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THE RELIABILITY OF DEFENCE EXPERT EVIDENCE IN KUWAIT CRIMINAL JUSTICE SYSTEM: A COMPARATIVE STUDY WITH PROPOSALS FOR REFORM

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ABSTRACT

This study investigated the reliability of defence expert evidence in the Kuwaiti criminal justice system using a comparative approach. The professional standing and code of practice of prosecution experts in Kuwait and Egypt and defence experts in the UK was used as a baseline. The present level of professional standing of defence experts in Kuwait and whether they were qualified to undertake forensic work was examined. The private sector practice in criminal cases in respect of the methods and procedures during evidence handling and processing from crime scene to court was investigated with special reference to the proper application of quality standards. The court monitoring system of expert evidence by defence lawyers was considered as a vital element providing a better support for the appropriate application of quality standards within forensic practices. The level of awareness of forensic science practice by defence solicitors in Kuwait, Egypt and the UK was examined with reference to their ability to participate in the court monitoring system of expert evidence. The findings are supported by survey responses, data from interviews, information gleaned from relevant criminal cases and studies on the use of expert evidence in criminal trials. Document authentication, handwriting analysis, pathology, and medical examination were found to be the only expertise available to the defence in Kuwait. The quantitative and qualitative data and their analysis have shown that defence experts giving evidence in these areas were not qualified to undertake forensic casework. Since they had operated in their single-person organisations, they were not involved in continuing professional development and they provide courts with expert evidence which is based only on experience. Some of them gave opinion evidence on matters outside the area of their immediate forensic discipline. In practice, there were no indicators that they followed protocols which give rise to quality forensic evidence. A peer review system was also not in operation in their practice. The level of awareness of forensic science practice by defence solicitors in Kuwait was also regarded as not sufficient to spot weaknesses in the forensic practice and in the opinion and scientific evidence given by experts, thus increasing the risk of presenting unreliable expert evidence in court.

This study explored the weaknesses in defence expert evidence in particular and in the forensic practice in general. The findings have recommendations for raising standards of defence expert evidence in Kuwait and guidelines were given for the establishment of reliable expert evidence in Kuwaiti and Egyptian criminal courts.

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INTRODUCTION

1.1 Statement of the problem

In Kuwaiti criminal courts, not only issues of admissibility but also the weighing of evidence is left to judges to decide. The Supreme Court in Kuwait grants the Court of Merits complete discretion to choose one piece of evidence over another, thus leaving the court to build its own faith upon the evidence presented. This can be clearly seen by the Supreme Court judgement that:

> "The trial Court has the right to build its faith and belief beyond reasonable doubt on the presented evidence. The Court also has the right to take any presented evidence as a base for its judgement and it can draw its conclusion in the case from the presented evidence according to its persuasion and certainty. The Court also has the right to discard and reject anything which contradicts its persuasion. Yet, the Court has to reach its conclusion based on logical accepted evidence which was presented during the investigation and trial, and which has a foundation in the papers of the case."[1]

Expert evidence is one such type of evidence offered. Judges in Kuwait are the decision-makers and, in the light of the experts' opinion, judges often decide a case and may reach a verdict. Kuwait uses inquisitorial criminal procedures in its criminal trials but with adversarial features. The inquisitorial phase includes a judicial role in supervising and conducting the investigation before and during the trial process. A distinctive adversarial feature includes the defendant's right for adversarial experts. This is guaranteed by Articles 100, 101 and 151 of the Kuwaiti Law of Criminal Procedures No. 17/1960.[2] According to these articles, consultation of expert opinion is a permissible privilege for both agents of public prosecution and defendants during the period of evidence gathering and investigation.

The increased reliance on expert evidence by the prosecution in the Kuwaiti criminal court has led to the introduction of defence experts thus increasing the risk of challenges on the prosecution expert's findings. Therefore, conflicts in the interpretation of forensic evidence may occur during criminal trials, and judges may be faced with

conflicting opinion evidence given by two experts. This is illustrated in the following cases.

In a shooting case, number 14/97 Jenayat (Felony) Mena'a Abdullah, Kuwait, 25 July 1997, the trial judge reached his verdict based on the defence expert's report. The defence argued that the prosecution expert's firearms evidence was not consistent with the merits of the case. The defence expert proved that the width and shape of the bullet entry aperture found on the victim's car could not possibly have occurred from the shooting range and angle mentioned in the prosecution expert's report; especially considering the type of bullets normally used by the gun involved in this case. This created enough doubt to exonerate the defendant from the charge ascribed to him. It is worthy of mention that the defence expert in this case was in fact a forensic medical examiner, yet he gave opinion evidence in a case involving ballistics. This individual medical examiner was not qualified in the area of ballistics. This was not challenged and the trial judge relied on this opinion evidence to reach his verdict.

In Criminal Case No. 97/98 Jenayat Al-Jabreyah, Kuwait, 20 October 1998, the debate was whether the information in the statements the defendant given during interrogation coincided with the position of burn wounds inflicted on his back and hands. The defendant was accused of burning down the victim's flat. Three prosecution expert reports were involved in this case. A report was conducted by a medical examiner, a toxicologist and a fire investigator. The medical examiner's report determined the degree of burn wounds inflicted on the defendant's body. The toxicology report in this case revealed that the defendant was under the influence of alcohol at the time the alleged crime was committed (a blood sample was taken from the defendant one hour after the event). The fire expert concluded that the door of the flat was the origin of the fire and this finding was sustained by laboratory results which indicated that the bottom part of the door in question was saturated with 'gasoline'. On the basis of these findings, the prosecution built up their case with the theory that the defendant poured volatile material on the victim's flat door with the intent to burn the flat and, that since the defendant was drunk, some of the volatile material came in contact with his clothes and as a result he was burnt (his clothes tested positive for 'gasoline'). The defence forensic pathologist

gave opinion evidence which not only contradicted the findings of the prosecution medical examiner, but went further and suggested a cause and origin for the fire which contradicted the finding of the prosecution's fire expert.[3] This was not challenged, and the defence won the case although not qualified in the area of arson investigation. This is another example illustrating that some defence experts operating in Kuwait given opinion evidence on matters outside their immediate field of expertise.

In cases where conflicts between opinion evidence occur, judges in Kuwait have the right to call an expert for explanation. This is guaranteed in Article 170 of the Kuwaiti Law of Criminal Procedures/ No. 17/1960.[4] The legislature in this Article required judges to appoint their own forensic experts to assist them in matters of conflict and in clarifying scientific analysis and understanding of technical issues. The panel of court appointed experts is called the "Triad Committee" consisting of three forensic experts mainly selected from the state funded forensic laboratory. Judges inform these experts of their duties and about the type and the nature of inquiry needed in the case. A court appointed expert informs the trial judge, in writing, of his opinion; which ought to be impartial and objective. The expert may thereafter be called to testify and be subject to cross-examination by each party. In matters of conflict, the role of these experts is to test opinion evidence presented by experts for both parties, either to confirm one opinion or to contradict all opinion evidence offered before the court. In Case No. 280/99 Jenayat Al-Farwaniya[5], the trial judge was presented with two pieces of conflicting expert medical evidence. This led the judge to appoint his own expert who confirmed the findings of the prosecution medical expert, and in light of this he reached his verdict. In Case No. 47/98 Jenayat Hawali, Kuwait, 16 June 1998, Court Rec. No. 5668/1998, the defence sought two private sector forensic medical examiners from Egypt. The Court of Appeal, 1 November 2000, Rec. 25, No.1621, rejected an appeal presented by the defence. Three defendants were involved in this case. Two of them were found guilty of a brutal assault that resulted in death however, without the intent to kill. They were sentenced to four years imprisonment. The third defendant was fined 50 K.D. The defendants claimed that the victim, who worked as a housemaid, always refused to eat and that they were advising her to eat. The prosecution medical expert concluded that

there were old contusions on the victim's body indicating that she was frequently beaten; the result of which caused her death. The defence experts however, after examining the prosecution expert's report and the victim, reached another opinion. They concluded that her death was caused by a lack of vitamins. They based their theory on the fact that the victim was originally from one of the indigent countries prone to Protein- Energy Malnutrition, and that the contusions on her skin were naturally occurring symptoms usually appearing on anyone afflicted with this disease. After this conflict between the two scientific opinions, the trial judge appointed a committee of three publicly funded forensic medicine examiners. The committee unanimously supported the judge in favour of the prosecution, concluding that the defence expert's report had no scientific grounds. This means that the defence experts in this case were viewed as individuals who testified beyond the limits of acceptable science in their field. Accordingly, the judge reached his verdict after he was persuaded by the opinion given by his experts. Thereafter, an attempt for an appeal on 1 November 2000 was denied and the High Court reached its verdict by accepting the prosecution expert's report.

By having a system which allows both court appointed experts and adversarial experts, it is more likely that judges, in some cases, are faced with more than three conflicting scientific opinions. An example was in the Case No. 666/98 Jenayat Al-Jahra'a.[6] The preliminary issue in this case concerned the time of death of the victim. The defence had two eye witnesses who testified that they had seen the defendant at the estimated time of death given by the prosecution pathologist. In addition, the defence pathologist gave an opinion as to the time of death which was consistent with the defendant's alibi. The trial judge appointed two medical experts to assist him. Unfortunately, both contradicted one another and, moreover, gave an estimation of the time of death which was far from that estimated by both the prosecution and the defence pathologists. As a result, the trial judge reached his decision on the basis of other factual evidence rather than that of the expert's witnesses.

In Kuwait, issues of conflicts in opinion evidence may confuse judges as to which expert's evidence should be given more weight; the prosecution, the defence or the court appointed expert. In some cases where such conflicts occur, the strength of forensic

evidence in assisting in solving crimes could be lost, and judges may place less weight on this type of evidence in deciding a case.

The introduction of forensic science into legal criminal proceedings in Kuwaiti courts highlighted new problems with regard to rapid developments in science. Complications have arisen during the handling of scientific evidence from crime scene to court, and more specifically with the scientists designated to deal with this type of evidence. Given that in Kuwait, court appointed experts and prosecution experts both are from the state funded forensic laboratory, their work and reports are often checked and subject to peer review. This has become true after a Quality Control Unit was established to operate within the existing forensic science laboratory disciplines. This Unit was established as a result of a PhD research which was carried out by one of the staff working in this laboratory. The interest of this research was to investigate the prevailing quality control and quality assurance systems within the laboratory and crime scene practices. The author concluded that the laboratory's code of practice could lead to contamination of physical evidence. As such, he recommended new quality procedures and guidelines and that a quality control unit should be established in order to regulate the process of monitoring the quality of forensic evidence. A quality assurance system is also in operation in the laboratory. This means that the results of analytical tests, methodology used for certain analysis and interpretation of results are subject to scrutiny and review by more experienced colleagues; often by the manager of the laboratory. A study examining the reliability of scientific and opinion evidence presented by defence experts in practice in Kuwait has not yet been carried out. The introduction of defence experts in the Kuwaiti criminal court increased the probability of conflicts in opinion evidence. Some of these experts give evidence outside their specialist area of knowledge. Therefore, there is a need for a study to establish how much trust should be placed in their practices and in the expert evidence they give in courts.

In Kuwait, the use of new scientific techniques in forensic practice was accompanied by new challenges affecting the evaluation of the reliability of expert evidence, and how judges can cope with sophisticated scientific evidence, especially, in the light of conflict between the opinions of the experts. The other question is whether or

not lawyers can understand the scientific methodology underlying expert evidence that they present and cross-examine in court. An appropriate example is the use of DNA profiling.

Given that judges in Kuwait evaluate the quality of scientific evidence, the interpretation of results obtained by the use of complicated scientific techniques was realistically above their comprehension. Inevitably, this forced the Kuwaiti court to rely more on forensic experts for explanation. The impact of using sophisticated scientific techniques in the Kuwaiti court can be demonstrated in Case No. 1202/99 Jenayat Al-Mobaheth, Kuwait, 26 September 1999. Upon the trial judges' request, the publicly funded Kuwaiti forensic science laboratory sent DNA samples to the Forensic Science Services (FSS), UK, for a paternity test. After the FSS report (Ref No. PAT/KU00/130GO, under Case No. L/00/1553) was returned with the results, the laboratory sanctioned the report and sent it to the prosecutor handling the case so that he could explain these results to the trial judge. The complexity of this type of scientific evidence, however, was beyond the prosecution's ability to understand, and a DNA expert was called to explain the subject matter. This case illustrates that there is already a need for DNA experts to assist the Kuwaiti courts in explaining the use of this type of evidence. Since the Kuwaiti legal system permits adversarial experts, DNA experts acting for the defence may soon become part of criminal litigations.

The reason for the Kuwaiti judges to rely more on forensic experts for explanation may be because, unlike the UK and U.S. courts, in Kuwait judges are not guided by the laws of the evidence. Coherence and consistency (relevant) are the only stipulations required for evidence to be admissible in Kuwait courts. According to Appeal no. 152/86, Kuwait:

> "it is not necessary that all evidence which leads the court to make its judgement be direct evidence against the accused. Nonetheless, the evidence in criminal trials must be coherent and consistent and, based on this coherence and consistency, the court can make its judgement".[7]

By analysing this judgment, expert evidence could be ruled admissible if it passes the relevancy test. In countries adopting the laws of the evidence, judges decide the admissibility of expert evidence on the basis of relevancy and reliability. This means that

although the evidence presented passes the relevancy test it could be ruled inadmissible if the court has doubt on its reliability. In these countries, there are rules governing expert evidence, and judges use these rules as guidelines when testing the reliability of this type of evidence. In Kuwait, however, the situation is different. There are no clear, written guidelines on which judges can rely to test the reliability of an expert's scientific testimony, and evidence could be permitted in criminal trials only on the court's own persuasion. In Kuwait therefore, the reliability of forensic scientific evidence presented before the court depends solely on the following. First, the professional standing and the technical competence of forensic practitioners, and whether these practitioners follow a certain methodology which can detect potential errors in practice and secondly, whether the level of understanding of forensic practice by lawyers is sufficient to test the reliability of expert evidence in courts.

Private sector forensic practitioners have started to give opinion evidence in Kuwaiti criminal courts. They originate and operate in single-person organisations in Egypt. This means that they are sole forensic practitioners working in their private offices scattered throughout different areas in Cairo. All of the experts acting for the defence in Kuwait were previously working in the state forensic laboratory in Egypt and, after retirement, went into private practice. By operating alone, there is often no facility for the reports produced by these experts to be peer reviewed other than through an appropriate professional affiliation or body. This study will investigate whether the defence experts are members of any forensic organisation where the scientific methodology used in the analysis of forensic evidence, analytical results and, final reports can be checked by members of the organisation. Checking professional work is part of the quality assurance system. While in Kuwait, there are no clear written guidelines governing the expert's scientific testimony, it is vital that scientific evidence is subject to peer review, hence lessening the risk of unreliable expert evidence being brought before courts.

Another vital component safeguarding the quality of scientific evidence is courtroom test. In other words, parties may need to acquire sufficient background knowledge in the field of forensic science to enable them to test the reliability of expert evidence in the court, thus having a role in aiding judges in the process of determining

the admissibility of scientific evidence presented. The use of sophisticated science in court may prompt lawyers who do not understand forensic practice to accept rather than to challenge the quality of scientific evidence. This may increase the risk of admitting unreliable expert opinion into evidence. This study will only concentrate on the level of knowledge in this field amongst defence lawyers, and this is for a reason. The increased use of forensic evidence by the prosecution in Kuwaiti criminal trials requires a greater understanding of forensic practice by the defence. This is for two reasons. First, given that defence lawyers are the direct users of private sector forensic science service, the subject of this thesis, to improve the ability of testing the quality of scientific evidence and opinion provided by their experts. The nature of adversarial criminal trials requires defence lawyers to check the reliability of evidence they represent in court in order to counter a potential challenge by the prosecution. Secondly, it is known that prosecutors are ethically and legally accountable to seek convictions against the guilty while defence lawyers have an obligation to investigate and test the reliability, accuracy and validity of the state's evidence through effective cross-examination.[8] Given that state scientists attend crime scenes shortly after an event, defence lawyers are required to have the proper level of understanding of this field in order to strengthen their scientific capacity to confidently spot weaknesses and flaws in the initial forensic investigative process, certainly, through effective cross-examination in courts. In fact, the importance of establishing educated defence lawyers goes beyond checking the reliability of expert evidence for court. It may also improve the quality of the forensic process as a whole. If the work of state funded forensic practitioners is challenged by the defence at trials, they may consider all the precautions necessary to survive such challenges. This means that they would improve the quality of their work and make all precautions necessary to ensure that only reliable forensic evidence is delivered to courts. This, in turn, would create the eager prosecution lawyer to enhance his knowledge in the field of forensic science so that he is able to rigorously test the reliability of scientific evidence presented by the defence experts. Undoubtedly, defence experts would also do their best to thrive on challenges in future trials.

In an attempt to remedy complications relating to the recent use of defence expert evidence in its present form in Kuwaiti criminal courts, competent forensic practice and the lawyer's education in the field of forensic science should be addressed primarily as two vital components safeguarding the quality of expert evidence. By achieving this, judges can confidently test the reliability of, and rely on, this type of evidence in deciding criminal cases.

1.2 The purpose of the study

Defence experts have only recently begun to provide their service to the Kuwaiti criminal courts. This study is an approach to examine the reliability of evidence they present by considering first, whether there is any kind of monitoring system in place in their practice. This will be pursued by focusing on two main areas, the level of professional standing and the level of technical competence (procedures and methods that these experts follow in crime scene investigation and laboratory practice). Secondly, the present and recorded level of awareness of forensic science practice amongst defence solicitors in Kuwait will be reviewed specifically in relation to the quality of expert scientific evidence. This was seen to be possible by investigating whether lawyers had access to academic or training courses in this field before carrying out criminal cases involving science, and whether they understand the procedures undertaken in the forensic investigative process. The way in which the Kuwaiti legal system deals with forensic scientific evidence and how judges assess expert evidence in terms of its reliability will also be highlighted. In short, the purpose of this study is to identify any possible weakness in first, the defence experts' practices and recommend methods and procedures for improvement, especially in areas of quality systems and secondly, the court monitoring system by defence lawyers and suggest guidelines to raise the capability of testing the quality of expert evidence in courts.

1.3 Significance of the study

This is the first systematic investigation of the practice of private sector forensic science in criminal cases in the State of Kuwait. Expert witnesses acting for the defence in

Kuwait are mainly from Egypt, and it is hoped that the outcome of this study will provide defence lawyers with guidelines which enable them to ensure the quality of forensic scientific evidence presented by their experts before its admission as a method of proof in court, and to enable them to effectively cross-examine expert evidence presented by opposing parties. Further, it is hoped that the outcome of this study will also instruct judges in Kuwait about problems associated with the use of expert evidence in modern criminal justice systems so that they appreciate the recent reforms in forensic science practices and the development of the law in response to the rapid growth of scientific and expert knowledge. By focusing on such an approach, it is believed that courts will face less difficulty in assessing the reliability of expert evidence in future criminal trials. It is also hoped that journalists have access to this study in order to develop criticism when needed.

1.4 Scope of the study

This study is restricted solely to the examination of the application of forensic science in the Kuwaiti criminal courts. The reason for focusing on criminal cases is because of the severity of the sentence involved (Kuwait has a death penalty sentence). Criminal cases referred to in this study were sought from Kuwait, Egypt, the United Kingdom and the United States. By applying a comparative approach, the professional standard and performance of prosecution experts in practice in both Kuwait and Egypt and defence experts in practice in the UK were used as a baseline to assess the level of quality of forensic services provided by defence experts who present scientific and opinion evidence to Kuwaiti criminal court. In order to establish a fair comparison with regard to the type of methods, procedures and equipment used by participants of both private and public forensic practitioners, this study will concentrate on the forensic services supplied by the defence in Kuwait (medical examination, pathology, handwriting analysis, and document authentication), and compare these with similar practices conducted by the public sector scientists. In fact, as in Kuwait and Egypt, the areas of medicine and document examination were among the most popular forensic expertise available to

defendants in the UK.[9] The reason for this will be explained in the discussion section of Chapter Four.

There are two reasons for using the United Kingdom as a comparison group. First, the present application of quality assurance and quality control systems in forensic practice are the product of frequent public criticisms over the reliability of expert evidence. As a consequence, quality matters in forensic science practice are being seriously discussed by both the legal and forensic community in the UK. Secondly, there are many cases in which convictions were overturned after identifying that flawed prosecution expert evidence was presented in the initial trials. In these cases, defence experts were suitably proficient in revealing such flaws in the state forensic science practice.

The current level of knowledge in the field of forensic science amongst UK and Egyptian defence lawyers will be used as a baseline against their Kuwaiti counterparts. This comparative approach is an attempt to examine whether the defence in the UK and Egypt were thought to be more effective in testing the quality of scientific evidence and merits of opinion evidence presented by expert witnesses in courts as they were exposed to private forensic science services before their Kuwaiti counterparts. It is worth of mentioning that adversarial experts have been part of the UK and Egyptian judicial system for decades, whereas in Kuwait, defence experts have only recently been introduced to the Kuwaiti criminal justice system (as explained in Chapter Five).

1.5 Methodology of the study

This study embraces qualitative and quantitative approaches in the use of questionnaires and interviews with senior public and private sector forensic practitioners, assessors of competent forensic practices as well as the legal profession. Previous studies about forensic science services, criminal cases and documents relevant to the context of this thesis were also examined, all of which are cited and will be listed in the bibliography. Techniques and approaches used in the questionnaire and personal interviews will be discussed in detail in Chapter Three.

1.6 Previous studies and research

The legal system embraced by the State of Kuwait since the 1960s is the Inquisitorial system. This system imitated Egyptian criminal law and procedures, which is based on the French criminal system (based on the laws of ancient Rome). The introduction of this system in Kuwait accepts expert evidence to be included in the system of proof. The legislature in Kuwait has given judges some guidelines in issues relating to evidence in criminal trials. According to Articles 151 and 170 of Kuwait's Law of Criminal Procedures No. 17/1960, judges have the discretion to investigate and examine each piece of evidence presented, and on their satisfaction, to reach a verdict. More precisely, the Kuwaiti Supreme Court gave the trial court the authority to estimate and evaluate the quality of scientific and opinion evidence.[10] Forensic practitioners who give expert testimony have a special position in court because their testimony is permitted on issues that fact or eye witnesses would not be allowed to address. Witnesses of fact are called to give evidence about what they saw or heard in a particular case, but not to give opinion or write a report. However, expert witnesses are allowed to give evidence of facts and their opinion of those facts. Such opinion is aimed at assisting courts on matters beyond their common knowledge, matters which often involve scientific evidence. Experts are allowed to express their opinion because of their specialist training, qualifications, skills and experience in their particular field of expertise. Expertise could include science, medicine and a wide range of other fields. Opinion evidence could be presented in court either orally or in a written report. The written report is the product of the forensic scientific investigative process. This type of investigation includes three phases: crime scene, forensic laboratory results including the interpretation of results by means of opinion, and often the presentation of opinion evidence in courts. The first phase includes steps undertaken during the collection, preservation and transfer of physical evidence at and from, the crime scene to the forensic laboratory. The second phase includes the scientific techniques used in the analysis of physical evidence, and the interpretation of the results obtained from analysis. Scientists may also reconstruct the possible events of a case based upon the interpretation of analytical results of physical evidence. This means that the reconstruction process is an interpretation and not an analysis.[11] The results of

analytical tests are facts and scientists usually do not disagree on results, rather on the interpretation of these results when each expert often expresses by writing his own opinion. The third phase begins when experts, upon the courts' or the parties' request, appear in court to give oral testimony and, like witnesses of fact, they are subject to cross-examination by an opposing party. The oral opinion evidence often involves the interpretation of scientific results. This means that courts rely on experts to aid them in the understanding of technical matters.

