoorn and Beaufort West.

2. **Background**

2.1 Lieutenant Colonel Matlala is pursuing a Master's Degree in Forensic Investigation. He was given a Research Topic " Method to develop latent print on human skin during Forensic Investigation".

3. **Recommendation**

3.1 It is recommended that approval be granted by the Divisional Commissioner for Lieutenant Colonel Matlala to access the facility to conduct research in terms of National Instruction 1 of 2006 Research in the Service.



**MAJOR GENERAL  
THE HEAD: CRIMINAL RECORD AND CRIME SCENE MANAGEMENT  
TJV KHUNOU**

Date:

2012-08-16

Information note compiled by: Col Pillay  
Telephone number: 012 393 3911  
Date: 2012-08-08  
My doc\info note 12\app research lt col matlala

APPLICATION FOR AUTHORITY TO ACCESS FACILITY TO CONDUCT RESEARCH INTERVIEWS  
: MASTER DEGREE IN FORENSIC INVESTIGATION : LIEUTENANTCOLONEL SM MATLALA :  
LOCAL CRIMINAL RECORD CENTRE OUDTSHOORN

APPROVED / NOT APPROVED

*Subject to full compliance  
with the prescripts and  
making available copy of the  
final report available to the  
South African Police Service*

*Manene* LIEUTENANT GENERAL  
DIVISIONAL COMMISSIONER : FORENSIC SERVICES  
JK PHAHLANE

Date: 2012-08-27