There are two important points to discuss. First, the evidential value of expert testimony could be undermined if courts discovered that there was a flaw in any stage of the forensic scientific investigative process. In other words, if there was a mistake in the procedural rules of collecting, preserving, transferring and analysing the forensic evidence, or in the interpretation of the results of the analysis, such evidence would be scrutinised on the basis of its reliability and may be ruled inadmissible. This of course could happen if such a mistake was identified in court. However if unreliable expert evidence was not discovered in criminal trials, convictions could and have resulted in innocent people being incarcerated. Therefore, there was a need for some sort of mechanism which ensures the accuracy of scientific results, and which discovers flaws in the forensic practice before the submission of expert evidence to courts. In the UK and the U.S., such a mechanism was seen to be possible by applying quality assurance and quality control systems in forensic science practices. Accordingly, the historical development of quality systems will be highlighted in this Chapter, considering the impact in the legal foundation of experts' evidence within the UK and the US forensic communities. The second point is related to the interpretation of the analytical results. The interpretation phase has become problematic in courts as science has developed. The use of sophisticated scientific techniques in forensic laboratories raises the issue of whether the tribunals of fact comprehend the expert's interpretation of the results obtained by the use of such techniques, and this is to be highlighted later in this Chapter. In the same context, the issue arises as to whether parties who represent opinion evidence in courts keep abreast of new developments in forensic science so that they can understand the scientific methodology underlying expert testimony. This was looked

upon as vital for a reason. Lawyers may need to be part of the monitoring process of the quality of scientific evidence. Not being supported by sufficient knowledge in the field of forensic science, lawyers may not only face complications in cross-examining opposing experts, but also in evaluating the quality of opinion evidence given by their own experts. In cases involving science, these lawyers may fail in providing competent legal representation for their clients.

Conclusions reached by forensic scientists and opinion evidence given by experts have a vital impact on the discovery of truth in criminal legal proceedings, especially when another type of evidence is lacking or ruled inadmissible. In criminal prosecutions, scientific evidence may also assist in determining the credibility of confessions. It could also serve as cooperative in the context of other evidence offered. Forensic science is an amalgamation of a wide range of knowledge and it is not limited to a certain field or a specific discipline. Forensic investigation draws on virtually every area of science, principally, from chemistry, biology, anthropology, engineering, medicine, physics, geology, psychology, etc. The aim of such an investigation is to establish whether there is any scientific evidence to link a person or an item to a scene of crime. A crime scene is any place where an act has been committed in violation of a law. From this perspective, science and law are linked to each other. Science, law, and physical evidence are all related to forensic science. Aspects of forensic science are also referred to as criminalistics in America, police science in the UK, criminalistique in France and Kriminalistics in Germany. All the definitions of forensic science tend to establish a relationship between science and law. For example, forensic science was defined as the "application of science to the detection and prosecution of crime".[12] Another definition, is "the application of the natural sciences to matters of law"[13], or to questions of law. Henry Lee and Jerry Labriola in their book *Famous Crimes Revisited*[14], defined criminalistics as it relates to physical evidence, "it involves the recognition, collection, identification, individualization and evaluation of physical evidence using the techniques of natural science in matters of legal significance. It includes the reconstruction of events based on the analysis of physical evidence and the interpretation of crime scene patterns". By reviewing these definitions it can be concluded that forensic

science is the study of physical evidence recovered from crime scenes, and scientists draw conclusions from such an examination for the purpose of providing important evidence in criminal investigations.

The scientific assessment of physical evidence recovered from crime scenes is presented in court in the form of expert evidence. This type of evidence has become a method of proof used by parties in criminal cases amongst all other methods, such as testimony given by eye witnesses and documentary evidence. Physical evidence or "real evidence" is viewed as a tangible substance or an object that "speaks for itself".[15] It is also referred to as forensic scientific evidence, the "evidence that depends on real substance, which can be touched, weighed and measured".[16] Physical evidence can be any number of things, from a length of fibre, a paint chip, a fingerprint impression, to the scene of an explosion.[17] Any thing that can be "seen, touched, smelled or tasted; semi-solid, or liquid; large or tiny" could be regarded as physical evidence.[18] The distinctive nature of this type of evidence and its unique role in the processes of fact finding was viewed by Kuzmack as "the first-hand impression to the trier of fact, as opposed to testimony, which serves merely to report the second hand sense impression of the witness".[19]

The effectiveness of scientific evidence in criminal trials begins when physical evidence is found at crime scenes. Within the forensic science laboratories' framework, physical evidence becomes important and may trace a culprit and link him to his criminal act thereby aiding the criminal investigative process. In 1984, a study conducted by Peterson, Mihajlovic and Gilliland in their book *Forensic Evidence and the Police: The Effects of Scientific Evidence on Criminal Investigations*[20] aimed to determine the extent of use of physical evidence in criminal investigation and to evaluate the effects of scientifically analysed evidence on the resolution of the cases and the apprehension and prosecution of suspects. In this study, criminal cases were randomly selected from four separate jurisdictions in the U.S. After reviewing these cases, it was established that in most robbery, assault and burglary cases, the accuseds were convicted when physical evidence was discovered. In rape and homicide cases, however, the result depended on the nature of the physical evidence. Indeed, finding some evidence on a victim or from a

crime scene on a suspect has a significant impact on a case. Physical evidence could also provide vital information in volume crimes in that it could link multiple crimes to a single perpetrator.[21] It has been proven in many cases that without forensic evidence there would have been no case. The emphasis, however, should be placed on the efficient application of scientific evidence rather than its use in greater volume.

It has become clear that forensic science is the science behind expert evidence and forensic practitioners often have to testify as expert witnesses. The primary functions of forensic practitioners are expected to include following strict anti-contamination procedures in the process of handling evidence at and from crime scene to laboratory; analysis of physical evidence using accepted and validated methods and analytical instrumentation; preserving evidence according to laboratory procedures; maintaining the protocols of the 'chain of custody' (documentation establishing the receipt, handling, and disposition of evidence); interpreting observations and test results objectively; preparing written opinion reports; and impartial expert testimony in courts. It must be stressed that the ultimate aim of any forensic investigation is an attempt to obtain the truth and from which to provide convincing testimony based on scientific facts.

While courts attach great weight to expert evidence, incompetent interpretation of scientific analytical results, poor quality forensic practice, or both, could contribute to unreliable expert evidence and, if not identified in court, could lead to miscarriages of justice. Indeed, mishandled forensic evidence may mean new appeals. There is of course a difference between the right for an appeal that has been granted to a deserved innocent and to a criminal, both claiming to be unjustly sentenced because of a flaw was identified in the initial forensic investigative procedures or because of incompetent interpretation of forensic evidence. In simple words, flawed expert evidence allows criminals to escape justice and innocents to be wrongly convicted. Obvious examples for the latter are the cases of the Birmingham Six and Maguire Seven in the UK in the 1970s.[22] In these cases the misinterpretation of scientific evidence was the main cause of wrongful conviction. Once this was announced publicly, the validity of scientific methodologies used in forensic laboratories and the reliability of expert evidence were viewed with less confidence amongst the public and media and the quality of such evidence was greatly

criticised. In the UK, these two cases and others[23] were enough reason to call for the auditing and the establishment of high standards for forensic laboratories. Accordingly, forensic professions began to regulate themselves and steps were taken to set indicators of quality standards. These indicators were seen as an attempt to lessen the risk of, and easily detect, errors in practice. Such indicators included the application of quality control and quality assurance systems in forensic science practice. Research, articles and publications relevant to forensic science reflect the importance and broad concepts of these systems in assuring the accuracy of analytical results and, generally, in avoiding unintentional errors in evidence processing.

These systems have become a principle interest area for those who want to deliver accurate scientific results to the judicial system. The appropriate application of such systems could ensure the validity of scientific methods and reliability of procedures used in forensic laboratories. Quality Control (QC) is a procedure used in laboratories and it was specifically instigated to ensure accurate results through the use of reference standards, instrument calibration and standard operational procedures (SOPs). Reference standards involve "a material of known physical characteristics authenticated by a certified procedure accompanied by, or traceable to, documentation". Instrument calibration is the standardisation of instrumental readings which provides a good understanding of the accuracy of casework results. It permits the early detection, diagnosis, and resolution of potential problems.[24] SOP, in the forensic context, is a procedure set by forensic organisations involving the proper methods of exhibit collection and sample handling, of documentation of chain of custody, of examination techniques, of report writing and of court testimony.[25]

Quality Assurance (QA) is a system applied by the management to provide confidence that a service will meet certain requirements. QA can be achieved by internal and external programmes. The internal programme includes proficiency testing involving the evaluation of personnel and the laboratory through the examination and interpretation of a prepared sample. It also includes the selection of qualified personnel, formalised training programmes to ensure adequate and continued competence, assurance that SOPs or written protocols are applied as guidelines, confirmation that instrument and

equipment maintenance logs are checked and finally, that a supervisory review of all case work is carried out to ensure compliance with laboratory policy.[26] The external programme consists of a blind testing programme involving the submission of contrived cases to the laboratory for testing.[27]

The legal community in the United Kingdom has made conspicuous efforts through the Runciman Commission[28] and the May Inquiry[29] to propose a reform within the criminal justice system to reduce the risk of obtaining unsafe convictions. The forensic science laboratories were included in this transformation. Each laboratory was advised to independently set its own QC and QA standards to be followed throughout the laboratory practice. They were advised to attain accreditation by the National Accreditation of Measurement and Sampling (NAMAS) Forensic Science Working Group.[30] This organisation was established to accredit laboratories for carrying out calibration and objective tests and sampling, as an approach to ensure accurate analytical results. NAMAS requires laboratories seeking accreditation to have a policy which approves that all operating staff are at a professional standing which qualifies them to undertake forensic work. In addition, they require an approval of policy that include procedures for re-training and the maintenance of skills and expertise. The FSS in the UK has set its own quality management and code of practice which meets both NAMAS and British Standards (ISO 9000).[31] Other forensic laboratories in the UK have been advised to develop QA systems similar to that of the FSS. [32]

The evaluation of the significance of laboratory analytical results might be adversely affected if physical evidence was contaminated before it reached the laboratory. As the application of QA systems in the UK forensic science laboratories began, there was a concomitant need to apply this system to crime scene investigation.[33] A study was carried out for the UK Home Office in June 1987 entitled *Review of Scientific Support for Police, Scientific Support in Police Forces and Related Issues*[34], which reviewed scientific support to the police. It was established that the QA system within the FSS laboratory was satisfactory, however, QA procedures followed by Scene of Crime Officers (SOCOs) were generally insufficient. In 1989, the House of Commons Home Affairs Committee also published its first report about the FSS in England and

Wales in February[35] as a result of criticisms of the SOCOs professional performance. Therefore, it was suggested that the quality management system within crime scene practices needed to be improved in order to preserve evidential value to forensic analysis. As a consequence, the UK established a training programme for SOCOs through the National Training Centre for Scientific Support to Crime Investigation at Harperely Hall, County Durham, UK.[36] The aim of this Centre was to provide the best training with the application of high quality occupational standards to crime scene investigation so that the "highest levels of integrity and credibility were achieved". [37]

Criticism of forensic science practice began again in the UK in 1996. The media raised the issue of the quality of forensic evidence, more specifically, in dealing with trace evidence, and whether quality standards were strictly followed in forensic laboratories. This occurred after the discovery of contamination of a centrifuge at the Forensic Explosive Laboratory (FEL) at Fort Halstead.[38] This threw serious doubts on the reliability of expert evidence in a number of terrorist cases, and forensic scientists' work was criticised for being negligent. It was concluded that rigorous checking of evidence quality was swiftly needed.[39] Accordingly, there was a need for an inspection to evaluate the laboratory function and compliance with established criteria. An inquiry by Prof. Brian Caddy and his team at the University of Strathclyde, Glasgow, examined the QC and QA standards followed by the FEL from 1988 to 1996. It was established that although this laboratory was following high quality standards during their forensic analysis, contamination had occurred. In fact, this particular case illustrates that the QA system could easily detect errors in laboratories practice since such a system facilitated the examination and the review undertaken by Caddy. The difference between the cases that took place in the UK in the early 1970s and the FEL illustrates the importance of having an audit system in place. In the 1970s, QA systems were not yet recognised by forensic organisations, and the unreliability of expert evidence was identified only after innocent people had endured many years of imprisonment. As in the FEL case; innocent people could have been wrongly convicted if the mistake was not identified during the early stages of the forensic scientific investigation. QA systems made it possible to identify such mistakes. The FEL case also illustrates that the quality management system

was strictly upheld since the manager of this laboratory announced the error publicly as soon as it was discovered. Thus, following QA and QC systems in forensic practice lessens the risk of unreliable forensic evidence being delivered to court.

The USA has also begun to recognise the importance of having quality systems in forensic practice.[40] This awareness began after the poor quality of forensic DNA evidence presented in the O.J. Simpson case. This case has led to a change of the laws of the evidence in the area governing the use of expert evidence. Up until this point, the forensic community in the U.S. had not experienced an abrupt shift in the legal foundation of forensic science such as the United States Supreme Court decision of *Daubert v. Merrell-Dow Pharmaceuticals, Inc.*[41] where stricter standards for the admissibility of expert evidence were established. The forensic community in the U.S. were not happy about the new admissibility test of *Daubert*, and it has been said that "Unless we can openly verify and document the scientific standards and the nature of our examination behaviour, we can expect more decisions like *Daubert v. Merrill Dow* to assist the court in cutting through our inconsistencies".[42] Therefore, it has been emphasised, "Perhaps the most important issue in forensic science is the establishment of professional standards. An assessment was needed of standards of practice in the collection, examination and analysis of physical evidence."[43] As a consequence, the US forensic community has begun to develop indicators of quality standards in an attempt to ensure the reliability of the evidence they present in courts, and to demonstrate the validity of scientific techniques used in their laboratories. U.S. courts, which apply the *Daubert* test, before admitting an expert's testimony into evidence, have to ensure that it is based on valid scientific methodology and this is only one of the basic guidelines required in this test.[44] The sensitivity of DNA profiling required forensic laboratories in the U.S. to be accredited; ensuring strict compliance to a large number of rigorous quality standards, specifically, the application of strict preventative procedures to avoid potential cross-contamination when handling DNA samples. The American Society of crime Laboratory Directors Laboratory Accreditation Board (ASCLD-LAB) was established to regulate such accreditation. The accreditation programme, which is voluntary, addresses all areas of the laboratory's operations including management, personnel training and

qualifications, technical operations, evidence handling, proficiency testing, lab security and health and safety. Any forensic science laboratory in the U.S. seeking to gain accreditation must apply quality standards developed by ASCLD. The accreditation process is carried out through a comprehensive and thorough inspection performed by an external team of ASCLD-LAB trained inspectors.[45] Another approach by the U.S. to encourage quality management programmes within laboratories applying DNA profiling to forensic science evidence was the US DNA Identification Act.[46] According to this Act, only laboratories which meet certain standards and seek to establish QA procedures are allowed funding.[47] Further, the ASCLD- LAB programme includes crime scene investigation within their forensic science laboratory accreditation programme. The trend towards quality standards in forensic practice was also undertaken by the Australians under the National Association of Testing Authorities (NATA).[48] However, unlike ASCLD, Australian crime scene investigators must possess a Bachelor's degree or equivalent in a field of science and be able to demonstrate competence in order to apply for the NATA ISO/IEC 17025 accreditation in the field of crime scene investigation.

As knowledge has become more specialised and complex, so has the expert evidence. Rapid development of new scientific techniques in forensic practice produced new problems for legal professionals. A good example is the application of DNA techniques to forensic science. It has been questioned whether legal professionals understand cases involving sophisticated science and are able to follow the interpretation of DNA results in a statistical context. The technological development in forensic science work, such as DNA profiling, and in fact the new advances in DNA techniques, has widened the gap between the experts' language and the understanding of the layperson receiving that information. This is understandable since forensic practitioners often study "natural science", and legal professionals study the "humanities".[49] In countries practising common law, the impact of new advances in science has been seen to have an affect on the understanding of judges who evaluate the admissibility of scientific testimony, juries who weigh the scientific evidence, and lawyers who represent scientific testimony.

The interpretation of DNA evidence results and the use of statistics in the U.S. courts, particularly after the O.J. Simpson case, called for a stricter approach in the scrutiny of scientific evidence. This was obvious after some courts decided to depart from the "general acceptance" test of *Frye*[50] and apply the *Daubert* standards[51] as a stricter test for the admissibility of expert evidence. This laid a new foundation for the admissibility of scientific evidence in federal courts and charged judges with asking questions not only on the generally acceptance of a scientific technique but beyond that. The *Daubert* decision involved the interpretation of FRE Rule 702[52] which states that trial judges were to play a gate-keeper role in testing the admissibility of scientific evidence by considering two factors, its reliability and, whether by admitting such evidence, the matter which requires proof becomes more or less probable. U.S. judges (who apply *Daubert* criteria) were to determine the reliability of scientific evidence based on scientific knowledge by focusing on basic guidelines such as whether the technique used can be and has been tested; whether it has been the subject of publication and peer review; the technique's error rate; and whether the technique is generally accepted by the scientific community. Until this point, judges in the U.S. were regarded as individuals who were guided by the laws of the evidence, and that there were guidelines which judges could use as a tool for testing the reliability of scientific evidence in criminal trials. However, it is questionable whether U.S. judges alone are able to test sophisticated science.

The use of DNA fingerprinting technology has provided a great contribution to the criminal investigation in proving or refuting a person's participation in a crime. DNA evidence has become admissible as a method of proof in some of the modern criminal justice systems. An example illustrating the strength of DNA evidence can be illustrated in a study made in the USA in 1996.[53] In this study it was found that the application of DNA profiling in forensic science casework overturned 28 cases after discovering that the accuseds were wrongly convicted on the basis of unreliable eyewitnesses' testimony, false confessions and flawed scientific and expert evidence. The DNA testing of samples of old criminal cases highlighted the weaknesses of the criminal justice system in the U.S., specifically, when using expert evidence as a method of persuasion in the fact finding process.[54] This can be illustrated by a study showing cases in which people were

wrongly convicted on the basis of hair matching.[55] The convictions were overturned after the use of DNA profiling. In one of the cases, it has been said that "hair strands yielded a kind of double proof that Albert Brown was a murderer: His hairs were linked to the victim, and the victim's hairs were linked to him... In each case, the forensic evidence was conclusive - and in each case, *the science was dead wrong.*"[56] The increasing number of exonerations using DNA evidence, especially death row exonerations, has created doubts in the fact finders' ability to discover the truth impartially and objectively, particularly, when scientific evidence was the only option available to reach the truth.[57] However, it is inevitable to rely on scientific evidence since expert pathological evidence in the U.S. is essential in deciding the outcome of the capital cases.[58] It has been announced that, in the U.S., "one out of four defendants accused of a serious crime, such as sexual assault, and at least one out of 100 of those actually sentenced to death is innocent."[59] As a consequence, the legal system in the US was blamed for relying on flawed expert evidence in deciding criminal cases.[60] Therefore, it has been stressed, "The need for a high degree of scientific acceptance and, particularly reliability, is vital when a criminal case is involved where the individual's freedom or, in fact, his life may be at stake".[61] Indeed, in cases involving science, in order for the trial system to confidently announce convictions, the forensic science community must first regulate its structure.

By analysing the U.S. *Daubert* factors of admissibility, it is questionable whether these factors are to be regarded as enough safeguards against unreliable expert evidence, especially, in the light of exoneration of individuals who were wrongly convicted. The cases highlighted give the impression that the admissibility test may not specifically identify errors in the application of expert evidence, and this could be for three reasons. First, given that the reliability of scientific evidence begins at crime scenes, these factors only consider the validity of scientific techniques used in laboratories and do not address questions concerning the proper handling of forensic evidence at, and from, crime scenes to, and throughout, laboratory practice. When forensic experts do not follow the minimum standards set down by the profession, especially standards instigated to ensure the appropriate handling of evidence, there is a high risk for incriminating innocent people, and this has happened in many cases in the U.S[62]. It seems that questions relating

to competent practice are trusted and relied upon opposing lawyers to bring to light in the trial proceedings. Secondly, if the scientific theory or technique is not recognised or not of interest to the scientific community and it is applied only for forensic purposes, it must be questioned whether or not the scientific community can validate or scrutinise that theory or technique. Finally, there are certain forensic disciplines which are regarded as not involving science, such as, fingerprint, handwriting, voice and hair identification and interpretation of injuries. Certainly, these disciplines are of interest to the forensic community and, arguably, if they are to attract the attention of the wider scientific community, can a non scientific technique or theory have a measurable error rate? It seems to be that the *Daubert* factors may not be enough of a safeguard against unreliable expert evidence and, in the light of the new advances in science, it is still questionable whether U.S. judges alone are in a position to assess the validity of the empirical knowledge base (reasoning or methodology) underlying expert evidence. This raises the question as to whether the present accreditation system in U.S. laboratories is enough to ensure reliable expert evidence. It has been said that this system "does not go far" enough since it has been discovered that some forensic scientists working in accredited crime laboratories have given flawed expert evidence which has resulted in convicting some 131 innocent people. It has also been emphasised that voluntary accreditation is "a nice first step", but the accreditation board asks only for "lowest common denominator [of] standards" because it is essentially a self regulating group of crime laboratory professionals. It has been proposed to establish an independent body outside the present forensic organisations which would be committed to rigorous investigation and accreditation. Forensic science laboratories in the U.S. are now expected to meet rigorous federal standards and to maintain best practices since "We should expect no less from crime laboratories, whose work product will [also] result in life-or-death decisions".[63] The UK has already taken the initiatives in establishing such an independent professional body, but for the purpose of assessing competence of individual practitioners rather than accrediting laboratories.

There are many lessons to learn from the U.S. experience regarding issues of reliability of expert evidence in criminal trials. First, if forensic evidence is not

impartially and objectively handled at crime scenes, tested, analysed and interpreted, the discovery of truth will be potentially compromised, affecting the ultimate issue concerning a defendant's guilt or innocence. Secondly, some U.S. criminal courts, in some cases, depended on one type of evidence in reaching their verdict. The verdicts could have been safer if there were corroboration of evidence. However it is possible that, in some cases, the only evidence available is scientific evidence and, in the light of new advances in science, it is inevitable that expert evidence will be relied upon. Thirdly, the cases highlighted indicate that some defence lawyers in the U.S. are fully aware of the methodology underlying scientific testimony. This was obvious since questions relating to quality in forensic practice were seriously discussed in courts, a good example was the new appeals.

In the United Kingdom, the law of evidence closely resembles that of America and practices in the trial court remain nearly identical. Crown courts are guided by a number of rules governing the admissibility of expert evidence in criminal litigation.[64] However, they rely on judgements made in previous cases as a basis for testing the reliability of expert testimony rather than the U.S. *Daubert* factors. The UK courts use exclusionary rules as a basis of excluding evidence. These rules allow judges to instruct the jury not to consider certain evidence in the fact finding processes. Like the U.S., questions of admissibility (relevancy and reliability) are left for the courts to decide, and the jury have the task of weighing the evidence presented by parties in trial. If the evidence presented passes a relevancy test, the trial judge is required to examine its reliability before admitting it into evidence. In criminal cases, there are certain types of evidence which are inadmissible unless there are exceptions in common law or statute to admit them. One type of such evidence is expert evidence. There are admissibility rules specifically decided to expert evidence. This includes the exclusion of expert opinion if such an opinion could be obtained from a non-expert (a competent witness[65] or police officers[66]), is on matters within the common sense knowledge and experiences of the court[67], or involves an issue which only courts must decide, such as the credibility of witnesses testimony [68] and the defendant's guilt or innocence (ultimate issue)[69]. If the court decided to admit expert opinion into evidence, juries must be instructed by the court not to rely

solely on this type of evidence in the determination of guilt or innocence but to consider such evidence in the light of all evidence offered.[70] As science has evolved over the last few years, expert evidence is being introduced more often in court[71] and the question as to whether the witness himself is sufficiently competent to give expert opinion testimony is still left to the trial judge to decide.[72] One of the guidelines to ensure reliable expert evidence was decided by the appeal court in *R v. Inch.*[73] It was ruled that judges have the duty to ensure that opinion evidence given by experts is on matters within the limits of their immediate expertise. In subsequent trials, this ruling was used as a guideline to exclude expert evidence which did not fall within this criterion.[74] If the Court of Merits decided that an expert has deliberately given evidence of an opinion beyond the limits of his/her specialisation, he/she would be subjected to an offence of perjury.[75] Furthermore, the direction to exclude unreliable expert evidence in UK courts can be seen, for example, in cases involving fingerprint identification. There are specific guidelines upon which UK judges can rely in order to test the reliability of expert fingerprint evidence. These guidelines are: "1) the experience and expertise of the witness (at least five years); 2) the number of matching characteristics within the fingerprints of the accused with those found by the police; 3) whether there are dissimilar characteristics; 3) the size of print relied on, and ; 4) the quality and clarity of print relied on".[76] By analysing these rules, experts in the UK are required to reach this level of standard and follow these guidelines otherwise there is a risk of ruling that their evidence is inadmissible in court.[77]

Although the English courts have control on the use of expert evidence, it was argued that case decisions lack direct rules on the reliability of expert evidence, and that it is questionable whether they are sufficient to use as a basis to exclude unreliable expert evidence before it reaches the jury.[78] In order to analyse such an argument it is relevant first to define the term "reliable". "Reliable" means capable of being relied upon. To exercise this term in the context of the role of an expert witness means an individual who is relied upon to help the fact finders to understand and decide the case, obviously, because the matter in question is not within the common knowledge of the court. Certain matters require specialist knowledge and, therefore, expert witnesses are trusted as individuals who have the necessary qualifications and experience in their particular field

of expertise. The key word in the definition of "reliable" is capable. An expert witness must be capable in order to confidently be relied upon. Capable is a synonym for competent. Competent is defined as "properly or well qualified; adequate for the purpose; or legally qualified to perform an act". Qualified means "declared competent". The English law of evidence regards judges as the individuals who ensure competence, and the law requires experience, training or both as a basis for accepting expert testimony.[79] The key word in the definition of qualified is declared which means that a witness must be announced competent before acting as an expert, and the question remains as to whether UK judges alone are in a position to declare such competence. In addition, there are some concerns about whether a witness who gives an opinion based on either experience or training can be regarded as a competent expert witness. The other side of this argument is whether experience only is enough of a safeguard against expert evidence of dubious reliability. The English law requirement for allowing expert testimony into evidence means that there is leeway for allowing testimony based only on experience and without any formal training or any scientific background. Accordingly, an expert witness may not be disqualified if he gives opinion evidence based only on experience.[80] Another issue regarding the use of expert evidence in UK criminal trials is that judges are not guided by direct rules which enable them to validate the scientific methodology underlying expert testimony, and this will be illustrated in the following paragraph.

It seems to be that unintentional errors in forensic science are unforgiving, and the public in the UK started to criticise the quality of forensic evidence being delivered to courts. This was obvious after establishing the Criminal Cases Review Commission in 1997.[81] This Commission is an independent body investigating possible miscarriages of justice in England, Wales and Northern Ireland. It is authorised to refer back criminal cases to the appeal court after the discovery of new evidence. There are many cases recorded proving that convictions were quashed by the appeal court after discovering that expert evidence presented in initial trials was flawed.[82] An example illustrating the lack of rules to test the validity of scientific methodology in present English law is in recent cases involving child deaths. On the basis of expert paediatric evidence these cases ended

up with prosecution and were dealt with as tragic family events. In an appeal trial, experts agreed that the prosecution paediatric expert findings offered in the original trials were scientifically unsound. Innocent mothers were falsely accused of criminal offences they did not commit.[83] After spending years in prison, new expert evidence was introduced creating doubts in the prosecution expert evidence. Such flaws in forensic practice were widely criticised by the media who called for a "Check Up on the 'Experts'".[84] This title was written in a daily newspaper where it was stated that "It is imperative that when reliance is placed on supposedly expert witnesses, their expertise and objectivity are properly assessed".[85] This was enough reason to call for the reviewing of all cases involving convictions in child deaths relating to cot death and all cases involving child abuse allegations which were based solely on expert paediatric evidence.[86] In all of the cases under review, only the evidence of one medical expert witness was under question. This individual expert was subjected to a professional conduct committee to question his fitness to practice and, later in a disciplinary hearing, was charged with serious professional misconduct.[87] He was the first to propose the "Munchausen by Proxy Syndrome" which identifies that parents harm their children to get attention themselves and, the meadow's law that one child death is a tragedy, two suspicious but three murder unless proven otherwise. His theory has been used since 1977 and has continued to flourish not only in the UK, but in the U.S. as well.[88] The Court of Appeal in the UK ruled that, in future trials, a parent who had lost two or more babies shall not be prosecuted if the case relies solely on medical evidence that was disputed by other professionals who believed that the death could have been caused by natural, if unexplained, causes.[89] Policemen in charge of investigating child deaths in London were also advised not to rely on medical evidence alone.[90] This is a change in the rules governing infant death prosecutions. The English Court ruling requires cooperative evidence in future proceedings, an approach which has been deeply rooted within the Scottish law of evidence.[91] These cases are an example illustrating that the scientific theory underlying the expert testimony which was relied upon for decades was based on the credentials presented by one expert who was trusted enough by the court to the extent that his evidence was accepted without questioning its validity. Such cases highlighted

weaknesses in the criminal justice system in the UK and, in particular, raised issues concerning the court's ability to test the reliability of prosecution evidence.

Continuous criticisms raised the awareness among the forensic organisations in the UK who began to call for a reform in forensic science practice aiming to reinstate confidence in the reliability of expert evidence among the public and media.[92] Scientists are fallible, and mistakes in practice happen. The FEL case is a good example of human error. Commentators from the forensic community in the UK suggested that accrediting the testing and calibration laboratory may not guarantee that the forensic analysis has been carried out competently. There was also a need to ensure technical competence and more rigorous scrutiny of expert evidence. The judgment as to whether a professional service was carried out competently may only be made by other members of the professional community and not by courts. Therefore, there was a need for an independent professional body outside the existent forensic organisations to check the professional competence of forensic practitioners. In fact the Royal Commission on Criminal Justice, as far back as 1993[93], recommended the establishment of such a body. The Home Secretary in 2000 reconsidered this recommendation by announcing the establishment of the Council for the Registration of Forensic Practitioners (CRFP) as an independent regulatory body which looked after the public interest.[94] This approach was welcomed by the legal community and Lord Justice Auld in September 2001, in his proposals to reform the criminal justice system in England and Wales, advised forensic experts to register with this Council.[95] The CRFP has set competence criteria which candidates must achieve in order to be registered as competent forensic practitioners.[96] Such registration requires renewal after a period of years.[97] The CRFP review of a professional's work is in the context of a second opinion on a normal case review process.[98] The panel of the CRFP determine if forensic practitioners have provided their professional service to the courts in a technically competent manner. In order to be registered with this Council, candidates must first demonstrate that indicators of quality standards set by forensic organisations are put into their practice, the standards which they must follow in order to maintain professional membership. In other words, forensic organisations regulate the professional competence of their members, and the CRFP

assess primary professional competence. This in a sense is a process of double checking aiming to reassure reliable expert evidence is placed before the courts. The CRFP aims to raise standards and restore confidence that its registrants are competent and that opinion evidence given by them is validated and is being expressed objectively.[99] More importantly, courts were promised that they could have confidence in this type of registration as a tool when assessing the reliability of expert evidence. [100] Whether being registered with the CRFP is enough of a safeguard against unreliable expert evidence is yet to be seen.

Another problem associated with the use of scientific evidence in criminal trials is the jury panel. It is assumed that juries usually believe expert witnesses. Unfortunately, lay juries may face difficulties in understanding the expert testimony they hear, and may be confused in the processes of weighing statistical evidence presented by opposing experts, especially in the light of the application of adversarial procedure. This was seen to increase the risk of unsafe convictions. Therefore, it has been questioned whether juries should be called in cases involving statistics and sophisticated science. The root of this confusion has been seen to be predominantly in the way scientific evidence has been presented in the court[101], and it is questionable whether lawyers are best placed to deal with complex scientific issues and properly understand the science underlying experts' testimony. From the professional point of view, lawyers may need to have sufficient knowledge in the procedures and scientific methodology used in forensic practice, especially in the DNA analysis and realise that cross- contamination in the use of such sophisticated technique is more common. Because of this, in countries practicing common law, various studies and research have been conducted to examine the differences and interface between science and law. The aim of these studies was to advise the legal profession on ways to cope with cases involving sophisticated scientific evidence so that they could effectively understand and test its reliability in court.[102]

'Equality of arms' is another problem relating to the use of expert evidence in the criminal justice system, especially in countries applying adversarial criminal procedure. For example, in the UK, such a problem became evident after the introduction of DNA profiling as evidence in criminal courts. The Royal Commission started to investigate this

problem.[103] It was found that defence lawyers lacked access to DNA experts, which raised the issue of who could evaluate the DNA evidence led by the prosecution. This meant that if DNA evidence was to be presented as a method of proof without the presence of an opposing expert to scrutinise its reliability, courts might exclude this evidence. Studies and research in the UK investigated the obstacles within the private sector forensic practice and it was argued that the defences' lack of access to forensic science facilities and databases may suggest that suspects were not being fairly served by the justice system. Steps were taken to propose solutions to this problem. One of the proposals was to permit the defence to use state funded forensic science facilities. However, this raised the issue of confidentiality as a permissible right for the defence. Other proposals included changing the present criminal procedure of trials to an inquisitorial procedure as an approach to solve the inequalities between parties experienced within the adversarial system. However the evolution of a legal system is the product of hundreds of years of religious, economical, social, and political changes which best reflected the changes in a particular society and, therefore, changing the legal system is not an easy option.

There are many other problems associated with the application of forensic science to the criminal justice system (problems associated with invasion of individual privacy such as obtaining DNA samples and fingerprint impressions from suspects and experts' interpretation of scientific evidence in relation to the Ultimate Issue will not be explored in this study as these issues are irrelevant to quality of forensic practice). These problems will be highlighted during the discussion sections in Chapters Four and Five.

Expert evidence has evolved into an increasingly complicated area of law, in both a civil and criminal context. This type of evidence is being presented by parties as a method of proof to aid in the processes of fact-finding and eventually to help reach decisions relating to the outcome of a case. However, even if parties exercise the process of persuasion in an objective and professional manner, any breach in the legal procedures of handling scientific evidence may rule this type of evidence inadmissible or if it is accepted by court may result in a miscarriage of justice. Therefore, forensic scientific

evidence must be dealt with on a solid foundation based on high quality practice in order for such evidence to be admitted in court and in order to avoid potentially unsafe convictions. The transformation of expert witnesses' responsibilities for the criminal justice systems which took place in the UK and U.S. through the implementation of quality standards, the establishment of measures of competency for verification of capability and fitness to practice, the education of lawyers in the field of forensic science and the change in the legal foundation of forensic science through the setting of new rules and guidelines governing the use of expert evidence in criminal trials were instigated in order to ensure that accurate scientific results and reliable expert evidence are being delivered to courts. In general in both the UK and the U.S., before admitting expert testimony into evidence, the witness must first be deemed to be an expert by the trial judge, and it is the role of juries to decide which expert evidence to give more weight to.

At least in the US and the UK, there is a centre of attention to exclude expert evidence of dubious reliability. Wrongful convictions, as a result of flawed expert evidence, are being identified and various steps are being pursued to remedy the weaknesses in their criminal justice systems. As in countries practising the Common law, expert evidence presents a number of challenges to the criminal justice system of Kuwait. In Kuwait, however, the situation is different. Unlike the UK and the U.S., Kuwait law has not provided any criterion for evaluating the quality of expert evidence as a threshold element to be satisfied as a test for admission. As a consequence, there is no so called "Law of Evidence".[104] In addition, there are no forensic organisations and no professional bodies to which forensic practitioners affiliate with. In simple words, in Kuwait, neither are there clear written guidelines on which judges can rely to test the reliability of scientific testimony, nor is scientific evidence presented by defence experts subjected to scrutiny and rigorous peer review, yet, issues of admissibility and weighing of scientific evidence are left to judges to decide. As science evolves, an alternative for Kuwaiti judges is to rely more and more on experts to explain the scientific methodology used in their analysis and to interpret the scientific results produced. Not withstanding, the use of expert evidence by the defence in the process of proof has only recently been introduced

in the Kuwaiti criminal courts. Therefore, it is vitally important to investigate and evaluate the reliability of this type of evidence. This should include their present level of professional standing to establish whether they are professionally qualified to undertake forensic work. It should also include the code of practice they follow from crime scene to court by focusing on the present standards of quality pursued in crime scene examination, the present standard operational procedures in their laboratories including the process peer review of analytical results and reports, protocols which demonstrate the unbroken chain of handling forensic evidence from crime scene to court and procedures followed when exhibits sent to their laboratories have problems associated with them. This type of study should consider the importance of the establishment of registered forensic practitioners and of applying quality systems within the forensic practice in the establishment of reliable expert evidence.

In this study, another approach to investigate the reliability of defence expert evidence in Kuwaiti criminal trials is to examine the court monitoring system. This was seen to be possible by investigating the present and recorded level of knowledge in the field of forensic science amongst defence solicitors in practice in Kuwait. Since these lawyers are the direct users of private sector forensic science services, the subject of this study, it is important that they have an appropriate level of understanding of forensic practice in order to confidently test the quality of scientific evidence and merits of opinion presented by their own and opposing experts.

1.7 Organisation of the study

This thesis is divided into six Chapters. Excluding the introduction and the final conclusion and recommendations emerging from the study, the core Chapters are as follow:

In Chapter Two, proof and evidence in inquisitorial and adversarial systems of criminal trials will be explained with reference to expert evidence. How the proof system in Kuwait changed and developed up to the point where scientific evidence was included will be investigated. The aim of this Chapter is to shed light on the process of proof with

special emphasis on expert evidence as a new and an important category of this process in solving legal disputes within the Kuwaiti criminal justice system.

In Chapter Three, the methodology by which this research was carried out will be explained.

In Chapter Four, the results and discussion of the analysis of the forensic practitioners' questionnaire will be examined. This is a comparative approach to assess the reliability of scientific and opinion evidence being submitted by defence experts in practice in Kuwaiti criminal courts. Private sector forensic practitioners (document examiners and medical practitioners) who operate in the United Kingdom were compared with both state and private practitioners operating in Kuwait and Egypt. The development and enhancement of methods and procedures under which defence experts in Kuwait are currently practising will be considered by investigating their professional standing and the quality of forensic evidence from crime scenes and its treatment in the forensic laboratory until it reached the court. The aim is to discover and recognise possible weaknesses in the current procedure and propose a new quality system for private forensic science practice. The attitude of forensic practitioners with respect to their evaluation of the level of professional performance and expertise will also be discussed in this Chapter. Finally, problems associated with the use of expert scientific evidence in criminal trials will be highlighted. This Chapter also provides an insight into the accessibility of the forensic science services to the defence since the application of Articles No. 100 and 101 of the Kuwaiti Law of Criminal Procedures (1960) permits defence solicitors in Kuwait as well as in Egypt to consult an independent expert's assessment of scientific evidence.

In Chapter Five, the results and discussion of the analysis of the defence solicitors' questionnaire will be examined. This is a comparative approach between defence solicitors in Kuwait, Egypt and the UK in respect of their awareness of forensic science practice. The findings of the present and reported level of knowledge in the field of forensic science amongst defence solicitors who carry out criminal cases in these three countries will be discussed, considering their ability to test the reliability and the merits of scientific conclusions and opinion given by their experts and, to cross-examine experts

called by other parties. The defence lawyers' attitudes toward the evaluation of the quality of forensic scientific evidence and related procedures undertaken by both state and private forensic laboratories in Kuwait, Egypt and the UK will be investigated. Finally, the methods which would develop and improve the current awareness of forensic science practice amongst defence lawyers will be considered.

The core Chapters end with a summary of conclusions stated at the end of each chapter.

CHAPTER TWO
PROOF AND EVIDENCE IN INQUISITORIAL AND ADVERSARIAL SYSTEMS OF CRIMINAL TRIALS WITH REFERENCE TO EXPERT EVIDENCE

This chapter is presented in nine sections:

2.1 Introduction

There is no doubt that justice is the interest of any modern society. Law governs the dealings and interactions between individuals. In order for law to direct criminal justice, there is a need to establish methods of proof which have the ability to distinguish and differentiate right from wrong so that individuals can prove their rights before a court. The rationale of legal proof is to determine facts to the satisfaction of the adjudicators on facts (judge, jury). Scientific evidence is one of the methods of proof being presented in courts.

Methods of legal proof are considered to be the core of any criminal litigation, and are used to reach the truth with the ultimate aim of serving justice. The proof system is distinguished by its philosophical and civilised characteristics which evolved historically with the advent of different legal systems. The current modes of proof used within modern legal systems did not evolve all at the same time, but are the product of lengthy historical developments. Law is a product of society so, as society evolved, so did the law and so did the methods of proof which, in each stage of development, was in harmony with the needs and necessities of a particular society. Every stage of development was the reflection of the political, economical, social, religious and historical circumstances prevailing in each society. Thus it is predictable that, over the ages, each society differed from another by developing its own method of proof to establish the truth with the hope of controlling the criminal activities of its members. Proof systems changed and developed from a power and revenge stage in the Dark Ages[105] through a religious stage where trial by ordeal was applied[106] and then through a statutory stage in the Medieval Ages where judges employed torture as a mode of procedure to obtain proof of guilt[107] until it eventually included the use of scientific evidence currently in practice in many societies in the present day. The aim of this Chapter is to explore the present legal system in practice in Continental Europe and in the UK with special emphasis on expert evidence as a new and an important category of the process of proof in solving criminal cases. These countries were included because firstly, the professional performance of private sector forensic practitioners who give expert evidence in UK criminal courts was used as a baseline to assess the reliability of similar evidence in Kuwait (the subject of this thesis)

and, secondly, the system of proof currently used in Kuwait criminal trials follows the traditional inquisitorial criminal procedures being implemented in the Continental Europe legal system.

2.2 Definition of evidence

In modern criminal court proceedings, evidence is being repeatedly pronounced and presented by lawyers. Evidence is essential in order to constitute a trial. It is the fundamental requirement of the proof process. In this section the definition and the methodology of the term "evidence" will be explored in order to have a greater understanding of the term "proof". In reviewing the terminology of evidence, many definitions were identified. Wigmore defined it as "any matter of fact, the effect, tendency or design of which is to produce in the mind a persuasion, affirmative or disaffirmative, of the existence of some other matter of fact".[108] Al-Razi mentioned that evidence is anything which can be used in order to reach the truth with the objective of leading the mind to an affirmative belief of what was suspicious to believe.[109] Anderson and Twining defined evidence as "any facts considered by the tribunal as data to persuade them to reach a reasonable belief on a probandum (a proposition to be proved)".[110] Some experts in criminal investigation define evidence as "those phenomenon, verbal and material, which are related to the occurrence of a criminal event or act which is in violation of the law".[111] This definition indicates that evidence in criminal investigation terms could be both oral and material items. There are of course legal rules which regulate and govern the way in which facts can be proved in courts. The most important rules are as follows: the evidence must be admissible by the court; must be relevant to the case in question, and it must be reliable. In other words, evidence obtained through investigation must not only have the ability to aid in proving or disproving disputed facts thus adding importance to the case, but also must be presented legally in courts.[112] Keane termed evidence offered in courts as "judicial evidence". This was probably in order to separate court evidence from evidence being pronounced in other fields, such as in science and history. Judicial evidence is "the evidence by which facts may be proved or

disproved in court".[113] According to Keane, this type of evidence could be presented to courts in "only three forms: oral evidence, documentary evidence and things".[114]

Based on the definitions reviewed, if evidence is legally collected and presented, it could prove or disprove the validity of a hypothesis, or it could raise or drop the degree of persuasion on the facts in dispute. So court evidence is the information offered by parties as the proof necessary to persuade the tribunal of facts about an event that happened in the past. Evidence could be oral such as testimony of witnesses of facts or of experts and confession, or it could be real such as documents (deposition, dying declaration, etc.), records, photographs, maps, video tapes, tests, exhibits or any other objects. Depending on the type of criminal offence, evidence could be obtained through either one or both of the following processes: the criminal investigative process, or the forensic investigative process. In fact, forensic investigation is one of the tools criminal investigators often rely upon in the process of gathering evidence. From the legal perspective, if there is a flaw in the way in which evidence has been collected or obtained throughout the criminal investigative process, the court may attach less weight to this evidence or disregard it altogether. The legality of evidence must also be maintained throughout the forensic practice and how it is interpreted and presented in court. Once the reliability of the evidence has been assured, the court can confidently develop a degree of certainty on the facts offered in its deliberation of a verdict.

After reviewing some of the definitions of evidence, it is essential to make a distinction between evidence and some other terms related to it. Facts (or facts in issue) and proof both are elements incorporated in the definition of evidence.

2.3 Definition of facts and facts in issue

Anderson and Twining define facts as "any event or act or condition of things, assumed (for the moment) as having happened or having existed".[115] However, a fact in issue is "all those facts which the claimant in a civil action, or prosecutor in criminal proceedings, must prove in order to succeed, together with any further facts that the defendant or accused must prove in order to establish a defence".[116] On the basis of these definitions it can be said that a fact, as it relates to court proceedings, is the information presented

presumably as true and accurate or something having real, demonstrable existence. The difference between facts and facts in issue is that the latter is related to information being introduced by parties in legal disputes to prove their argument. In general, facts are being offered before courts to prove or disprove that a crime has been committed, and the discretion is on the court to determine or to believe whether the alleged facts exist. One of the ways in which facts are being presented before courts is through witnesses' testimony. There are however two types of witnesses: witnesses of facts and expert witnesses. There are certain rules governing the way in which testimonial evidence should be presented in courts. The general rule is that a witness of facts is only allowed to give evidence with what he/she has perceived with one of his/her senses. The only exception for this rule includes the testimony of expert witnesses. Expert witnesses can give evidence on matters of fact and also are allowed to express their opinion of those facts.[117] This means that the testimony of expert witnesses is "a mixture of fact and professional opinion".[118] They can give their observation on an event that had occurred in the past which they may not have witnessed personally and, because of their specialist knowledge and experimentation, they are allowed to assist courts with an opinion as to whether the fact in issue is true or otherwise.

2.4 Definition of proof

Evidence by itself does not constitute a trial and it has been said that "evidence is a means of proof"[119]. Some jurists have gone further to say that proof is "the perfection of evidence, for without evidence there is no proof".[120] In professional dialogue, the term "proof" has meanings, functions and conceptions that differ according to disciplines. This section will only identify proof from the legal perspective and, therefore, will be referred to as judicial proof. Twining identified this type of proof as "the establishment of the existence or non- existence of some fact to the satisfaction of a legal tribunal charged with determining this fact in issue".[121] Anderson and Twining however were more specific in identifying judicial proof as they related it to the process of persuasion which occurs in the court. They believe that "proof is the part concerned with the ratiocinative

process of contentious persuasion- mind to mind, counsel to judge or juror, each partisan seeking to move the mind of the tribunal".[122]

To prove is to persuade and, based on the definitions reviewed, judicial proof is the process of persuading the tribunal of facts by the exhibition of evidence of the reality of a fact alleged. The courts' satisfaction, in criminal trials, requires proof and evidence to ensure that a criminal act has taken place in the past and by a specific person.

2.5 Proof and evidence

It is illogical to imagine a similarity between evidence and proof.[123] This is because, proof in the legal term, can be used as an expression to cover the whole process beginning from searching, obtaining and handling evidence in the criminal and forensic investigative phases, to the process of evaluating and presenting that evidence in court. If during the investigation procedures access had been gained to evidence, there is a high possibility that this evidence can be used as a proof in relation to an accused either to incriminate or discriminate him from the committal of an alleged offence. Overall, it depends on whether the court finds all evidence offered sufficient for it to formulate a degree of persuasion that an accused is linked or otherwise to the case in question and, if so, the court may determine the proper punishment in accordance with the degree of the offence.

The scope of the term "proof" covers a wide range of legal procedures which, logically, could not be merely restricted to the term "evidence". Proof is a sequence of legal procedures which is applied during the gathering of evidence such as examining crime scenes, seizing of evidence and the interrogation of a suspect. In simple words, evidence is the product or the fruit of all stages of proof.

Thus, proof is based on evidence. Evidence includes facts. Proof applies when the facts offered as evidence are sufficient to establish the facts in proof. The mode of trial in relation to the way in which proof is constituted to persuade decision makers about the existence or non-existence of a particular fact is regulated by the law of criminal procedures. This law involves the procedure of arrest, investigation, trial, sentencing and conviction.[124] The law of evidence regulates the way in which proof is presented at

trial.[125] These two sets of rules are found in most modern criminal justice systems. At this point, it is important to mention that the mode of proof in criminal trials differs from one legal system to another. Since this study is a comparison between the reliability of expert evidence in Kuwait and the United Kingdom, this Chapter will focus on the system of proof in the inquisitorial and adversarial legal systems.

2.6 The constitution of legal proof in accusatorial and inquisitorial systems of trial

Two legal systems dominate world wide: those based on Common law of England, and those based on the laws of ancient Rome. Accordingly, there are two main criminal procedures of trial, the accusatorial procedure and the inquisitorial procedure. This section will explain the difference between them by means of the constitution of proof in criminal trials. As far as this study is concerned, this difference can be better understood if explained by a comparative approach.

The accusatorial or adversarial procedure was not necessarily a part of the British Common law system. It was only after a long debate over centuries when an accused was eventually given the right to be represented by a defence counsel (the right to silence). Before the 18th century, an accused person in Britain did not have the right to test the prosecution case. To be more precise, he did not have the right to confront witnesses presented against him and the only confrontation allowed was the accused's own words against accusing evidence. He was "pressured to speak for his own defence". [126] The right for defence counsel was first introduced in matters relating to law and not to facts. It was believed that no one could know more about the facts of the case than the accused himself and, therefore, he should not be represented by a lawyer to speak about facts alleged against him. It was not until the Treason Trial Act of 1696 that an accused was given the right to a defending counsel in matters relating to facts. However, this was only in crimes of treason. A full right to defence counsel followed for cases involving serious crimes as well.[127] An accused in present criminal adversarial proceedings is not compelled to give evidence and has the right to be represented by defence counsel. He may not be questioned by the prosecution or by judges unless he chooses to waive his right to silence.[128]

An essential difference between adversarial and inquisitorial criminal procedure regarding the proof process rests on the mode of the trial. The rationale behind a trial is to test evidence. Evidence is presented to prove a fact and a fact is any event, act or condition of things assumed to have happened in the past or having existed. The trial is a vital part of the adversarial system. Opposing counsels in this system present their argument before a judge whose role is to ensure fair play of due process, and who ensures that evidence presented is within the limitations allowed by the rules of evidence. A jury is asked to decide, on the basis of evidence presented, whether guilt or liability has been established to the required degree of proof.[129] It has become clear that the criminal procedure of the Common law system allows courts to decide cases based on evidence gathered, presented and tested by competing advocates, where a judge acts as an impartial umpire whose role is "restricted to administering the truth-impairing norms of the evolving adversary combat".[130] In England and Wales, a trial relates to the principle of "the presumption of innocence and the application of the adversarial approach to justice".[131] This means that in criminal trials in countries following an adversarial system, an accused is innocent until proven guilty and this system puts its faith in the persuasive interpretation of evidentiary facts presented at trials. In this sense, if a defendant is represented by a lawyer, defence and prosecution lawyers have a vital role in the constitution of proof in criminal adversarial trials.

However, a trial is not a vital part of the inquisitorial legal system. A great emphasis is laid on the pre-trial inquiry rather than on the trial itself. The trial process in this system involves the evaluation of evidence obtained and recorded in the investigative stages rather than a form of oral argument between disputed parties.[132] Unlike the role of judges in adversarial criminal proceedings, judges within the inquisitorial system have an active inquiring role before and throughout the trial process and not merely at the post-investigation stage. In trials, they have the authority to examine litigants, to examine witnesses and to interview any experts. Further, since the inquisitorial criminal procedure gives courts the initiative of investigating the truth prior to the trial process, an accused instead of being presumed innocent, has to prove his innocence.[133] However, from 2nd October 2000, the principle that an accused is innocent until proven guilty came into law

across Europe with section two of Article (6) of the European Convention of Human Rights.[134]

Thus, in criminal trials in countries applying adversarial legal system the whole truth-finding process is trusted and placed on adversarial parties to bring facts to light in the proceedings and, in general, judges remain strangers to facts before the trial (in some cases judges might read the pleadings before trials). In criminal trials in countries applying inquisitorial legal system the whole truth is sought and ascertained before and during the trial by means of detailed impartial inquiries and by placing the task of eliciting the evidence at the trial on the judge rather than on the parties to the case. This means that judges in this system do not need to await proof to emerge during the trial process rather they are authorised to move on their own initiative with the help of the prosecution and defence.

The precedent information included the process of legal proof within accusatorial and inquisitorial systems of trial. The following paragraphs focus on expert evidence as a new and an important category of this process in solving criminal cases.

2.7 Legal proof by scientific assessment of physical evidence and its affect on courts' persuasion

The history of science dates back to the earliest times of ancient Greek, Chinese and Islamic civilisations.[135] During that time, scientists and philosophers had began to apply reason and search for knowledge to understand the world around them[136] which developed and continued into the dark and middle Ages. Three of the most dominant fields of knowledge were astronomy, mathematics and medicine.[137] Scientific investigation in these fields and a number of other different areas was revived in Western Europe during the 16th and 17th century. Pioneers such as Copernicus, Harvey, Galileo, Vesalius, Darwin, Wallace, Newton and others were involved in the scientific revolution beginning in Italy, spreading through Europe and then to the rest of the world. It has been argued that "Western science had started because the Renaissance happened".[138] The 14th century is generally seen as the beginning of the Renaissance and the beginning of a

modern state of mind.[139] It has been estimated that the beginning of the revival of science in Western Europe was on the 29th of May 1453, the date the Turks captured Constantinople (Eastern Roman Empire).[140] The Renaissance ended around 1687. It has been estimated that this was the year when scientists had began to base their knowledge on scientific observations and experiments, rather than on religion or superstition (an example was Isaac Newton who published his great work *The Mathematical Principles of Natural Philosophy*).[141] The development of science was the beginning of a new era, the era which introduced how science had altered mankind's perception of their place in nature. For the first time, men started to pose hypothesis and test them by experimentation.

As scientific thought became more common place, a number of different scientific disciplines began to emerge and continued to develop and specialise to the present day. The revolution in science was an advantage to the proof system. There are a number of criminal cases and situations where the problem could only be solved through an intelligent application of natural sciences and medical principles. The objective of every scientific work is to persuade, given appropriate data, towards one hypothesis or another. Physical or trace evidence recovered from crime scenes is one type of evidence being assessed by science and being presented in courts in order to persuade the decision makers about the existence or non-existence of facts. In other words, parties in courts use scientific evidence as a method of proof to persuade decision makers about an event that has occurred. The use of this proof system in solving legal disputes has begun to flourish and is used with increasing confidence by courts.[142] This encouraged the development of new specialist areas as such, forensic medicine (pathology, serology, odontology, toxicology, anthropology, entomology...etc.), firearms identification, forensic chemistry, document authentication and handwriting analysis, anthropometry, fingerprint identification, DNA identification and others. Modern methods of crime detection came from a strong history marked by rigorous analytical thought and forensic application. This is a new stage of development of the proof system. This new stage depends on the introduction of scientific research and methodology to crime scene examination, analysis of physical evidence and evaluation of that evidence in a scientifically meaningful way.

The results of forensic analysis are eventually presented to investigators "with confirmation or denials of pre-existing investigative theories", thus aiding the evaluation process in courts.[143]

The application of science in the administration of justice began with the use of legal medicine, commonly known as forensic medicine. The term "legal medicine" is used to indicate the application of medical knowledge to the investigation of crime. In 1248, a Chinese book entitled *Hsi Duan Yu* (*The Washing Away of Wrongs*) offered useful information in distinguishing drowning and strangulation from death by natural causes.[144] Andreas Vesalius (1514-1564) used scientific argument to justify his logic and he reorganised the study of anatomical science. His empirical approach to anatomy made him the first anatomist to be appointed as a court physician to Charles V and to Spain's Philip II. In 1539, the judge of Padua Criminal court consulted Vesaluis for anatomical study of corpses of executed criminals.[145] Ambroise Paŕe (1510-1590) was another pioneer in the field of legal medicine and, through his humanitarian activity, had an impact in the development of modern surgery. Paŕe reformed the treatment of gunshot wounds and revived the use of ligatures on arteries after amputation instead of cauterising with boiling oil. He worked in court as a surgeon to the new King, Charles IX, and held this position until his death. Paŕe is regarded as the first scientist to devote his expertise in the interpretation of gunshot wounds and the first to write a medico-legal report.[146] Giovanni Maria Lancisi (1654-1720) investigated the causes of sudden deaths in Rome and, for the first time, was able to link such deaths to hemorrhagic stroke, cardiac enlargement, dilation and growths on heart valves.[147]

Giovanni Battista Morgagni (1682-1771) was interested in investigating the causes of diseases. His work *Adversaria anatomica* established his reputation as an accurate anatomist and helped make pathological anatomy a reliable science. His book *The Seats and Causes of Disease Investigated by Anatomy* was the first approach to establish correlation between the pathology found at post-mortem and clinical findings. His involvement in medico-legal matters began by dissecting the bodies of the dead and comparing the alterations in their organs with the symptoms of the diseases that had caused death.[148] Auguste Ambroise Tardieu (1818-1879) investigated the severity and

frequency of sexual assault as actual cause of death in young children. His writing on the legal aspects of infanticide, abortion and hangings as well as on insanity reflected his position as the foremost French medico-legal expert of his day.[149] There were other great pioneers of forensic medicine such as Johann Ludwig Casper (1796-1864), Berlin, and Marie Guillaume Alphonse Devergie (1798-1879), Paris, who also devoted their life to the study and development of forensic medicine.[150]

In the 19th century, other scientific disciplines were used for the purposes of law and justice, such as forensic toxicology. Mathieu Joseph Orfila (1787-1853) was the first scientist to develop a chemical test for detecting arsenic. The first recorded case in which Orfila's expertise in toxicology was used was in Belgium in 1815. His scientific investigation revealed that the victim's death was as a result of consuming concentrated alkaloid.[151] During his stay in Paris in 1840, he testified in other cases involving arsenic poisoning, thus he is regarded as the first expert to provide convincing toxicological evidence in a criminal trial. He also made significant contributions to the development of tests for the presence of blood in a forensic context and is credited as the first to attempt the use of a microscope in the assessment of blood and semen stains.[152]

As medicine had become a tool in criminal investigations, so too did other branches of science. Pioneers in the field of forensic science started making contributions focusing on new scientific methods which could link criminals to crime scenes. Alexandre Lacassagne (1844-1921), the founder of modern forensic science, spent a lifetime making contributions including his theories on the science of ballistics. He was the first to recognise the significance of the unique striate left on the bullet extracted from a murder victim and their link to the gun from which the bullet was fired. He also was the first to study the relationship between an attack on a victim and the shape of bloodstains and splatter.[153] Other pioneers devoted their studies to establish identification evidence. Anthropometry was the first scientific method which aided police in the identification of criminals. It was invented by the French criminologist Alphonse Bertillon (1853–1914). This method of identification, known as the "bertillonage" system, was based on recording ten facial and bodily measurements including the width of the left ear, the distance between the left elbow and the middle finger, the length of the middle finger

itself, the colour of the eyes and any abnormal features. Bertillon was also the first to demonstrate the use of photography of criminals for identification.[154] The Bertillon system of anthropometric measurements failed, however, to provide reliable and unique measurements and, thus, reliable criminal identification. This system ignored the fact that bodies undergo changes with time and certainly did not take into consideration the possibility of cases involving identical twins.[155] This was a reason which brought fingerprinting into its own as the leading tool for identification.[156] Fingerprint impressions nowadays constitute one of the most important and reliable traces which might be used in identifying criminals as impressions are among the few that can be truly individualised. The discovery of the science of fingerprinting cannot be limited to a specific person. It has developed over the years after intensive and continuous studies by scientists from different parts of the world until it replaced the Bertillonage system.

In 1858, Sir William Herschel, working for the British government in Bengal-India, asked local businessmen to append inked palm and thumb impressions on the back of contracts. Herschel's aim was to prevent forged signatures and impersonation which frequently happened in the territory he was governing. This suggests that Herchel had identified fingerprint impressions as a means of proof of identity. Herchel was also able to show that fingerprints did not change over the course of an individual's lifetime.[157]

The focus on the importance of fingerprints as forensic evidence began in 1880 after a Scottish physician, Henry Faulds, discovered that fingerprint impressions could be visualised with chemical powders, and thus, could be useful in solving crimes involving fingerprint impressions on objects.[158] In 1892, the British anthropologist Sir Francis Galton recognised that there were certain characteristics in fingerprints making them unique and individual. These were small details within the print called minutia points which are local discontinuities in the otherwise smooth flow of ridges.[159] This discovery introduced fingerprints as a vital part of the forensic science approach to criminal investigation.[160] Edward Henry (1815-1905) established a system of fingerprint classification within the context of forensic investigation. This system enabled fingerprints to be easily filed, searched and traced against thousands of others. The four basic divisions that Henry suggested were: Arches, Loops, Whorls, and Composites.

Every fingerprint will fall into one of these four groups, narrowing down potential matches. In January 1896, Henry issued an order to the Bengali (India) Police station that criminal record forms should not only display a prisoner's anthropometric measurements but also the prisoner's rolled fingerprint impressions. The following year the Indian government made fingerprinting the official means of keeping track of criminals. In 1900, Henry wrote a book entitled "*Classification and Uses of fingerprints*"[161] and the following year established the Fingerprint Bureau of Scotland Yard. The Henry Classification System was immediately instrumental in the UK in solving several high-profile murder cases.[162] During this period the Bertillon system, as a means of criminal identification, was largely replaced by fingerprints. In fact, as early as 1891, Dr Hans Gross, Austria, made the following observation, "The advantages of finger-prints over the Bertillon system have become so well established that the latter can with perfect safety be dispensed with altogether as unnecessary for the purposes of identification."[163]

The French scientist Dr. Edmond Locard (1877-1966) established the *Exchange Principle*, which simply stated "Every contact leaves its trace". His thought was that if two surfaces touch then they will mutually exchange trace evidence. This principle has become the foundation of modern crime scene investigations and the analysis of physical evidence.[164] Dr. Gross was the first person to make a comprehensive description of uses of physical evidence in solving crimes. He detailed the assistance which investigators could expect from the fields of microscopy, chemistry, physics, mineralogy, zoology, botany, anthropometry and fingerprinting and, offered a course in forensic science as early as 1902. He strongly encouraged the use of physical evidence instead of the heavy reliance of criminal investigators and the courts on witness accounts. As he put it "The progress of criminology means less trust in witnesses and more in real proofs."[165]

There were of course other scientists who were interested in the application of scientific methods and logic to criminal investigation and identification. Albert Osborn (1858-1946) made significant contributions to the development of the fundamental principles of document examination. His contributions convinced the courts to accept the findings of the analysis of disputed documents as evidence.[166] In 1901, the Austrian Dr. Karl Landsteiner discovered human blood groups and developed the ABO system of

blood typing. This technique was adapted by the Italian, Leone Lattes who, in 1915, developed the first workable procedure for typing dried bloodstains left at crime scenes thereby helping to solve crimes. He achieved this by developing an antibody test for the ABO groups which he first used in casework to resolve a marital dispute.[167] In 1920, George Popp used "botanical identification in forensic work".[168] Other specialities had also started to emerge such as the identification of shoeprint impressions and tool marks, forensic engineering, forensic psychiatry and many others. In more recent years, the use of DNA in criminal and civil cases has had an enormous impact on the field of forensic science. Since the discovery of the structure of DNA in 1953[169], knowledge of the composition and organisation of the genetic material has rapidly developed. By the early 1980s, it became clear that most human DNA show very little variation from one person to another. This means that, like fingerprint evidence, DNA evidence can be individualised (except for identical twins). In 1986, DNA was first used in a criminal case by a British researcher, Sir Alec Jeffreys. He used a DNA test, better known today as DNA fingerprinting, to exonerate an innocent suspect and to identify Colin Pitchfork as the murderer of two young girls in the English Midlands.[170] This was the first ever murder conviction, and the first ever to exonerate a prime suspect of a murder on the basis of DNA evidence. Since then, many criminals have been brought to justice through Jeffreys' technique of DNA fingerprinting.

As forensic science and forensic medicine evolved over the years, the use and influence of scientific investigation to the criminal process has had an enormous influence in the courtroom, particularly, in the area of legal proof. New scientific methods were capable of discovering attempts to obliterate or alter evidence as well as exclude or include accused individuals. Scientific assessment of physical evidence and expert evidence has offered courts a great deal of assistance in the formulation of argument as to guilt or innocent to a higher degree of certainty than it could with other types of evidence, such as eyewitnesses and documentary evidence. As such, it has aided in the development of the system of proof used in courts today. Since science has an influence on the proof system and, accordingly, on how fact finders will view the

evidence presented, it is important to explore the extent of such influence. First, there are no limitations to judicial evidence. Arguably, if the accuracy of expert scientific evidence depends on scientific facts and principles, it could have an affect on the courts in formulating its opinion to a greater extent than the affect of other types of evidence. Expert evidence focuses on scientific principles and experience which makes it distinctive from other types of evidence in terms of legitimacy and cogency. On this basis, scientific evidence has an exceptional capability in persuading courts about the facts of a case and courts have begun to rely on this type of evidence in reaching the truth with more certainty. Secondly, proof by scientific assessment of physical evidence is characterised by its reliance on research and scientific techniques which eventually contribute to the desired facts. This, of course, requires specialist knowledge to express an opinion regarding an event. In the light of this, in cases involving matters in which courts cannot comprehend, scientists may be called to give expert testimony for assistance because of their specialist knowledge in such matters. The use of scientific assessment in the investigation of physical evidence is, in general, objective in nature in the sense that such investigation is often carried out in accordance with established scientific standards which can be applied to similar cases.

2.8 The evolution of the law of proof in Kuwait criminal trials

Scientific evidence has its own characteristics within the proof process which differ from all modes of proof being used over the past centuries. The uniqueness of this type of proof comes from the results which it can reveal to inform a criminal case beginning from the investigation of the scene of crime and scientific assessment of physical or trace evidence recovered from the scene, to the interpretation of results obtained from laboratory examination, and finally the provision of opinion in court which could aid in proving or disproving an accused person's involvement in a particular crime. It becomes therefore relevant to investigate how scientific evidence was introduced to the system of legal proof. Since this study is about the reliability of expert evidence in the Kuwaiti criminal justice system, it is important to analyse first the historical process of change in the law of proof in Kuwait up to the point where the courts began to appreciate scientific

and opinion evidence as a method of proof in uncovering legal truth. Such an approach may be better explained by investigating first the origin of Kuwait's present system of law and the influences which led to its introduction. Since law is the product of societies, a better understanding of the current legal system may not be possible without referring to the history of Kuwait.

2.8.1 Legal history and the development of the judicial system in Kuwait

Despite its brief history, Kuwait's current legal system is a combination of British Common law, French civil law, Islamic legal principles and Egyptian law. Obviously, there is an historical reason for such combinations and, like other countries, Kuwait's law developed in accordance with continuous social, religious and political changes. Kuwait's legal history was influenced by a number of events starting with the Ottoman occupation.[171] In 1453 A.D., the Eastern Roman Empire came into the hands of the Turks[172] by which time the founder of the Ottoman dynasty, the Turkish leader Osman, had appointed himself as ruler of the Byzantine province. The Ottoman Empire extended to include modern day Kuwait.[173] The Ottoman legal and judicial system gradually spread until it reached most of its province. The system of law was heavily based on the Shariah, custom and supplementary decrees issued by the Sultanate. Shariah means "a path to life-giving water" and refers to Islamic legal tradition, better known as Islamic law.[174] Islamic jurisprudence, also known as Figh, deals with the process and ruling relating to all aspects of Islamic life. Judgements, Islamic legal opinions and legal analogies are all parts of the Figh. This system of law is based on the Quran (Islamic Holy book) and teachings of the Prophet Muhammad.[175] Islamic law became the ultimate model and inspiration for the legal system of virtually every Middle Eastern country along with the application of Shariah in other regions. The first law introduced to Kuwait was Islamic law. Kuwait's modern history began around 1716 with the founding of the city of Kuwait by the Uteiba tribe (better known today as Al-Sabah, the present ruling family), who had wandered north from Najd and Qatar. They settled in the territory of the Ottoman Empire, along the northern shores of the Gulf Sea, where they engaged in Pearling and Sea trading. Kuwait, since its inception, has been ruled by the Al-Sabah

dynasty. In 1752 (approximate date), Sabah bin Jaber from the Al-Sabah family was elected to be the first ruler of Kuwait.[176] The ruling in this small tribal society was mainly based on Islamic legislation and customs. Matters of legal conflict were first to be settled by the ruler without resorting to courts and judges.[177] The claimant or the plaintiff would start with his lawsuit and the defendant would thereafter begin his plea. The ruler, based on the hearing of disputants, would decide a verdict. If any of the disputants protested against the verdict, he/she was permitted to appeal to the Islamic Law Court where the resulting sentence was final. Based on the second hearing which often took place within the Islamic judicial system, a judge would pronounce his sentence.[178] It can be seen that this procedure of trial and hearing is similar to the adversarial procedure of trial with judges hearing both parties where each attempt to prove their claim and defence.

Between 1775 and 1779, the British operated Arabian Gulf-Aleppo Mail Service was diverted through Kuwait from Persian occupied Basra (in Iraq). This was the first estimated contact with the West. At that time, Kuwait tried to obtain British support to maintain its independence from the Turks and various powerful Arabian Peninsula groups. In 1899, when the Ottomans were moving to take control over Kuwait territory, Britain agreed to grant an annual subsidy to support the ruling Sheikh (Mubarak Al-Sabah, the Great) and his heirs and to provide its protection. Normally an Ottoman province, the sheikhdom became a British protectorate. The agreement with the United Kingdom pledged Mubarak and his successors neither to cede any territory nor to receive agents or representatives of any foreign power without the British Government's consent.[179] British courts in Kuwait "exercised jurisdictions over all British-subjects, British-protected persons and foreigners, while the Kuwaiti local courts exercised jurisdiction over the nationals of Kuwait and some of the present neighbouring Gulf countries".[180]

As the Kuwaiti society developed, so too did the judicial system. The development of political and social intellect among Kuwaitis between 1926 and 1938 demanded the establishment of a new legislative council, the application of Islamic law in both civil and criminal litigations and the establishment of an appeal court. These demands were accepted by Sheikh Ahmed Al-Jaber Al-Sabah, the ruler at that time, who became the

head of the new established Legislative Council. However, a political clash between the presiding ruler and the selected members had began to emerge which ended in closing this Council. [181] It was believed that the government should not interfere with the administration of justice. Political voices had began to question the real meaning of justice, urging the establishment of a new democratic parliamentary government including a major reform to the judicial system.[182] These requests were eventually granted. For the first time in the history of the whole Gulf area, members of the Legislative Council were freely elected. The duty of the elected members was to develop a new constitution, part of which was the establishment of a new judicial system. A judge was elected to act as the head of judges and two deputies were appointed to assist him. In 1939, the new Department of Justice was established. For the first time, court judgements and sentences were filed and recorded in documents which included the name of litigants.[183]

The British protectorate of Kuwait ended in 1961 to be replaced by Treaty of Friendship. In this year, Kuwait declared its complete independence to become the State of Kuwait, a small oil-rich monarchy lying on the coast of the Gulf Sea, enclosed by Saudi Arabia in the south and Iraq in the north.[184] Sheikh Abdullah Al-Salim Al-Sabah (1950-1965), before declaring the independency of Kuwait, had begun the process of legal and judicial reform. The second event which influenced Kuwait's legal system had started when Sheikh Abdullah enlisted the services of the Egyptian jurist Abd Al-Razzaq Al-Sanhuri who, jointly with the French lawyer E. Lambert, had drafted the Egyptian Civil Code leading to the enactment of a number of codes inspired by the Egyptian and French models. Sheik Abdullah had passed and approved the legislation regulating the judicial system on 19 December 1959, as well as Criminal law and the Law of Criminal Procedures Codes in 1960.[185] In 1962, a new constitution was approved which guaranteed the independence of the judiciary and designated the Supreme Council of the judiciary as its highest body and guarantor of judicial independence. Since then, the judiciary in Kuwait has been an independent body. The administration of justice is free and fair from the influence of any authority. The right of litigation is guaranteed to all citizens and according to the procedures and manners prescribed by law. After the independence of

Kuwait, people agreed to proceed to the phase of a constitutional government with a democratic parliament which the Kuwaitis, both people and rulers, acknowledged as the basis for their modern society. By doing so, Sheikh Abdullah had changed the form of Kuwait government from an absolute tribal rule to a constitutional monarchy. The articles of the constitution are classified into five main sections: The state and the system of government; Fundamental constituents of the Kuwaiti society; Public rights and duties; Powers and General and transitional provisions. Regarding public liberty, the constitution guaranteed the following:

1) People are equal before law, and individual freedom is guaranteed.
2) No crime and no punishment may be established except by law.
3) Honour and respect of houses and, houses may not be entered except within the rules of law.[186]

In fact, the Kuwaiti constitution of 1962 introduced a parliamentary system not only in Kuwait, but also in all Arab states of the Gulf region for the first time. All legislative acts had to conform to constitutional provisions of the 1962 constitution. Regarding the legislation, the law is promulgated by the National Assembly which is an elected body and gains the force of law after royal assent. Thus, the primary sources of Kuwaiti law are Islamic law, Constitutional law and Legislation. The Islamic Law governs and regulates matters concerning finance, banking and family (divorce, inheritance) cases.[187]

It can be seen that the continuous shifting of social, religious and political changes, which Kuwait has witnessed over its history, has inevitably influenced the development of the legal and judicial system. Kuwait has an eclectic system of law which has benefited from the experiences of other legal systems in the world. Given that Kuwait's law was influenced by a number of events, so too was the requirements for the legal proof.

2.8.2 The Systems of Proof between 1800s and 1940s

History reveals that the legal system in Kuwait used systems of ancient proof as a means of discovering the truth. During the history of Kuwait's legal system, methods of proof

and systems have continuously developed until they evolved into those of the present day. This development was mainly the reflection of religious and political circumstances prevailing in each stage of Kuwait's legal history. Given that the Kuwaiti legal system was first influenced by Islamic legislation, all proof modes used between 1800s and 1940s were based on religious belief. During this period, three methods of proof were mainly used in criminal trials: proof by oath, proof by torture and proof by ordeal.

2.8.2.1 Proof by purgatory oath

Proof by oath in criminal trials was sought when there were strong religious sanctions surrounding the oath, and the belief that the oath taker would anger God if he lied. A person accused of a criminal offence before being cross-examined by the head of the tribe would be obliged to hold the Quran by his right hand and to swear by the Almighty Allah (God) that he did not commit the crime.[188] This means that an oath was relied upon as evidence of truth since it was and still is within the Islamic legislation. If the head of the tribe had doubts as to the truthfulness of the oath, another mode of proof was used. This means that the system of legal proof in Kuwait was influenced by religious belief. Proof by torture and proof by ordeal were often used to confirm the reliability of the oath.

2.8.2.2 Proof by judicial torture

The ruler of the tribe would order to send the accused to the "*Falaqa*" where an accused was examined under torture until he confessed. Falaqa is an ancient instrument consisted of a rod with clamps that go around the ankles so that an accused, feet in the air, can be hit on the bare soles with a stick. This type of proof method was often undertaken publicly in the capital of Kuwait so that the public could take a lesson from it.[189]

2.8.2.3 Proof by ordeal

Ordeal was another method of proof used in Kuwait's ancient criminal procedure. Different types of ordeals were used in order to obtain incriminating evidence. The most widely used were ordeal by hot rod or by dry grains. Such methods of proof were often carried out by holy men, better known in the Islamic world as *Sada*.

2.8.2.3.1 *Ordeal by hot rod and by dry grains*

An accused person was brought before the "Sayed" who would first threaten the individual with the hot rod. The accused was warned to confess the truth otherwise the hot rod would be used. If such a threat failed to establish a confession, a hot rod was placed on the accused's tongue. On examination of his tongue, if it was healthy, the conclusion was that God had helped him because he did not lie under oath. If his tongue was burnt, the conclusion was that God had punished him and he was therefore guilty. The Sayed in some cases used the same technique, however, by placing a hot plate instead of rod. If the plate stuck to the tongue, an accused was deemed guilty.[190] In trial by dry grains, an accused was ordered to swallow a certain amount of dry grain, such as corn, rice or wheat. It was assumed that if he choked, it meant he was guilty and, therefore, he would be punished.[191]

2.8.2.4 Torture and ordeal as methods of proof and truth telling

The argument is whether truth can necessarily be established through trial by torture or by ordeal which Kuwait allowed to include in its ancient criminal procedures. There was a risk that an innocent person might make a false admission and confess to anything his torturers wished him to say just to escape further agony. This of course might not serve the cause of justice. Supporters of such an argument mentioned that the likelihood of obtaining false confession was greatest when, "a) the person tortured is innocent of the alleged crime, b) the details of the confession are suggested to him by means of leading questions, and c) the amount of torture was excessive".[192] Silverman studied[193] the correlation between the nature of pain, of truth and of the body as they relate to the coerced testimony obtained under torture. He mentioned that pure confession can only be obtained if it was the product of human will, and that the ancient criminal procedures used to investigate and prosecute crimes not only sought verbal testimony, but also bodily evidence which in essence "escaped the wilful control of the self". Therefore, "torture inflicted pain as a means of achieving the spontaneous truth of the body rather than the composed truth of the mind". Therefore, pain may not necessarily search for truth.

2.8.2.5 The abolishing of ancient modes of proof

As Kuwaiti society developed and became a modern State, these types of proof methods were no longer acceptable. The use of interrogatory torture was viewed as an atrocious violation of human dignity. This encouraged more widespread societal protest asking for humanity and freedom from its use. This was the beginning of the introduction of democratic principles to influence the justice system.[194] Politicians had started to call for liberties urging the protection of human rights in criminal trials and, as mentioned earlier, the establishment of an independent judicial system. As a result, examination under ordeal and torture in criminal trial was eventually abolished.[195] This can be seen in section two of Article 31 of the Kuwaiti Constitution of 1962, "No person shall be subjected to torture or to degrading treatment". Similarly, section two of Article 34 of the Constitution states, "The infliction of physical or moral injury on an accused person is prohibited."[196] The legislators also gave some direction to judges in matters relating to the reliability of defendants' statements, "If the court realised that the defendant's statements or confessions were obtained as a result of torture or duress, it would consider such evidence invalid and it has no value in proof".[197] Hence, the second stage of the development of legal proof in Kuwait was a result of political influences.

This legislation gives the impression that Kuwait has moved forward to join modern criminal justice systems, searching for and reaching the truth. They began to find fair resolutions in individual cases without violating the rights of criminals accused. The social norms of Kuwait society between the 1800s and 1940s allowed the use of ordeal and torture as a means of proof to uncover legal truth and there are a number of reasons as to why these types of proof were part of the judicial system of ancient Kuwait. First and notably, religious belief among Kuwaiti society at that time introduced proof by oath which often had to be secured by ordeal or torture. Secondly, Kuwait chose the inquisitorial procedure in investigating crimes, thus introducing examination under torture into criminal trials. In other words, Kuwait followed the Roman-Canon Law of system of proof in their judicial procedure.[198] Thirdly, although Kuwait was a British protectorate for a period of time, the jury system which the British allowed as a method of proof to replace ordeals[199] was not introduced to Kuwait criminal procedures.

Thus, the sudden political shift which had taken place in Kuwait in the 1960s influenced the justice system and inevitably influenced the development of legal proof; the development of which prompted a complete abolishing of ancient modes of proof. Another development started with the courts' appreciation to include expert evidence in the system of proof. Before detailing the development of scientific evidence, the constitution of legal proof in Kuwait criminal trials will be explained first.

2.8.3 The constitution of legal proof in the present Kuwaiti legal system of trial

Judges in Kuwait have an active inquiring role to search for truth before and throughout the trial process. The State of Kuwait follows the system which allows judges to emerge with proof by pre-trial inquest rather than by the trial itself. This system is better known in Kuwait as the *Niyaba* system. Niyaba means that the investigation and prosecution of crimes is a judicial function. The historical origins of Kuwaiti law are from the Egyptian and French codes, and Article 2 of the Constitution also provides that Islamic Shariah forms a source of law.[200] However, it is not the exclusive source since it is not essential for a law to be totally in conformity with Islamic Shariah in order for it to be constitutional.

According to Article 151 of the Kuwaiti Law of Criminal Procedures concerning the process of investigation and proof in criminal cases, the judges have the ultimate discretion to choose the proof which they believe would lead to the truth. A judge can formulate his subjective opinion based on evidence obtained in pre-trial investigation of a case, has the absolute right in considering one piece of evidence above all others and can reach a verdict based on this evidence. However, a judge cannot reach his verdict based on his own personal information or knowledge.[201] This article indicates that judges in Kuwait in the process of searching for truth are not necessarily constrained by a certain method of proof. Although Kuwaiti legislators gave the authority of seeking the truth to the courts, Kuwaiti criminal trials and procedures are not a pure inquisitorial process. Some features of the English criminal procedure can be found in the Kuwaiti legal system. These include the use of public oral trials; the right of legal representation during criminal investigations and trials and, in the principles of due process, the presumption of

innocence.[202] Similar to the Continental European legal system, the inquisitorial feature prevails in the process of gathering inferences from evidence and of preliminary investigations, but the adversarial procedure remains a distinctive feature of the trial process.

It can be concluded that by following both legal systems in criminal trials, the Kuwaiti legislators give the court the right to select any proof method to build up its faith and belief beyond reasonable doubt in the opinions being expressed, but without violating the rights of criminal suspects. This vested power to choose the mode of proof is within the court's absolute discretion and the appeal court does not have the right of appeal with respect to this choice[203] so long as the court reached its verdict on the basis of certainty.[204] The principle of subjective persuasion for the court was advocated in many judgements by the Supreme Court in Kuwait.[205] These judgements were considered as principles in the proof system during criminal trials. If the court found itself dissatisfied with evidence presented in a trial against an accused, it would be enough reason to cast doubt as to the merits of the case and, accordingly, to pass a judgement in favour of the accused.[206] This prompts the question of the current methods of proof which Kuwaiti courts use in order to prove or disprove a fact in criminal cases. According to Kuwait's Law of Criminal Procedures No. 17/1960, the methods of proof are: statement of witnesses, confessions, expert opinion, documents and presumption.[207] So, judges have the authority to admit any piece of evidence and from any source. One of the resources which courts can use to satisfy its belief in the facts surrounding a case is expert evidence. Al-Dusri in his book, *Forensic Scientific Evidence from Crime Scene to Court,* classified the development of scientific evidence in Kuwait into the following chronological periods: period one (1954-1959); period two (1960-1973); period three (1974-1983); period four (1984-1989); period five (1990-1996).[208] The latest development in this field will be added beginning from 1997 to 2005.

2.8.4 The development of scientific evidence as a method of proof in the State of Kuwait

The methods of proof used in criminal trials have begun to cope with the new social order of Kuwait. Criminal trials became more modernised and courts began to accept expert evidence as a method of proof to achieve the truth. This was enough reason to establish the forensic science services in Kuwait.

2.8.4.1 Period one (1954-1959)

As Kuwait became a modern society, the new social status introduced two problems: an unexpected increase in immigration to Kuwait and a sudden increase in crime rate. In 1954, the Kuwaiti police authorities demanded the establishment of a fingerprinting unit with the following objectives:

1) To file fingerprint cards of those individuals who had previously been convicted of criminal offences.
2) To identify criminals and suspects based on their fingerprint classification.
3) To provide information to the authorities on recidivists and habitual criminals based on fingerprints.
4) To collect and gather fingerprints found at crime scenes in order to use them to identify criminals and suspects.
5) To identify unknown bodies by fingerprints.
6) To issue good conduct certificates for those who apply for residency (non-Kuwaiti) and government employment (both Kuwaiti and non-Kuwaiti).[209]

This was the introduction of the Fingerprinting and Personal Identification Unit in Kuwait. As this unit started to evolve, there was a need for equipment and materials necessary for its operation. An official letter issued on 14 April 1956 by the Deputy Chief of Kuwait Police, Shiekh Saad Al-Sabah, the present Crown Prince, asked an Austrian company to provide materials needed to obtain inked fingerprint impressions and instruments needed in the process of recovering latent fingerprints from crime scenes.[210] This request indicates that Kuwait, since the early 1950s, applied scientific methods to support the administration of the law. In fact as opposed to other adjacent Gulf countries, Kuwait took the initiative in the field of forensic science by developing this unit and

Kuwaiti courts since that time accepted fingerprints as a method of proof in cases of dispute.

2.8.4.2 Period two (1960-1973)

In this period more units were added as a result of the reform to the judicial system (which took place in 1959). New legislation in 1960 governed the law of criminal procedures and demanded the establishment of new scientific disciplines. In addition, by establishing the General Prosecution Office in 1960, the structure of the legal system was reformed in three ways:

1) Independence of the judicial system, as was the case in other modern states.
2) The unification of judicial authorities.
3) The separation of the investigative foundation of a case from the judiciary.
4) The separation of criminal actions from civil actions.[211]

This reform of the judicial system introduced forensic science services to Kuwait. This was evident in the Ministerial Decree No.1 of 1961 which required the establishment of the Forensic Science and Medicine Department for the purpose of "providing expert and scientific opinion for investigation, acquisition and judicial authorities, and examining materials and other physical evidence by proper scientific methods in order to reach the truth".[212] Further, another Ministerial Decree was issued in 1962 asking this Department to examine all evidence referred by judges, public prosecution and attorneys. It was mentioned in this Decree the need for the following expertise:

1) Forensic Medicine
2) Handwriting and Document Authentication
3) Drugs and Pharmachemistry
4) Ballistics
5) Biochemistry
6) Arson and explosives
7) Forensic Photography.[213]

This Decree also required assigning a director to each of the above disciplines and to separate them, including the fingerprint unit, to be an independent department.[214] There were two reasons for the introduction of the forensic science services in Kuwait. The Kuwaiti legislators in 1960 gave the court of merits the right to seek the assistance of expert witnesses in trials involving evidence which required a scientific assessment. According to Article 170 of the Kuwaiti Law of Criminal Procedures- Law No. 17/1960, "the court has the right to seek the assistance of any expert to give his opinion in a technical matter relating to the case. Experts should provide their opinion in a written report and present it to the court....".[215] Secondly, it was mentioned in the Decrees of 1961 and 1962 which type of expertise was needed to associate with particular types of crimes committed at that time. These Decrees were issued because the legislators drafted a collection of penalties in accordance with the type of offences committed. For example, the Kuwaiti Criminal Law, Law No. 16/1960 defined a punishment for crimes involving forgery of handwriting and counterfeiting, arson and explosives, homicides, driving under the influence of drugs and alcohol...etc.[216] Obviously, a penalty cannot be applied unless there is proof that the suspect has, for example, an incriminating percentage of alcohol in his blood. When Kuwaiti people were living in the desert, crimes were relatively simple. However as Kuwait evolved and became a modern state, new crimes emerged. It can be said that the introduction of new crime in Kuwaiti society had affected the development of the proof systems and, by consequence, the development of forensic science to provide scientific and medical expertise for the purpose of serving justice.

The Ministry of Interior in Kuwait is responsible for maintaining law and order in the country. Its duties are varied and broad, which in turn calls for many departments with different responsibilities. Among these departments is the forensic science department. There is an historical reason for the forensic science services being under the Ministry of Interior's control. The police authority in ancient Kuwait (at that time, police members were elected by, and took orders from the head of the tribe) was given the task of investigating crimes. When reforming the judicial system, the legislator preserved the authority of the police, however not in all crimes. The authority of inquisition into serious crimes and felony was placed under the control of the public prosecution better known in

Kuwait as *Wakeel Al-Neyabah* (agent of judiciary). The Police retained the authority for investigation of misdemeanours. According to Article 9 of the Kuwaiti law of Criminal Procedures No. 17/1960,

> "The General Prosecution Office holds the authority of investigation, disposition and inquisition into felonies, and the authority of investigating misdemeanours is to be within investigators assigned to this purpose in the police bureaux."[217]

Crimes are categorised, according to Kuwait criminal law, into felonies and misdemeanours. Felonies are crimes punished by death sentence, life imprisonment, or temporary imprisonment for a period of more than three years.[218] Misdemeanours are crimes punished by imprisonment for a period of not more than three years and/or a fine.[219] In assault cases, the degree of the assault would dictate the classification of the crime as a felony or as a misdemeanour and Articles 160 and 161 of the said law governs the penalties in such cases. For example, According to Article 160, if an assault resulted from a beating which included a wound or a contusion, the initiator of this assault would be punished by imprisonment for not more than two years with a fine of not more than 200 Kuwaiti Dinar (KD) (400 Pounds Sterling), or either of these punishments. However, if an assault is caused by any type of projectile, explosives, or any sharp instrument, and proved to be done intentionally for the purpose of harming an individual, the perpetrator would be punished by imprisonment for not more than ten years. In addition, he may be punished by a fine not more than 1000 KD (2000 Pounds Sterling), and this is according to Article 161.[220] In such cases, a medical examiner is needed to help determine the exact degree of assault as to whether it should be classified as a felony or a misdemeanour case. The forensic science services have an essential role in confirming the occurrence of a crime and in the classification of the type of crime thus aiding the courts in deciding the appropriate punishment. By giving courts the right to seek expert opinion, the Kuwaiti legislators have placed their trust in the forensic practitioners and in the evidence (report and testimony) which they present in criminal trials.

2.8.4.3 Period three (1974-1983)

In 1974, the Ministry of Interior started to reform the structure of the departments under its control. All departments having similar duties were unified including the departments within the forensic science services. The Fingerprint Identification Department was combined with the Forensic Science Laboratory under the Forensic Science Evidence and Forensic Medicine Department. The two major sections of this new department consisted of the Personal Identification section and the Forensic Science Laboratory.[221] Prior to the establishment of the forensic science laboratory, all evidence requiring scientific investigation was carried out by forensic medical examiners and not by forensic scientists.

In 1975, the Scene of Crime Officers' Department was established.[222] Police officers were recruited to operate within this new department. All of the new recruits had to take specialist training courses in the science of crime scene investigation which included fingerprints, photography and the proper investigative approach to cases involving homicide, suicide and burglary.[223] During the period 1975 to 1979, these individuals were sent to UK, USA and Canada in order to take advanced training courses in the methods of crime scene investigation which also included the proper approach in collecting and gathering traces of physical evidence and fingerprints.[224]

The unification of the departments and the development of the crime scene investigation department meant that Kuwait followed leading countries in the use of up to date scientific methods in criminal investigation.

2.8.4.4 Period four (1984-1989)

Scientific criminal or forensic investigation involves scientists, medical examiners and crime scene investigators and, as a consequence, the forensic science laboratory, the forensic medicine and crime scene officers' departments had to be amalgamated. By the end of 1984, this decision came into force and the three departments were centralised in one building located in the middle of Kuwait. By selecting this location, the authorities took into account the importance of swift transportation to the crime scene and the possible consequences on the integrity of physical evidence and on the reconstruction phase of events at the scenes if rapid response was not forth coming. This amalgamation

of the various departments became the General Department of Forensic Science Evidence (GDOFSE) which consisted of:

1) Central Department of Personal Identification
2) Central Department of Forensic Science Laboratory
3) Central Department of Forensic Medicine
4) Central Department of Crime Scene Officers.[225]

2.8.4.5 Period five (1990-1996)

2.8.4.5.1 *The devastation of the General Department of Forensic Science Evidence (1990)*

No change has been as disruptive to the foundation of both the forensic science and the proof systems as the Iraqi invasion of Kuwait in 2 August 1990. The invasion and occupation which lasted for seven months had a transformative effect on virtually every aspect of Kuwaiti life. Iraqi troops plundered and looted the city of Kuwait including the GDOFSE. The Personal Identification, Forensic Laboratory, Forensic Medicine and Crime Scene Officers Departments were destroyed. All instruments, materials and scientific equipment were either destroyed or transported to Iraq. The only materials left in the department were the fingerprint records relating to both civilian and criminal cases. The estimation of the damage and loss of the forensic science services was around 2,000,000 KD.[226]

2.8.4.5.2 *The forensic science services post Iraqi invasion (1991-1996)*

Kuwait was liberated on 26 March 1991. Following the mass destruction, a new stage in the history of Kuwait began when the government started to implement ambitious reconstruction plans. Kuwait has regained its natural life in a very short time. The GDOFSE was reconstructed and started its duties within nine months (October 1991). The effect of the occupation continued after the liberation and Kuwaitis had access to all kinds of weapons and drugs (including alcohol), the result of which increased the rate of crime especially during the reconstruction period of the country. Many cases were sent to the GDOFSE. However, the function of the Department was effectively stopped because

of the lack of instrumentation and equipment required to proceed with the relevant tests and examinations. As a consequence, some cases were kept on file pending scientific investigation while, in others, the accused were exonerated due to lack of forensic evidence. For example, between 26 March and October 1991, twenty five suspected drink and drive cases were brought before and contempt by courts, even though police reports in twenty of these cases revealed that the suspects were driving suspiciously and that the drivers had smelt of alcohol at the time of their arrest. These cases were not considered by the courts because there was no forensic evidence corroborating the police reports.[227] Convincing evidence was required to prove that the accused were under the influence of alcohol. Evidence of this nature could only have been possible by a report from the GDOFSE. This indicates that while there were some cases in which judges did not rely on statements and documentary evidence presented as a method of proof, they preferred to acquire more reliable evidence for them to confidently develop a degree of certainty on the facts offered. This illustrates the status in which expert evidence, as opposed to other types of evidence, was held in the process of fact finding in the Kuwaiti courts.

The need by the judiciary for the forensic science services was an essential factor which apparently led to reconstructing the sub- and infrastructure of the department within a rather short period of time. The reconstruction policy was based on equipping the department with the latest advancements in technology. In the meantime, training and rehabilitation of the staff has been a top priority of the department. The acting minister of Interior affairs, at that time, agreed to provide the forensic department with the most modern scientific equipment available in detecting crimes. This included the Automated Fingerprint Identification System (AFIS) which provides specialised support by examining, preparing, entering, searching, retrieving and comparing fingerprint images to make a determination of fingerprint matches. It also performs verification procedures to make a positive/negative determination of the new fingerprint (such as fingerprints lifted from a crime scene) against fingerprints in the database. A number of police officers from different ranks were sent to the USA in order to attend training courses involving the use of the AFSI. By 1995, Kuwait established the first national criminal and civil fingerprinting database. The forensic department now has the fingerprints of Kuwait's

whole population. In order to issue good conduct certificates for those who apply for residency (non-Kuwaiti), government employment, and driving licence (both Kuwaiti and non-Kuwaiti), individuals must first be fingerprinted in the forensic department. The database is now used by the crime scene investigators to identify fingerprints found at crime scenes.

The forensic department also proposed the application of DNA profiling for forensic science. In the proposal, the head of the forensic laboratory explained that DNA evidence could have a powerful impact on the level of proof and the outcome of a case and on the retesting of many older cases.

2.8.4.6 Period six (1997-2005)

In 1997, one-third of the criminal cases recorded in Kuwait were sent to, and investigated by, the GDOFSE. The department in that year received more than 7000 requests for examination.[228] Statistics show that there was an increased reliance on the services of the forensic science laboratory in Kuwait during this period. For example in 1999, 8122 cases were sent to, and investigated by, the forensic science laboratory. 70% were criminal cases sent by the prosecutions office. This included 3437 alcohol cases, 1076 narcotic cases, 655 biology cases, 361 ballistics and tool marks evidence cases, 124 arson cases, and 6 explosive cases.[229] In 2000, 5834 criminal cases were investigated by the laboratory. This indicated a 3% increase in the number of criminal cases sent to the Department compared with the previous year.[230] By 2001, the number of criminal cases performed by the laboratory increased to 6% compared with 2000.[231] Statistics also show that there was an increased reliance on the services of the Forensic Medicine Department. In 2000, 6320 cases were sent to the Department for medical and pathological examinations. After forensic investigation, it was determined that 293 of these cases involved criminal deaths (of which 1.4% were due to drug abuse), and 1535 cases involved examination of live victims in cases of sexual and aggravated assault.[232] In 2001, the number of criminal deaths determined by the medicine department increased to 348. An increase in the number of sexual and aggravated assaults was also seen (1773).[233] The increase in the number of criminal cases examined by the forensic department could

be viewed from two different perspectives. It could be due to an increase in the number of criminal cases committed between 1999 and 2001 and not as a result of an increased reliance on the services of this department. However, after reviewing statistical reports regarding the number of criminal cases registered between 1999 and 2001, it has been discovered that the actual rate of criminal cases was comparatively stable. In fact in 2001, there was a 15% drop in the number of criminal cases recorded compared to 2000.[234] This indicates that the judicial authorities in Kuwait began to rely more on scientific methods in detecting crime especially in cases in which other types of evidence are lacking or when scientific or expert evidence is required to ensure the reliability of other evidence obtained in a case. Such reliance was evident when the Interior minister was questioned in the parliament to explain the delay in identifying the murderers of a five year old girl. In an interview, the minister announced that "The investigation into the murder of the child Amna will come to an end on receipt of the final results from the forensic laboratory".[235] This indicates that the authorities in Kuwait started to become more comfortable with the reliability of the scientific evidence; the evidence which has the ability to confidently link criminals to their criminal act. In Amna's case, suspects were eventually brought to trial on the basis of statements of eyewitnesses, confessions of the accused and expert evidence. [236] The trial judge was free to rely on any of the evidence offered to build up his opinion beyond reasonable doubt on the merits of the case. Expert scientific evidence played a vital role in persuading the trial judge about the facts offered by the prosecution, and he confidently relied on this method of proof to reach the truth. The judge ruled a death penalty verdict on three of the suspects involved in this case. Thus criminals were brought to justice based heavily on forensic scientific evidence.[237] This type of evidence has become an integral part of the criminal justice system of Kuwait. It has been accepted to be included in the process of proof and courts have begun to rely on expert evidence in deciding criminal cases.

In 2001, the GDOFSE witnessed another development. This was specifically to the quality of scientific evidence. In this year, the Quality Control Unit was established to operate within the existing forensic science disciplines.[238] This was the first approach by Kuwait among all Arabic countries. The duty of this Unit is to ensure that

1) the accuracy of the results are maintained by conducting blind tests, random tests and the checking of final results. Scientists who operate this unit are qualified and educated at least to university level.
2) the final reports are detailed with the method and the technique used for the analysis.
3) each report is signed by two experts before the release and that the final results are being checked by more experienced colleagues.[239]

Another evolution in the proof system in Kuwait started when the proposal regarding using DNA fingerprinting technique in detecting crimes was granted by the government. The application of DNA profiling for forensic investigation in Kuwait started officially on 19 September 2001.[240] As a consequence, Kuwait was now one of the countries in the Middle East using the most modern scientific methods in detecting crime.[241] The great potential of using DNA techniques in proving the identity of criminals was evident in many criminal cases investigated in Kuwait.[242] For example, Case No. 352/2002 Jenayat Al-Jahra'a[243] involved a woman found dead in the north side of Kuwait (Al-Motla'a desert) in 2002. The forensic investigation revealed that her death was as a result of stab wounds and that she was sexually assaulted before her death. Scientists investigating the murder concluded that there was a matching probability between DNA samples found on the victim and DNA from samples found on the clothing and car seats of one of the many suspects sent to the forensic department. In this case, the only incriminating evidence against the suspect was the DNA evidence.[244]

The annual statistical report of cases performed by the forensic science laboratory in 2002 showed that the laboratory carried out 8633 cases. Among these 147 involved DNA analysis. This included 33% rape cases, 25% paternity/maternity cases, and 42% involved citizenship claims.[245] Out of the 33% rape cases, 80% were brought to court. By 11 November 2002, 17.9 % of these cases had reached a verdict based solely on DNA evidence, illustrating that the courts are showing an increasing confidence in the validity of scientific methodologies used by forensic investigators and the reliability of expert DNA evidence.[246]

Since the advent of DNA profiling in Kuwait, the duties and performance of the GDOFSE has dramatically increased. There are two major applications of DNA typing in

forensic science- criminal identification and civil identification. Criminal identification includes homicide investigation, sexual assault investigation, unknown human remains identification, and serial killer or rapist identification. Civil application includes paternity/maternity testing, immigration, and identification of missing persons. The Kuwaiti DNA laboratory carries out cases involving both criminal and civil identification. The inventor of the DNA fingerprinting technique, Alec Jefferys, in his campaign calling for the establishment of a national DNA database for UK population said that "Kuwait is the only country which has passed legislation" for such a database.[247] There are two reasons for this. Firstly, a number of Bedoons in Kuwait started to claim citizenship. "Bedoon" is a word used in Kuwait to describe stateless people who live in Kuwait and claim to be Kuwaitis. Many of the Bedoons are citizens of neighbouring countries who have hidden their original official papers. Therefore, it was necessary to construct a database with DNA samples from families from whom the Bedoons claim their lineage. The Ministry of Planning estimated the Kuwaiti population at 2,111,561 million of which 45% were Kuwaitis, 40% were other nationalities living with residency permits and 15% were Bedoons (July 2002 est.). Kuwait's parliament approved a law to grant up to 2000 Bedoons Kuwaiti citizenship by the end of the year 2002. The Kuwaiti interior minister announced that the total number which met the criteria was 36,716 but not all would necessarily gain Kuwaiti citizenship. Out of one group of 1,286 Bedoon adults who underwent DNA testing to prove Kuwaiti lineage, 650 were considered. The DNA profiling technology was the primary proof used in these cases.[248]

Secondly, it has been determined that 605 Kuwaitis and other nationals had disappeared during the Iraqi occupation. In 19 June 2002, Kuwait began to build a national DNA database of the Kuwait population which included all Kuwaiti and non-Kuwaiti families who asked for their missing members during the Iraq occupation and all convicted criminals in Kuwait jails.[249] Following the end of combat operations with Iraq in 1 May 2003, human remains were discovered in a hundred and fifty mass graves in southern Iraq. A team from the Kuwaiti forensic department was requested to visit the graves in order to collect remains suspected to belong to Kuwaiti, non-Kuwaitis and Bedoons prisoners of war (POW).[250] In 15 September 2003, it was announced that DNA

tests revealed that samples of human remains collected from the mass graves belonged to five Kuwaitis and one Lebanese.[251] By 21 March 2005, the number of Kuwaiti victims reached 222 out of 605 missing POW since the discovery of their remains in the mass graves.[252] All of these remains were tested positively by the Kuwaiti DNA laboratory.[253]

2.8.5 The introduction of defence expert evidence to the system of proof in Kuwait criminal trials

The increased use of expert evidence by the prosecution in the Kuwaiti criminal court introduced defence experts. Therefore, it is relevant to shed light on the attitude towards defence expert evidence as a method of proof in Kuwait criminal courts.

The information included in this section is based solely on statements given by interviewees from the forensic and the legal profession in Kuwait. This is because, until recently, there had not been a study conducted relevant to private forensic science services either in Kuwait or in adjacent countries. Lawyers interviewed in Kuwait named a number of private forensic consultants from whom they sought scientific advice in criminal cases. Mrs Khayal Al-Bader, and Dr. Ramzy Ahmed were among the names mentioned.

Holding a bachelor degree in chemistry and having twenty eight years of experience in handwriting identification and document authentication is Mrs Al-Bader from Kuwait. She first joined the Kuwaiti state forensic department in 1976. In 1977, she was sent to the UK for a six months specialist training course which was offered by the Forensic Science Services in Birmingham. In 1992, she retired and operated as a private consultant in cases involving questioned documents, handwriting, and forgery. Since then and by judges' request, she has become a member of the Triad Committee to assist on matters of conflicts in opinion evidence. Mrs Al-Bader has also been consulted by defence lawyers to identify any weaknesses in prosecution expert reports and, if any, to consider the possibility of an alternative hypothesis. However she was astonished by the recent increased demand for her expertise by the defence despite being in private practice for more than two decades. Finally, she stated that, in a number of criminal trials, judges decided the outcome of a case based on her opinion evidence.

Dr. Ramzy worked in the Egyptian state forensic medicine department for thirty four years. He was appointed as the Deputy of the Ministry of Justice and Scientific Investigation and as the Deputy of Senior Forensic Medical Examiners in the early 80s. After his retirement in 1985, he started to operate as a private forensic consultant in cases involving clinical examination of live victims, pathological investigation of homicides and suspected deaths, serology, and handwriting and questioned document examination. From 1985 until he died in 2004, in a number of criminal cases, he was called by the Egyptian criminal courts to provide a third opinion, obviously when there were conflicts between opinions given by opposing experts. He was consulted by both Egyptian and Kuwaiti defence lawyers in many criminal cases to conduct a report and often to appear in court. As he stated, in the last number of years, approximately 10% (twenty three cases per year) of the criminal cases he has carried out were received from Kuwaiti defence lawyers. These cases were mainly involved in homicide, assaults and questioned documents. Working for the defence, Dr. Ramzy explained that he first studied the prosecution expert's report and looked at the circumstances surrounding the case. Depending on the nature of the case, he then asked for a second autopsy, or for re-examining live victims. After building his personal observation on the case in question, he studied statements given by the accused and, if any, by eyewitnesses to consider whether the statements were consistent with his findings. Such an investigation ended with a conclusion in the form of an opinion. Dr. Ramzy mentioned that he appeared in many criminal proceedings in Kuwait where judges decided to admit his opinion into evidence in more than 80% of these proceedings.

Forensic science today is a complex field of science since it is a combination of human knowledge, experience and the application of scientific analysis, and is used in solving legal disputes. In Kuwait, forensic findings have an increasingly vital role in directing criminal investigations which often ended up with prosecution. This has become possible because criminal courts in Kuwait have started to rely on this type of evidence as a method of proof to assist in the process of fact finding.[254] As science evolves, there is an increased reliance on expert evidence by courts. This is because judges cannot reach a

conclusion in cases involving technical matters or matters beyond everyday experience without calling an expert witness to interpret such matters. Therefore, it is essential that forensic practitioners follow the highest standards of quality to ensure the accuracy of scientific results and conclusions thereby lessening the risk of unreliable expert evidence being brought before courts.

The use of expert evidence in the Kuwaiti criminal justice system created problems. In light of recent advances in the scientific techniques used, the courts' ability alone to determine the reliability of expert evidence is brought into question. The recent introduction of private sector forensic practitioners in Kuwait requires a study to assess the reliability of expert evidence they give in criminal trials. These experts operate in single-person organisations and do not hold professional membership, yet, the level of their professional standing and technical competent has never been assessed. While in Kuwait, a system of professional registration does not exist and judges are not being guided by certain rules governing the use of expert evidence, it is also questionable whether defence lawyers have the proper level of awareness of forensic science practice to aid courts in the process of evaluating the reliability of evidence presented by their experts and opposing experts. In short, in Kuwait, until recently, there was no direction towards the establishment of some sort of mechanism to ensure that only reliable defence expert evidence is delivered to criminal courts. In order to ensure and instil confidence in the reliability of this type of evidence, it is important to investigate the quality standard of evidence being delivered by these experts and to examine the present court monitoring system of expert evidence by defence solicitors. These are the subjects of Chapters Four and Five.

2.9 Conclusion

The laws of proof in the earliest inquisitorial and adversarial systems of criminal trials allowed proof of guilt being obtained by examining the accused under different types of ordeal to prove his innocence by surviving. Later, this system was modified by torture. As a result of continuous development in social status along with a change in the mentality of the real meaning of justice, these methods of proof no longer became acceptable. The present adversarial criminal procedures of trials allow parties to use various types of evidence in the process of persuasion and judges, after ensuring that evidence presented is within the limitations allowed by the rules of evidence, instruct juries to choose the evidence which they believe has developed a degree of certainty on the facts offered. Parties in courts using inquisitorial criminal procedures are also allowed to include any type of evidence in the process of proof and judges who have developed a certain degree of persuasion about the existence of facts before and during trials, have the ultimate discretion to choose the evidence which they believe could prove the facts in a particular dispute.

There has been an increased use and reliance on a new type of evidence by criminal investigation and courts notably scientific evidence. This was as a result of the introduction of new scientific research in the areas of personal identification and individualisation aiming to support the administration of the law. The new social norms required a system of free judicial evaluation of the evidence and, at the same time, introduced scientific evidence as an option for courts to choose in the process of proof. Expert evidence is one of the most recent methods of proof being used by parties in the process of proving their cases and courts have begun to appreciate and trust to include this type of evidence in the course of fact finding. However, even if parties exercise the process of persuasion in an objective and professional manner, any breach in the legal procedures of handling forensic evidence may rule this type of evidence inadmissible. In other words, if there is any flaw in the procedures of lifting, packaging, transferring, analysing, preserving or presenting expert evidence in courts, it may be a point of contention by the opposing party. This could be enough reason to cast doubt on the reliability of such evidence, thus increasing its potential to be rejected by courts.

However there have been many cases in the UK and USA where flaws in the procedural rules of forensic evidence handling and processing were not identified in courts and as a result, expert evidence of dubious reliability was seen to be the main cause for a number of miscarriages of justice. As a consequence, the public and media started to place less confidence in the criminal justice system as a whole. In the forefront, forensic communities were advised to reorganise their structure through the application of quality assurance and quality control programmes in their practices. Laboratories seeking accreditation must prove that they implement these programmes. However, there have been further overturned convictions as a result of unreliable evidence given by experts practicing in accredited laboratories. This gave the impression that voluntary accreditation within a self regulating forensic institution is not enough of assurance to rigorous application of quality systems. More rigorous scrutiny of expert evidence was therefore required. In the U.S. this was seen being possible by the establishment of independent accreditation system for crime laboratories to ensure compliance to rigorous federal standards. In the UK, commentators argued that the users of forensic science alone are not in a position to judge the quality of forensic practice. Therefore, a system of professional registration was established, the outcome of which could lead to competent forensic practice. This was an attempt to assure judiciary and public that expert evidence is validated and that it is being expressed competently and objectively. Other recommendations were made focusing on educating lawyers in the field of forensic science as an approach supporting the appropriate implementation of quality standards within forensic practices. All of these steps have taken place in order to improve the decision making process of the Court. However, despite these efforts and despite the fact that judges in the UK and USA are guided by the laws of the evidence, problems associated with the use of scientific evidence in their legal system still exist.

Kuwait left behind the archaic means of discovering the truth and replaced them with modern ones. This was obvious after the introduction of the AFIS and DNA techniques to forensic science. On the intellectual front, this led to an increased reliance on the forensic science services by the courts. This reliance was not as a result of an increase in crime rates. Rather, Kuwait accepted to join other modern countries leading to

a rapid transformation into a modern criminal justice system and expert evidence has become an integral part of this system. As in countries practising the Common law, expert evidence presents a number of challenges to the criminal justice system of Kuwait. The laws of the evidence do not apply in this country and, as science evolves, judges inevitable rely more and more on expert witnesses for explanation and, recently, a higher risk of conflicts in opinion evidence notably as a result of the introduction of defence experts. The recent introduction of, and courts' acceptance to, include scientific evidence by the defence in the process of proof requires a study to investigate and evaluate the reliability of this type of evidence. This includes the defence expert's present level of professional standing and their current code of practice in the process of handling scientific evidence from crime scene to court. The proper level of awareness of forensic science practice by defence solicitors who carry out criminal cases involving science was considered as a vital component safeguarding the quality of expert evidence. These are the subjects of Chapters Four and Five, while the methodology by which this study was carried out will be introduced and explained in Chapter Three.

CHAPTER THREE

RESEARCH METHODS AND PROCEDURES

3.1 Introduction

In the design of this research the following topics were considered: the choice of research questions, the research instrument (questionnaire), the type and size of each sample, questionnaire design for each sample, procedures of questionnaire distribution, statistical analysis used in the interpretation of questionnaire results and subsequent computer analysis.

3.2 Research questions

One of the key elements of this work was to investigate and evaluate the quality standard of forensic evidence provided by private sector forensic practitioners in Kuwait in comparison with the same service provided by publicly funded forensic scientists both in Kuwait and Egypt. The Egyptian forensic science community was included because many private sector forensic scientists who currently practice in Kuwait, originate from and practice in Egypt. Further work was conducted to investigate and evaluate the quality of forensic science services provided by private sector forensic practitioners in Kuwait with respect to the same services provided by their private counterparts in the United Kingdom. This work also assesses the impact of, and attitudes towards, the defence experts held by members of the legal profession in Kuwait, Egypt and the United Kingdom. Specifically, this research was carried out to determine

1) whether the private sector forensic practitioners who give opinion evidence in the Kuwaiti criminal court

A) have a role in providing courts with reliable expert evidence and to what extent they have succeeded in performing that role,

B) have acquired the expertise necessary to give specialist opinion,

C) were involved in specialist academic training courses before commencing

casework,

D) were certified by professional organisations to undertake forensic casework,

E) were involved in continuing professional development through ongoing practical training, attendance at forensic conferences and regularly read well known journals in the field,

F) are at a level of technical competence which preserves the integrity of forensic scientific evidence from crime scene to court. This includes areas dealing with preventative steps against contamination and cross-contamination of forensic evidence during crime scene examination and the application of quality control and quality assurance programmes within laboratory practice,

G) face difficulties collate rated with the application of the adversarial system in criminal trials.

2) whether there is a system of professional registration of forensic practitioners in Kuwait.

3) whether defence solicitors who use private sector forensic science services in Kuwait,

A) were introduced to forensic science practice before carrying out criminal cases involving scientific evidence,

B) properly understand the quality procedures and methodologies used in forensic practice,

C) have the knowledge in the filed of forensic science sufficient to test the quality of scientific evidence and merits of opinion of their own experts, and to effectively cross-examine experts called by other parties.

This research was also intended to establish the present attitude that exists towards the present quality of forensic scientific evidence within and outside the private and public sector forensic organisations in Kuwait, Egypt and the United Kingdom.

3.3 Question types

Two types of questions were used in this study- closed and open-ended. In formulating the closed questions thought was given to developing alternative responses[255] in order to avoid biased responses as much as possible and also to avoid the respondents offering an opinion as an answer to their questions. Open-ended questions were used to give the respondents some space for expressing their own feelings and opinions which in turn enhanced the value of the questionnaire.[256] Another reason for using open-ended questions in this study was to assess the validity of the findings obtained in the closed questions. In other words, the respondents in a closed question were asked to choose the appropriate answer which should indicate their involvement in a certain activity. When the same respondents, in an open- ended question are asked to elaborate, they do not answer the question. This either means that they did not understand the question being asked, or that their responses are biased in some way, and this was obvious after applying cross-tabulation figures to the responses obtained from the questionnaires of this study. This will be illustrated during the discussion of the questionnaires.

In conjunction with the questionnaire personal interviews were conducted in Kuwait, Egypt and the United Kingdom with legal practitioners, scene of crime officers, both private and public forensic practitioners and executives of authorising professional bodies. The aim was to achieve qualitative responses to the interview questions and to obtain additional data and information in order to support the findings of the study. O'Sullivan and Rassel emphasised the importance of the use of personal interviews and suggested that personal interviews "are more likely to get responses to sensitive questions and respondents are less likely to terminate the interview if a sensitive subject came up".[257] Directors of the forensic laboratories and employees within the laboratories were asked to describe the training and procedures followed during the handling of scientific evidence. Legal professionals were also asked to describe how they perceive the standard of quality of forensic scientific evidence.

3.4 Design of the questionnaire

The questionnaire was constructed based on a literature review of studies that measured quality control and quality assurance systems in forensic practice as well as studies which measured specifications needed for the establishment of competent expert witnesses. Forensic experts and legal practitioners were consulted. Two questionnaires were designed each for a different sample group, however, both investigated the reliability of forensic evidence being submitted by defence experts in practice in Kuwait. The first questionnaire was designed for both public and private sector forensic practitioners and the second questionnaire was designed for defence solicitors.

Pilot questionnaires were given to experienced forensic scientists, forensic medical examiners, pathologists and legal practitioners. The purpose of the pilot being to solicit their views on the content of the questionnaire, the clarity of the language, the repetition of questions and their suggestions on whether to include or exclude certain questions and why.

Suggestions were received for improvements and, after these were reviewed, the final form of each questionnaire was produced. A copy of the two questionnaires can be found in Appendices A and B.

3.4.1 The forensic practitioner questionnaire

The forensic practitioner questionnaire contained 32 questions (Appendix A) covering:-

- Factual information
- Crime scene practice
- Laboratory practice
- Court testimony
- The balance of resources available to both sets of forensic practitioners
- Opinion of forensic practitioners in respect of expertise and qualification

3.4.2 The defence solicitor questionnaire

The defence lawyer questionnaire contained 18 questions (Appendix B) covering:-

- Factual information
- Engaging the services of forensic science

- Opinion towards the present level of professional competence of forensic practitioners

The majority of the questions used in both questionnaires were closed questions, 85% in the forensic practitioners' questionnaire and 80% in the legal questionnaire.

3.4.3 Translation of the questionnaires

The questionnaires for the respondents from Kuwait and Egypt were first translated into Arabic and then given to an official translation office in Kuwait to check the translation, or modify it as appropriate, in order to determine the equivalency of both English and Arabic versions of the questionnaire.

3.5 Survey Procedures

3.5.1 The Survey in Kuwait:

3.5.1.1 The survey of forensic practitioners' questionnaire

There is only one State funded forensic department in Kuwait known as the General Department of Forensic Science Evidence (GDOFSE) which is located five miles south of Kuwait city. It is under the control of the Ministry of Interior. There are four main sub-departments under the General Department. The Department of Scene of Crime Officers, the Department of Forensic Medicine, the Department of Personal Identification and the Department of Forensic Science Laboratory. Each department comprises units pertinent to its function.

Before conducting fieldwork in Kuwait, the Director of the Forensic Science Laboratory was contacted and official permission received to undertake the research. Eighty questionnaires were sent to the Director who helped in their distribution to staff. From 26 November 2000 three weeks was required to distribute the questionnaire to the forensic scientists. 48 respondents (60%) completed the questionnaire. Six questionnaires contained insufficient data for statistical analysis and the remaining 42 questionnaires (53%) were analysed.

3.5.1.2 The survey of defence solicitors' questionnaire

Fifty-five questionnaires designed for defence solicitors, who carried out work in criminal cases, were distributed by visiting each lawyer's office separately and asking their approval to conduct the research. Almost all of the offices were located in the city of Kuwait. From 1 December 2000 four weeks was required to distribute the questionnaires. 38 respondents (69%) completed the questionnaires. Two questionnaires contained insufficient data for statistical analysis and the remaining 36 questionnaires (65%) were analysed.

3.5.2 The survey in Egypt:

3.5.2.1 The survey of public sector forensic practitioners' questionnaire

The organisational structure of forensic science services in Egypt is different from that of Kuwait. There is only one State funded forensic science department in Egypt. It comprises of three main sub-departments under the General Department: the Department of Scene of Crime Officers, the Department of Personal Identification and the Department of Forensic Science Laboratory. All of these departments are under the control of the Ministry of Interior.

The Departments of Forensic Medicine and of Questioned Document and Handwriting Analysis amalgamate into one main department known as the General Department of Forensic Medicine which is under the control of the Ministry of Justice. Both General Departments are located in Cairo.

Before visiting Egypt to conduct the fieldwork permission was obtained from the Egyptian authorities to facilitate the research. The intended authorities were the Forensic Science Department and the Egyptian Bar Association which is also locates in Cairo.

Thirty questionnaires were sent to the Head of the state Forensic Science Department who distributed them to the Forensic Science Laboratory. From 9 January 2001 two weeks was required to distribute the questionnaires to the forensic scientists. Twenty-four respondents (80%) completed the forms. Four questionnaires contained

insufficient data for statistical analysis and the remaining twenty questionnaires (67%) were analysed.

3.5.2.2 The survey of private sector forensic practitioners' questionnaire

Twenty questionnaires were distributed by visiting each office of defence experts separately asking their approval to conduct the research. Defence experts are sole practitioners and each operates within a single-person organisation scattered throughout different areas of Cairo. From 14 January 2001 ten days was required to distribute the questionnaires. Thirteen respondents (65%) completed the forms. Three questionnaires contained insufficient data for statistical analysis and the remaining ten questionnaires (50%) were analysed. Six of the respondents operated as forensic document examiners, two of which operated as forensic medical examiners as well. The remaining four were forensic medical practitioners. The two respondents who carried out cases in the areas of questioned document and forensic medicine were evaluated as both. This means that there are six respondents who operated in the area of forensic medicine and six respondents who operated in the area of questioned document examination.

3.5.2.2 The survey of defence solicitors' questionnaire

Thirty questionnaires were distributed to defence solicitors. Twenty- three respondents completed the forms. From 21 January 2001 four days was required to distribute the questionnaires. The response rate was therefore 77%.

3.5.3 Further field work

The first report of this study analysed the results of the questionnaire of both state and private forensic practitioners in practice in Kuwait and in Egypt. It was discovered that the majority of respondents of the private sector, who give opinion evidence in both Kuwaiti and Egyptian courts, operate as either questioned document examiners and handwriting analysts, pathologists, or forensic medical examiners. In contrast, after analysing the questionnaires obtained in the initial survey, it was discovered that neither questioned document nor forensic medical examinations were carried out by any of the

respondents from the public groups of either country. Therefore, this study is confined to these two disciplines to enable a comparison to be made between the public and private sectors and between different countries. This required further fieldwork in both Kuwait and Egypt. In Kuwait from 24 November 2001 one week was required to distribute the questionnaire to the police forensic document examiners and handwriting analysts. Of fifteen questionnaires distributed 13 respondents (86.7%) completed the questionnaire. All questionnaires contained sufficient data for statistical analysis. From 24 November 2001 two weeks was required to distribute the questionnaire to the state forensic medical practitioners. Of thirteen questionnaires distributed 13 respondents (100%) completed the questionnaire. All contained sufficient data for statistical analysis.

In Egypt the fieldwork was conducted after an official permission from the Director of the General Department of Forensic Medicine was received to undertake the research. From 11 December 2001 one week was required to distribute the questionnaire to both forensic document examiners and forensic medical practitioners. Fifteen questionnaires were given to medical practitioners. 13 respondents (86.7%) completed the forms. One questionnaire contained insufficient data for statistical analysis and the remaining 12 (80%) were analysed. Of fifteen questionnaires distributed to document examiners and handwriting analysts 12 respondents (80%) completed the questionnaires. 10 (66.7%) responses contained sufficient data for statistical analysis.

3.5.4 The survey in the United Kingdom:

Before conducting the fieldwork in the UK an official letter was obtained from the supervisors of this work asking the intended private forensic practitioners and defence solicitors to facilitate the research. This letter was attached to each questionnaire before distribution.

3.5.4.1 The survey of forensic practitioners' questionnaire

The objective of this study was to investigate the reliability of defence expert evidence in the Kuwaiti criminal justice system. Given that document authentication and medical examination are the most common forensic services available to the defence in Kuwait,

the survey in the UK was distributed to similar services. In fact these forensic disciplines also existed in good numbers within the private sector in the UK.[258] It was mentioned earlier that defence experts who gave opinion evidence in Kuwait were sole practitioners, and therefore, the questionnaires in the UK were distributed only to those who operate in similar environment rather than large independent forensic organisations such as the Forensic Access, Forensic Alliance or Document Evidence Limited.

Defence experts in the UK were selected from the Directory of Expert Witnesses provided by the Law Society.[259] It was established that some practitioners listed in the directory operate in single- person organisations, some in large forensic organisations such as the FSS, and others in universities scattered throughout different areas in the UK. This study only chose those who operate in a single-person organisation to ensure fair comparison. The questionnaires were distributed to different regional areas which included England, Wales and Scotland. Thirty-two questionnaires were sent to independent forensic medical examiners and forensic pathologists. From 30 January 2002 nine weeks was required to complete the collection of the questionnaires sent. Out of the nineteen respondents (59.4%) who completed the forms 13 questionnaires (40.6%) contained sufficient data for statistical analysis.

Thirty-eight questionnaires were sent to forensic document examiners and handwriting analysts. From 30 January 2002 seven weeks was required to receive the responses. 20 respondents (52.6%) completed the questionnaire. 17 of them (44.7%) contained sufficient data for statistical analysis.

3.5.4.2 The survey of defence solicitors' questionnaire

Several methods were used in order to distribute the questionnaires designed for defence solicitors. Questionnaires were sent to the Faculty of Advocates in Edinburgh and letters were sent to the Law Society of both Scotland and England asking for a list containing solicitors who carry out criminal cases. All of these attempts attained no response. A number of firms were visited in Glasgow and Edinburgh asking their permission to undertake the research. Some gave permission others did not. Thirty law firms were selected at random from the yellow pages directory in Scotland and forty from the

Internet, giving a total of seventy questionnaires that were sent out to law firms, who carry out criminal cases, scattered throughout different areas in the UK. From 2 February 2002 10 weeks was required to complete the reception of questionnaires. 40 respondents (57%) completed the forms. Nine contained insufficient data for statistical analysis and the remaining 31 questionnaires (44%) were analysed.

3.5.5 Response rates for each set of questionnaires

Table 3.1: Represents the raw data obtained from document examiners' and handwriting analysts' questionnaires

Group	No.	% of Responses
Private group of Egypt	6	30
Private group of the UK	17	44.7
Public group of Egypt	10	66.7
Public group of Kuwait	13	86.7

Table 3.2: Represents the raw data obtained from medical practitioners' questionnaires

Group	No.	% of Responses
Private group of Egypt	6	30
Private group of the UK	13	40.6
Public group of Egypt	12	80
Public group of Kuwait	13	100

Table 3.3: Represents the raw data obtained from defence solicitors' questionnaires

Group	No.	% of Responses
Kuwait	36	65
Egypt	23	77
United Kingdom	31	44

3.6 Statistical Analysis

There is a difference in sample size between the Arabic private sector groups and the other groups in this study (see tables 3.1 and 3.2). This is because the private forensic practice in Kuwait is in its infancy. The number of samples used in this study may be

seen as not completely of forensic practitioners who operate independently in both Kuwait and Egypt. As a consequence of the low sample numbers statistical analysis was carried out using the Fisher Exact Test.[260] The aim of applying such a test in this study was to evaluate the quantitative data when discussing the findings of results. This test procedure calculates an exact probability value for the relationship between two dichotomous variables in a two by two matrix. The test calculates the difference between the data observed and the data expected, assuming independence in the data. It works in exactly the same way as the Chi-square test for independence, however, Chi-square gives only an estimate of the true probability value, an estimate which might not be very accurate when dealing with small sample numbers (< 5). Since this study deals with small data, the Fisher exact test is a better choice than the Chi-square test.

Fisher exact P value can be calculated by the following formula:

$$P = \frac{(a+b)!\,(a+c)!\,(c+d)!\,(b+d)!}{a!\quad b!\quad c!\quad d!\quad N!}$$

where a, b, c and d are the variables and N is the summation of all variables. ! is the arithmetic operation of multiplying 1 times 2 times 3, etc.

This is a two by two formula. Some of the questions designed for this study have more than two answers therefore, where applicable, answers were divided into two by two matrices in order to fit this formula (example 1). The critical value was assigned as P = 0.1(10%). If the calculated value was less than or equal to the critical value then the difference in the data was deemed to be significant and not due to chance.

Example 1:

Table 3.4: Qualifications of the respondents

	Diploma	BSc	Master's	PhD	Other	Total
Egypt-private						
Frequency	0	3	0	3	0	6
Percent		50%		50%		100%
UK-private						
Frequency	0	6	5	5	1	17
percent		35.3%	29.4%	29.4%	5.9%	100%

The above table was divided into a two by two matrix to fit the P formula.

	Undergraduate	Postgraduate
Egypt-private	3 a	3 b
UK-private	6 c	10 d

The 'other' box is not included in the formula. N in this table = 22 which is the summation of all variables.

$$P = \frac{6!\ 9!\ 16!\ 13!}{3!\ 3!\ 6!\ 10!\ 22!}$$

where for example 6! = 6 X 5 X 4 X 3 X 2 X 1.

P = 0.32 (32%), P>critical value. This means that the difference was not significant and is explained by chance alone. This difference is due to complications relating to the limited number of samples received in this study. If P = 0.1 (10%) or less (P≤ critical value) means that the difference is significant to sustain the findings of results despite the number of samples which seem to be not representative.

3.7 Computer Analysis

The completed questionnaires were coded and loaded into a computer at the Social Studies Data Processing Unit (SSDPU) of Kuwait University and the results analysed using *SPSS* (version 9.0). The responses obtained from the open-ended questions were coded and converted into quantitative data and are referred to during the analysis.

CHAPTER FOUR

STANDARD OF DEFENCE EXPERT EVIDENCE – A COMPARISON OF ATTITUDE BETWEEN PRACTITIONERS IN KUWAIT, EGYPT AND THE UNITED KINGDOM

This Chapter is in four sections:

4.1 Introduction

4.2 The results and discussion of the analysis of the forensic practitioners' questionnaires

The results are presented in three parts:

4.2.1 Factual information

4.2.1.1 Professional standing

4.2.1.1.1 *Area of work*

4.2.1.1.2 *Qualification*

4.2.1.1.3 *Specialist training courses*

4.2.1.1.4 *Experience*

4.2.1.1.5 *Maintaining competence*

4.2.1.1.6 *The awareness of important issues in the profession*

4.2.1.2 Certification

4.2.2 Practical competence

4.2.2.1 Crime scene practice

4.2.2.1.1 *Crime scene participation*

4.2.2.1.2 *The nature of crime scenes attended*

4.2.2.1.3 *Precautionary measures at crime scenes*

4.2.2.2 Laboratory practice

4.2.2.2.1 *Exhibits in forensic laboratory*

4.2.2.2.2 *Standard operational procedure*

4.2.2.2.2.1 Identifying exhibits with problems

- *Corrective actions*

4.2.2.2.3 *Quality assurance relating to peer review of forensic casework*

4.2.2.3 Court testimony

4.2.2.3.1 *Retaining forensic reports*

4.2.2.3.2 *Forensic experts in courts*

4.2.2.3.2.1 Giving opinion evidence

4.2.2.3.2.2 The need for adversarial expertise

4.2.2.3.2.3 Questioning evidence

- *Contamination of evidence*
- *Interpreting evidence*
- *Police experts' reports*
- *Continuity of evidence*

- *Nature of expertise*

4.2.3 The balance of resources available to both sets of forensic practitioners
4.2.3.1 Technology used in forensic laboratories
4.2.3.2 Access to specialist journals, articles and books
4.2.3.3 Funding defence expert witnesses

4.3 Discussion of the forensic practitioners in respect of their attitude towards the evaluation of the level of professional competence

This section is presented in two parts:
4.3.1 Opinions of the public forensic practitioners of their private counterparts and about the SOCOs practice with regard to handling the forensic evidence
4.3.1.1 Responses from Kuwait
4.3.1.2 Responses from Egypt
4.3.1.3 Discussion
4.3.1.3.1 *Experience and expertise of defence experts*
4.3.1.3.2 *Experts for hire*
4.3.1.3.3 *Expert opinion in adversarial procedure of trial*
4.3.1.3.4 *Professional performance of SOCOs*
4.3.2 Opinions of private forensic practitioners of their public counterparts and whether the items they receive from the public laboratories are adequate for further analysis
4.3.2.1 Responses of private forensic practitioners who present opinion evidence to both Egyptian and Kuwaiti criminal courts
4.3.2.2 Responses from the United Kingdom
4.3.2.3 Discussion
4.3.2.3.1 *Difficulties within public sector forensic practice*
4.3.2.3.1.1 Problems associated with casework rate
- *Developing skills and experience*
- *Continuing development*
- *Turnaround Rate*

4.3.2.3.1.2 Speciality and discipline
4.3.2.3.2 Defence experts and the adversarial application of criminal procedures
4.3.2.3.2.1 Pre-trial disclosure of reports
4.3.2.3.2.2 The role and the importance of adversarial experts

4.4 Conclusion

4.1 Introduction

Forensic experts have been described as the "spectacles" of the tribunal of facts in courtroom proceedings and they therefore "serve as a bridge to justice".[261] They are regarded as individuals who assist the tribunal of facts in understanding and evaluating scientific evidence. This is because the matter in question is outside the scope of court's knowledge and courts rely on experts to provide them with specialist opinion. Forensic experts are expected to reach the highest levels of professionalism before giving opinion evidence in courts as their evidence could give a completely different emphasis to a case. However, if an individual witness gives an opinion on matters outside his/her area of expertise without being suitably qualified, he/she will not be acceptable as an expert on this matter. Opinion evidence of this nature, if not challenged in court, could have an impact on the furtherance of justice. Therefore, it is crucial to have confidence in expert witnesses and an understanding of the basis on which they base their opinions. Before admitting expert opinion into evidence, experts should first demonstrate that they are professionally qualified to undertake forensic work. The term "qualified" implies an appropriate combination of academic and/or professional qualifications, internal and external training, experience, and skills.[262] In addition, experts need to read and study scientific literature or literature pertinent to a particular case.[263] Most of these elements are the basis on which a specialist opinion can be formulated. The attainment of these elements determines the level of professional standing of an expert. In this study one of the key elements to evaluate the reliability of defence expert evidence is to investigate the quality standard of evidence submitted by these experts. This can be achieved by determining whether expert testimony is based on a certain level of professional qualification or standing and whether this level is competently applied in the process of selecting, collecting, preserving, transporting, analysing forensic evidence, report writing and the manner in which experts perform in court. This of course applies to all expert witnesses whether they act for the prosecution, defence or court (appointed experts). Defence experts are known as individuals who examine opposing opinions and thoroughly check the accuracy of tests, procedures and methods used in the initial forensic investigative process. Theoretically, the very nature of the adversarial

application of criminal procedure requires defence experts who are at a high level of professionalism in order to be able to discover flaws in prosecution scientists' reports and practices. The outcome of such checking is to advise the defence as to whether or not the prosecution expert evidence can be challenged and, if so, on which specific points thus creating doubt on the reliability of this type of evidence.

This Chapter will pursue two important factors for the establishment of reliable defence expert evidence, professional standing and technical or practical competence. The aim is to evaluate whether the levels of professional standing and indicators of quality standards within the private forensic science sector in Kuwait were comparable to leading services in the field such as those in the United Kingdom. Since defence experts in Kuwait present opinion evidence in both Kuwaiti and Egyptian courts, this study will also compare these levels and indicators within the state funded forensic document and forensic medicine services in Kuwait and Egypt against services presented by their private counterparts for both countries. This work will address whether private sector forensic practitioners in Kuwait have a role in providing courts with reliable expert evidence and to what extent they have succeeded in performing that role.

In section 4.2.1 the current levels of professional standing within the different groups of forensic practitioners will be investigated, the level which demonstrates that specialist opinion was given on the basis of specialist academic training, and continual professional training and developments in this field and not only through experience. It has to be mentioned that now authorising bodies consider the levels of professional background in the process of assessing competence. This Chapter will also investigate whether obtaining the desired level of background necessarily develops the awareness on issues relating to evidence integrity and contamination during crime scene investigation. Respondents were also asked whether they were authorised to undertake forensic work and to indicate the nature of their discipline and whether it is in accordance with the type of cases they investigated. This is intended to investigate the possibility of having opinion evidence on matters outside the fields of expertise and thus increasing the risk of unreliable expert evidence being delivered to the courts.

Section 4.2.2 will investigate whether the respondents apply their forensic science knowledge to their practical practice. One way to achieve this is by examining the code of practice forensic practitioners follow during gathering, collecting, analysing and transporting forensic evidence from crime scenes to laboratories. Following a code of practice in the forensic science field is an indicator that quality control and quality assurance systems are upheld during crime scene investigation and throughout the laboratory examination. The existence of these systems is vital to detect potential errors. Indicators of quality standards include the present and reported levels of technical competence of forensic experts in general and more specifically in areas dealing with precautionary measures undertaken at crime scene examination and standard operational procedures (SOPs) in the laboratories. SOPs include the checking of analytical results before the submission, following chain of custody protocols, identifying mistakes in items of evidence received in the laboratory and steps undertaken against these items, avoiding contamination and cross-contamination of physical and trace evidence and keeping records of reports for future inquiries. These indicators of quality were set by authorising organisations and forensic practitioners are being assessed against them as a step towards establishing high quality standard forensic evidence.

Section 4.2.3 will shed light on the balance of resources available to both private and public handwriting/ document examiners and medical practitioners. The attitudes that exist toward the quality of forensic practice within and outside the sector in Kuwait, Egypt and the United Kingdom will also be examined in section 4.3. The methods and procedures that would have the tendency to enhance and develop the current level of quality of the practice and of competence of defence experts, who give opinion evidence in Kuwait criminal courts, will be considered during the discussion.

The data gathered from the questionnaires is organised and listed in tables in Appendix C. This was decided in order to avoid lengthy pages and also to allow readers to follow the results and the interpretation of the analysis of the forensic practitioners' questionnaires. The questions designed for the questionnaire are organised in subsections in this Chapter.

During the construction of this work further interviews were conducted with members of the legal profession, forensic science and forensic medicine organisations in Kuwait, Egypt and the United Kingdom. These included judges, defence solicitors, advocates, the Crown Prosecution Service, members of the CRFP, SOCOs and senior state funded and independent forensic practitioners. The questions asked in the interviews were designed to cover specific issues that might not be possible to answer in the written questionnaire. The questions constructed for the interview are shown in Appendix D while Appendix E lists the names of individuals who were interviewed and contacted. The answers will be used, as appropriate, to illustrate various aspects of the discussion. For reasons of confidentiality, interviewees will be listed by letters.

Finally, in this Chapter, statistical analysis (Fisher Exact Test) will be used and the results will be discussed including those which relate to the validity of the gathered data and whether the respondents gave opinion evidence within their professional expertise only. Cross-tabulated figures, where appropriate, will be used in order to establish this consistency.

It is important here to explain the organisational structure of medico-legal administration in the UK, Kuwait and Egypt. In the United Kingdom, specifically in England and Wales, Home Office pathologists assist the police (Crown Prosecution Service). Some of them are based in university departments, some in hospitals and some in their own single-person organisations which this study focused on. In Scotland most pathologists are based in Universities such as Edinburgh, Dundee, Aberdeen and Glasgow, with others based in hospitals. Prosecution pathologists in the UK can carry out both defence and prosecution cases at the same time, but in different geographical areas. For example, pathologists who carry out prosecution cases in Dundee may carry out defence cases in Glasgow. In Scotland, pathologists who are being sought by the defence, especially those who operate in single-person organisations, do not generally undertake prosecution cases where as in England and Wales, they do. Those pathologists working on defence cases are generally paid by Legal Services Commission via the defendant's solicitor. Home Office pathologists or forensic doctors in the UK operate for clients for a

fee, whether the clients are the Crown Prosecution Service, coroners, police or defence solicitors. There are a group of pathologists who only serve the Home Office through a contract policy and this is meant to guarantee the level of expertise and that they be available 24 hours a day.

In Scotland forensic medicine departments are often staffed by pathologists and toxicologists. Medical examiners generally operate for the police and are known as police surgeons. Basically, police surgeons are General Practitioners but registered by the police and are qualified by the Police Surgeon Institution or by the Association of Police Surgeons of Great Britain before becoming involved in forensic practice. The defence can also consult police surgeons (also known as clinical forensic practitioners). The police surgeons examine live victims and Home Office pathologists carry out the forensic autopsy on deceased victims.

The organisation of the medico-legal administration in Kuwait and Egypt is different. Almost all of the prosecution medical practitioners are either former surgeons in hospitals or newly qualified doctors. Prosecution medical examiners and pathologists in Kuwait work under the control of Ministry of the Interior, in Egypt under the Ministry of Justice and in both countries only work for the government. Those who operate in single-person organisations often only carry out defence cases. Furthermore, almost all of the medical practitioners who currently work in the Kuwaiti General Department of Forensic Science Evidence (GDOFSE) are originally from Egypt. In fact, since Ministerial Decree No. 1 of 1962[264], when the Forensic Medicine Department first joined the Forensic Science Department in Kuwait, almost all of those who practice in the medicine department were sought from Egypt. This is not unusual as the Kuwaiti law of criminal procedures was initially adopted from Egypt and there was a need for expertise in the application of medicine in forensic practice within Kuwait.

Where forensic medical examiners and forensic pathologists are mentioned together during the discussion and the interpretation of the findings of this Chapter, they will both be referred to as medical practitioners. Questioned document examiners and handwriting analysts will be referred to as QDEs.

4.2 The results and discussion of the analysis of the forensic practitioners' questionnaires. (Tables 4.1 – 4.27, Appendix C)

This is a comparative study of private practitioners who operate in the United Kingdom with both state and private practitioners operating in Kuwait and Egypt. The study involved only questioned document/ handwriting and medical expertise as they are the most common private sector forensic services currently available to the defence in Kuwait and Egypt.

4.2.1 Factual information

4.2.1.1 Professional standing

4.2.1.1.1 *Area of work*

In table 4.1, the respondents were asked to mention the area of work. This question was designed to establish the area of specialisation and the findings have been cross-tabulated with the type of professional qualification and training. The aim is to investigate whether participants provide courts with opinion evidence on matters within their immediate professional expertise and whether they are qualified in the field of forensic science before acting as expert witnesses.

- Responses of QDEs

Although the respondents were asked to mention the area of work, UK QDEs chose the category corresponding to their professional expertise since some added, in the 'other' category, the type of cases they carried out (41.2%). The 'other' category of the private Egyptian QDEs (33.3%) refers to forensic medical examinations. These individuals worked in the area of forensic medicine and also gave expert evidence in areas relating to handwriting and suspicious document which are later shown to be outside their area of professional expertise and without being suitably qualified.

- Responses of medical practitioners

Medico-legal administration includes pathology, histopathology, medical examination, serology, toxicology, odontology, facial reconstruction, general practice, psychiatry, and any other specialities of medicine which can be applied to solve legal disputes. The responses obtained in this study show that medical practitioners operate most frequently as either medical examiners or pathologists (see Table 4.1). It is important to explain the nature of pathology and medical examination work as they both pertain to forensic practice. Pathologists deal with the deceased and their task is to investigate the cause and manner of death whether suspicious or natural. Investigating suspicious death may reveal that the death occurred as a result of suicide, trauma of Central Nerves System, drowning, and Embolie, or as a result of criminal death, such as infanticide, and all other types of homicide. Pathologists may also be involved in cases where death occurred as a result of a natural cause such as a heart attack. Furthermore, pathologists often estimate the time of death (almost always in an approximate range) at a scene and during the autopsy process, they interpret internal and external injuries and wounds, such as electric injuries and gunshot wounds, for example. Forensic medical examiners however, deal with live victims and their duty is often confined to interpret wounds and injuries of cases involving, for example, sexual assaults, rape, child abuse, spousal abuse, aggravated assaults and battery. If any of these types of events were followed by a death, then a pathologist would be involved in the case.

4.2.1.1.2 *Qualifications*

Meyer explained[265] that the attainment of a PhD may establish a competent scientist who is able to apply his scientific knowledge in laboratory practice. It is known that science is changing as a result of publication of new research. The importance of holding a PhD or Masters degrees relevant to the field of forensic science is that individuals often get involved in scientific research, a benefit which contributes to colleagues in the profession and to internal and external organisations through sharing expertise in forensic meetings and proceedings. The number of such degrees illustrated in table 4.2 emphasises the importance of participation in research and training in order to develop forensic science

in their area, in particular, the recent developments in the area of the quality of forensic evidence. This may explain the recent awareness within the Kuwaiti state forensic laboratory in establishing a quality control unit to operate within the existing forensic science disciplines, evidently, shortly after the attainment of a PhD degree in the area of quality by one of its staff.

- Responses of QDEs

The findings of table 4.2 show that the majority of the QDE respondents from all groups hold Bachelor degree. However 33.3% of the Egyptian private QDE respondents who were educated to PhD level were also medical practitioners which illustrates that the percentage of the UK document examiners (29.4%) who are qualified to this level is significantly higher. Those who hold Master's degrees constitute one third of the Egyptian public QDE group and this percentage is similar to that amongst UK private respondents. None of the respondents from the Kuwaiti group or the Egyptian private group held this qualification. The 'other' category for UK QDE respondents (5.9%) refers to B.A. qualifications level and a Diploma in document examination which was issued by the Forensic Science Society, illustrating the importance of obtaining a proof of forensic speciality.

The Fisher exact test reveals that, statistically, there are significant differences between the educational level of both Arabic public QDEs and between the Kuwaiti public and Egyptian private sector QDEs. In general, the tests reveal that the UK private sector QDEs are academically more qualified than the other groups from the Arabic region.

Further, the majority of QDE respondents from all groups were educated to BSc level, which is the lowest qualification normally accepted by forensic organisations in order to carry out forensic analysis in this area, and is one of the requirements for quality assurance in forensic laboratory work.[266] Individuals holding diplomas however, often work as technicians to assist scientists in preparing chemical solutions within the forensic laboratory framework which does not necessarily demand BSc degrees in science.

- Responses of medical practitioners

Although in table 4.2 the respondents were not asked to pick more than one box, all of the medical practitioners who chose the option 'other', explained their post-graduate qualifications and the type of additional diploma they obtained. This included a Bachelor degree in medicine and surgery (Egypt-public group). Diplomas in childcare and surgery, Bachelor in medicine and serology, Masters in abdominal diseases and in pathology, PhDs in pathology, forensic medicine, and forensic toxicology (Kuwait-public group). Of the UK group, the 'other' category refers to basic medical degree (Bachelor of medicine and Bachelor of surgery), clinical forensic medicine, diplomas in sexual assaults, pathology and forensic medicine, post-graduate studies in general practice, Masters in forensic medicine and infanticide, and PhDs in forensic pathology. Of the Egyptian private medical practitioners however, the 'other' category refers to Diploma in clinical medicine and Bachelor degree in surgery only (100%).

Forensic science is becoming more specialised and highly technical. It used to be that one forensic practitioner lifted fingerprint impressions, examined questioned documents, analysed drugs and determined the ABO blood grouping. However this is no longer acceptable. Forensic practitioners are required to be specialised in their chosen discipline in order to withstand the scrutiny of professional peer review, courts and the public. By definition, "forensic or legal medicine is the application of medical knowledge to the law and to the furthering of justice."[267] This means that the duty of forensic doctors is to supply technical evidence in legal disputes. This requires doctors who wish to be involved in forensic pathology for example, to be trained on the significance of medical opinion in the criminal investigative process, the legal limitation of such opinion, and what precautions should be taken in forensic autopsy before they can be officially qualified as forensic pathologists. In fact, in the UK, a hospital pathologist requires two to three years of specialist academic courses before he/she can be qualified as a forensic pathologist.[268] Therefore, it is important to cross-tabulate the type of medical qualification mentioned in the 'other' category with the area of work in order to establish whether the medical practitioners from all groups were qualified to undertake forensic work and worked within their specialist field of expertise. Although not academically

qualified to specifically undertake forensic work, all of the Egyptian public medical practitioners worked in both forensic medicine and forensic pathology, and of the Kuwaiti public group respondents (53.8%) who mentioned that they were qualified in the forensic practice, 85.7% work as both medical examiners and pathologists, and 14.3% worked as biologists. This suggests that within the Arabic groups, there is no distinction in discipline of speciality and those who investigate cause of death also interpret injuries and wounds of live victims. In contrast, all of the UK private group held qualifications relevant to their area of forensic speciality and were very distinctive in separating pathology from medical examination. Of the Egyptian private medical practitioners (100%), who said that they held a Diploma in clinical medicine and bachelor degree in surgery, all worked in the area of medical examination and 33% of these respondents although only qualified in the field of medicine, stated that they operate in the area of forensic document examination as well. This did not occur within the UK private medical practitioners group.

The educational standard in relation to professional qualification within the UK medical practitioners who were interviewed, was also higher than those in the Arabic region. None of the defence medical practitioners who were interviewed in the Arabic region had undergone specialist academic training as opposed to all of those interviewed in the UK.

4.2.1.1.3 *Specialist training courses*

It has been said, "……we must not consider forensic science as a profession in which on the job training is the preferred route to professional competence".[269] As Gallop put it "Forensic scientists do not grow on trees: they have to be carefully selected and carefully trained."[270] Some commentators emphasised the importance of acquiring both education and training in order to distinguish the difference between a competent forensic practitioner and a forensic technologist.[271] It has been stressed that there are two parts to achieving competence; first, the expert's proper professional standing and regular practice in his main professional area of competence requiring education, training and continuing professional development to maintain that competence. Secondly, the expert's

proper understanding and practice as an expert in court requiring training and continual professional developments in relevant aspects of the law, legal and court practice.[272] Such awareness also exists in Egypt. In cases requiring handwriting and documents expertise, for example, the appeal court gave the Court of Merits the right to reject any argument relating to the lack of expertise in handwriting investigation, and that verification of capability and fitness to document analysis and handwriting identification practice should be ensured before recruitment.[273] The argument though is whether parties in court use this to challenge experts who acquired specialist knowledge solely through experience.

There is a debate over whether side by side comparison of document and handwriting or medical examination and pathology involve a scientific methodology or are more experience based.[274] In professional dialogue, document examiners who practice in the UK need to prove that they are qualified as experts and that they gained specialist knowledge through both "study" and "experience in the courtroom before giving testimony."[275] Similarly, in the US, document examiners need to demonstrate that their expertise is based on specialist academic and practical training courses before they can act as forensic document examiners.[276] As part of a quality assurance programme, these are also initial requirements for forensic medical examiners who wish to attain membership of the Association of Forensic Physicians (AFP), USA.[277] This awareness within the forensic communities in the UK and the US has occurred because these requirements were often questioned before a witness could be allowed to act as an expert in courts.[278]

It is important therefore to investigate the basis on which specialist opinion was formulated, if it was not through professional academic qualification, was it then through specialist training courses. The aim of asking the respondents if they had been exposed to the field of forensic science prior to carrying out case work was to establish the level of background understanding of the respondents on forensic issues prior to commencing their current work. Having academic qualification, specialist training courses and experience are indicators that practitioners are competent to undertake forensic case work.

- Responses of QDEs

The findings of table 4.3 show that the majority of the QDE respondents from all groups have had previous training courses in their field prior to their present occupation. However, only half of the Kuwaiti public group responded to this question.

The respondents were further asked, in an open ended question (Q4-Appendix A), to describe the training they received including its duration. With regard to both Arabic public QDE groups, the majority of respondents stated that they had six months of academic training, and six months of practical training given by more experienced colleagues. The academic training covered modern technology in detecting crimes such as computer crimes, detecting forgeries and alterations, and the identification of disguised typewriting. The remaining respondents of both public groups (33.3% of Kuwait and 25% of Egypt) mentioned that they only had on-job training by more experienced colleagues.

The number of years and type of training amongst the UK QDE respondents was different. All of them stated that they had both theoretical and vocational training ranging from 2 – 4 years when they previously worked with police forensic laboratories such as the Home Office Forensic Science Service. They added that they also received continual training in addition to attending forensic conferences and undergoing regular assessment using simulated casework. Some of the UK respondents added that they had also received specialist academic training as part of MSc programme in forensic science. In contrast, of the Egyptian private QDEs respondents (83.3%), who mentioned that they had specialised in forensic science, 60% mentioned that they had two and a half to six months of "on the job" training with more experienced colleagues when they were formerly working in the police laboratory. The remaining 40% were those who operated as both forensic medical and document examiners, and the type of training they mentioned was not relevant to document examination. It has to be appreciated that different areas of forensic expertise require different specialist training courses. It could be argued that UK expert witnesses have an advantage in that they have greater access to specialist training courses since such courses are offered by a number of forensic organisations and

universities. In Egypt, there are institutions specifically established to regulate such training, the National Institution of Forensic and Social Studies, Cairo, is an example.

This study indicates that within the QDE groups the majority of the respondents from both Arabic public sector and the UK private sector have had previous exposure to their specialist field prior to their involvement in the forensic work as opposed to all of the Egyptian private sector respondents who formulated their specialist opinion only through experience. The Fisher exact P value between both Arabic public sector groups is 0.094, a difference which indicates that the Egyptian public group is more advanced in this area than the Kuwaiti group since the findings indicated that 80% of the Egyptian group had such training in comparison with only 46.1% of the Kuwaiti group. P= 0.48 between the Egyptian private and public groups and P= 0.136 between Kuwait and the Egyptian private group. That these differences were found not to be significant may be due to complications relating to the limited number of samples received in this study. The number of years and type of specialist training amongst the UK QDEs respondents was more advanced than all other groups, however, when compared with their Egyptian private counterparts, the difference was also deemed not to be significant.

The high level of professional standard can also be seen within the private sector QDEs who were interviewed in the UK. A (interviewee from the UK) explained that, in addition to specialist academic courses in questioned documents, he also attended training courses and conferences as well as courses covering the legal aspects of the field. This, he further explained, was arranged by the Expert Witness Institute of which he was a member. He also mentioned that he gained more knowledge about the legal side of his profession through mock courts which were organised by the National Association of Document Examiners in the USA. B (interviewee from the UK) is another example. He explained that he had attained a Diploma in question document examination and handwriting analysis provided by the Forensic Science Society. He finally added that he attended conferences and seminars organised by the Forensic Science Society and the Expert Witness Institution on a regular basis in order to keep abreast of new developments not only in his specialist field of expertise, but in the forensic profession as

a whole. Such concern in developing professional skills was not shown by any of the private sector questioned document interviewees from the Arabic region.

There are two issues to be discussed regarding the findings of this section. First, given that the majority of the Egyptian private QDEs (83.3%) had gained the knowledge in forensic document examination only through experience, the quality of their work may depend upon the competency of the supervising scientist when an individual was first recruited in the state laboratory. The respondents neither attained academic qualification, nor were involved in specialist training courses since they had operated as forensic document examiners. In future trials, these QDEs may need to demonstrate before the Kuwaiti courts that their opinion is based on relevant professional standing and training. However this, of course, depends on whether this issue is brought up in courts. Secondly, unlike the UK QDE respondents, none of the Arab QDEs from both sectors mentioned that they had training related to presenting evidence in court. Experts may need to prove that they were trained in activities related to giving evidence in courts, and their skills as expert witnesses may need to be approved. According to the Forensic Science Services Code of Practice[279], "the FSS (which meets the standards set by NAMAS) expects its staff to work to this code throughout the justice process; investigation, assembly of case and court hearing." It is worthy of mention that UK is also one of the leading countries in the preparation of competent scientific evidence testimony. They assign scientists to training programmes that include report writing and expert testimony and presentation through the use of mock court scenarios.[280] This type of training provides the skills and confidence necessary to cope with cross-examination in courts. Until recently, there was no evidence of a similar code of practice or training programme established for forensic practitioners in practice in Kuwait and in Egypt.

- Responses of medical practitioners

Table 4.3 reveals that all of the Egyptian private medical practitioners and the majority of their counterparts from the other groups had previous training courses in forensic work prior to their present occupation. The respondents were asked to describe the training they received including its duration. Of the Kuwaiti group (76.9%) who stated that they

have had training and experience in forensic work, 75% had six months of practical training in post-mortem pathology at the Forensic Medicine Department and at the College of Medicine, both of which are located in Cairo, 5% had six weeks of theoretical training in surgical, pathological diagnosis and serology, and 20% had three months of practical training in examining victims of assaults at the Kuwaiti state forensic medicine services. Of the Egyptian public medical practitioners (91.7%) who received training, all had six months of theoretical and practical training on exterior and interior examination relating to different types of assaults and deaths, practical and theoretical training in weapons examination, microscopic comparison of bullets and forensic autopsy. 25% added that they had practical training in the proper methods of collecting and packaging forensic evidence.

Of the Egyptian private medical practitioners (100%) who stated that they have had training courses in forensic work, all had practical training with more experienced colleagues. This included training in sexual assaults cases, mental illness cases and pathological examination in criminal and suspicious deaths. The length of this training, which took place in the Egyptian state Forensic Medicine Department, varied between four and a half to six months. Within the Arabic groups only the private medical practitioners did not undertake theoretical training courses that included the application of their expertise in a forensic context. This indicates that, like their regional private sector QDE respondents, they gained the forensic knowledge only through experience. The professional standing of independent medico-legal administration in the UK is also different with 70% of the participants having three years of specialist academic courses in clinical forensic medicine including a Diploma in jurisprudence. They explained that they took training courses related to presenting evidence in court through mock courts, illustrating the importance of attaining knowledge of the legal aspects of their profession. They added that they also had a six month apprenticeship with senior forensic pathologists and forensic physicians. 20% had eighteen months of specialist training in forensic autopsy including six weeks of study course. The remaining 10% stated that they were also involved in ongoing training.

There are three important issues to be mentioned in this section. First, this study indicates that UK private medical practitioners pursue continual professional developments after their initial qualification. Unlike the medico-legal practice in both Kuwait and Egypt, in the UK forensic pathologists must possess a diploma in medical jurisprudence, be a member of the Royal College of Pathologists (RCP) and, recently be registered with the CRFP[281] in order to attain accreditation by the Home Office.[282] C (interviewee from the UK) explained that the accreditation process was through assessing the casework of pathologists and that such an assessment also required referees such as judges and police who in many cases dealt with the candidate. He added that he not only attained the Home Office accreditation programme, but also was certified by the RCP. He further explained that the RCP had its own auditing system by which members need to demonstrate their engagement in continuous professional development and continuous education in medicine, a process which was established in 1998. The type of assessment required the accumulation of points where every consultant was required to collect at least 50 points per year, and points were added for professional publications, conferences attended, and the review of articles for publication. If the consultant gained less than 50 points in a year, membership of the RCP would be cancelled and the pathologist's credentials would be at risk. This type of auditing system undertaken by the RCP and Home Office, as D (interviewee from the UK) mentioned, "raises the qualification and expertise amongst candidates." Such type of responses were not obtained by any of the medical interviewees among those from the Arabic region, and all of the Arabic QDEs and medical practitioners respondents were not involved in any ongoing training in service.

Secondly, Prof. Caddy explained, it is very important that scientists giving evidence recognise the legal requirements of their jurisdiction, and should be trained on how to effectively communicate with the legal profession.[283] Further, it has been emphasised that "top professional skills do not necessarily go hand-in-hand with the best expert witness skills."[284] Indeed, it is vital that practitioners enrol in specialist training which develop the process of giving evidence and maintain the skills needed to fulfil their role as expert witnesses in courts of law. This type of training is available for forensic

practitioners who operate in the UK through organisations such as Bond Solon Training[285], the Society of Expert Witnesses,[286] Forensic Access[287] or through their involvement in mock court sessions.[288] Within the medical and QDE groups in this study, only respondents from the UK private sector group mentioned that they were trained in activities relating to giving evidence in court. The forensic community in Kuwait and Egypt may need to be aware of this type of specialist and important training.

Thirdly, given that the Egyptian public medical practitioners may not have acquired additional professional academic qualifications in forensic medicine, this study shows that they were at least exposed to this field through specialist theoretical and practical training courses when they joined the service. However, their regional private sector did not. In addition, 33.3% of the latter respondents also gave opinion on document evidence, and these individuals did not mention that they were exposed to academic or relevant specialist training in the area of forensic document examination. Given that all of the Egyptian defence experts were formerly working in the state laboratory, the findings of this study may suggest that only in recent years has this laboratory started to engage its staff in specialist theoretical and practical training courses.

Thus, up to this point, the UK private sector QDEs and medical practitioners and their Kuwaiti public sector counterparts fulfilled two elements necessary to formulate specialist opinion through their attainment of academic qualifications and their involvement in additional theoretical and practical training courses. The Egyptian public sector group were involved in professional training programmes. In contrast, the Egyptian private QDEs and medical practitioners examined in this study did not acquire these elements. The next question will investigate the levels of experience of the participants as another element required for formulating specialist opinion.

4.2.1.1.4 *Experience*

- Responses of QDEs and medical practitioners

There is a remarkable difference between the groups in terms of job experience (see Table 4.4). The majority of both sets of private groups and their Kuwaiti public sector

counterparts have more than 15 years' experience in practice compared with the majority of the Egyptian public group having less than 14 years' experience. For the private sector groups, this is not unexpected as they, in general, previously worked within the police forensic science systems prior to service in the private sector.

It is worthy to investigate years of experience in relation to the type of qualifications the respondents acquired, and this is for a reason. Arguably, those who spend more time in the profession often have the opportunity to gain additional specialist academic qualifications, especially newly qualified doctors who want to pursue forensic pathology as a career.[289] By applying cross-tabulating figures, it was found that of the 75% of the Egyptian public medical practitioners with less than five years of experience in forensic practice, 22.2% hold bachelor degrees in medicine and surgery and were not involved in ongoing training courses (see Tables 4.2 and 4.3). Another reason why the Forensic Medicine Department in Egypt was staffed by such a high percentage of inexperienced medical practitioners is because most of their more experienced staff moved to the Kuwaiti Forensic Medicine Department. Kuwait in 1982 developed specifications for recruitment which were to:

1) have not less than 10 years experience in autopsy.
2) have received training in post-mortem examination.
3) acquire any of the above but preferably to have both 1 and 2.[290]

It is obvious that the Kuwaiti recruiting policy was seeking experience and was not necessarily requiring a proof of forensic specialty since it only required a training in post-mortem examination. This may suggest that in 1982 the need for forensic specialisation was not a primary concern within the forensic community in both Kuwait and Egypt and a reason why there is no distinction in professional discipline of speciality in their medical practice. This also explains why all the private sector medical practitioners in this study acquired their professional knowledge only through case experience and, since they were formerly working with the police, have continued to operate as both

pathologists and medical examiners in their single-person organisations. Further, it seems that the Kuwaiti recruiting policy was in compliance with the level of professional standing available at the Egyptian state Forensic Medicine Department in 1982. This policy was criticised by the new manager of the Forensic Medicine Department in 2001, who did his PhD in quality assurance and quality control. He advised the implementation of new guidelines for quality assurance and proficiency testing in the forensic medicine practice.[291] The purpose was to 1) establish procedures necessary to promote adequate confidence that forensic medical practitioners will meet and maintain minimum levels of quality in their practices and 2) describe the quality assurance requirements and procedures that these practitioners must follow to ensure the quality and integrity of their work. Commitment to quality assurance programme, he recommended, required practitioners to be specialised in a more narrowly defined field (meaning separation between pathology and medical examination practices), raise their level of professional standing through obtaining additional professional qualifications and participate in quality basic training, ongoing training courses and continuing professional development. He further emphasised that the existing medical practitioners should adhere to the practices listed in the guidelines which should meet the accreditation criteria of the National Association of Medical Examiners of the USA[292] and the Royal College of Pathologists of the UK[293]. He finally advised the need to recruit Kuwaiti nationals who, in the long term, should replace the existing staff. Although these recommendations were made in 2001, up until recently, almost all of the medical examiners and pathologists practising in Kuwait, were those who came originally from Egypt. Medical practitioners in the Kuwaiti forensic department work on a contract basis and, therefore, may either go back to Egypt in retirement or begin to operate as independent consultants in both Kuwait and Egypt if their contract is not renewed. Medical practitioners who come from Egypt must comply with the new Kuwaiti recruitment policy. This means that only those who have professional qualifications in forensic pathology and expertise in clinical forensic medicine, together with years of experience in practice, would fulfil this policy. In other words, only Egyptian medical practitioners who are distinguished by their experience and expertise can be transferred to the Kuwaiti forensic department. This may explain the

reason why within the existing Egyptian public medical practitioners group, 75% have less than five years' experience, of which (22.2%) have not yet received an additional diploma in forensic work. On the other hand, the Forensic Medicine Department in Kuwait was staffed by a high percentage of medical practitioners having more than 15 years' experience and who attained qualifications relevant to forensic work (see section 4.2.1.1.2).

4.2.1.1.5 *Maintaining competence*

Since crimes have become more sophisticated, forensic science has and is developing to keep abreast of such sophistication. Forensic practitioners, who use scientific analysis, must therefore keep their knowledge in the field updated. They should be keen to learn about the new developments in their professional discipline of speciality, and as Prof. Forrest put it:

> "make sure that one is aware of what is going on elsewhere in one's discipline and to avoid getting locked into an inflexible and insular personal and/or corporate view of the way one should approach a particular problem."[294]

It has been said that the academic degree is a qualification for life, however, scientific knowledge in the field needs to be re-assessed in order to prove that individuals maintain competence.[295] In their assessment of competence, the CRFP require candidates to prove that they stay current with new updates in their field and that they take active steps to maintain their competence while in practice.[296] The Forensic Science Society in the UK also follows the re-assessed process every five years to demonstrate that its members meet the maintaining competence standard. Such an activity is an integral part of the quality assurance programme which is undertaken by Quality Management Systems Limited[297], a body which certifies organisations wishing to demonstrate their commitment to quality management system.

Certainly, "continual education and increasing knowledge in the field of expertise is part of a professional mandate."[298] One of the ways to develop and maintain professional knowledge is through continuous reading of appropriate literature. Access to professional literature is an area in which forensic practitioners must demonstrate their ability in order

to achieve competence certification by many professional bodies and an area which is highly recommended by professionals in this field.[299] According to the quality assurance guidelines set by The Scientific Working Group on Materials Analysis, U.S., forensic examiners who wish to maintain qualifications need to demonstrate their participation in reading current professional literature including journals and books.[300] Similarly, the standing committee on competency of European Network of Forensic Science Institutes (ENFSI), of which the Forensic Science Service is an active member, also suggested that forensic practitioners need to demonstrate maintaining competence through participation in such an activity which keeps them abreast, not only of new developments in their specialist field of expertise, but in other forensic disciplines as well.[301] Therefore it can be said that reading relevant forensic literature is an initial standard required to assess competence and fitness to the practice by many professional bodies and organisations.

The respondents were asked whether they read periodicals, articles, and books relating to the forensic field (Tables 4.5 and 4.6).

- Responses of QDEs

Table 4.5 shows that unlike UK private and both Arabic public QDE respondents, half of the Egyptian private QDEs did not read relevant journals or periodicals. The answers obtained in this table were divided into a two by two matrix in order to fit the Fisher Exact Test formula. Responses obtained in the 'nearly always' through 'rarely' categories were considered as a positive response and 'never' as a negative response. P= 0.51 between the two Arabic public groups, P= 0.1 between the Egyptian public and private groups, P= 0.067 between the Kuwaiti public and the Egyptian private groups and P= 0.011 between the UK private and the Egyptian private groups. This illustrates a significant difference between the Egyptian private and the two Arabic public groups, and between the UK private and the Egyptian private groups. The findings reflect the statistics that half of the Egyptian private QDEs did not meet the quality standard relating to continuing education like all of the other QDE groups.

- Responses of medical practitioners

Similarly, among the medical practitioners, the majority of the Egyptian private respondents mentioned that they 'rarely' update their specialist knowledge through reading as opposed to 'nearly always' or ' usually' within the other medical groups ($P > 0.1$).

When the respondents were asked to mention the type of journals or periodicals they read (Table 4.6), the majority of the Egyptian private sector QDEs and medical practitioners read *Al-Dakheliah* journal. This is a monthly journal to which the Ministry of Interior in Kuwait is a contributor. It covers cultural and social issues such as drug addiction and the precautionary steps to avoid addiction. It also discusses matters of traffic accidents and their social impact. In addition, this journal mainly covers internal affairs of the Ministry of Interior, especially the latest developments in the ministry focusing on events attended by the minister. *Al-Dakheliah* journal does not cover any aspect of forensic practice and the majority of the Egyptian private sector respondents mentioned that they update their specialist knowledge only through reading this journal.

The Egyptian private QDEs who mentioned that they read *Medicine Science and the Law*, were among those who operated as both forensic medicine and questioned document examiners. In contrast, UK and both Arabic public QDEs not only read specialist journals relating to document examination, but also journals relating to the forensic profession in general. The 'other' category of QDE respondents (Table 4.6) refers to reading books pertinent to the field of speciality and viewing casework of more experienced colleagues (11.1% of the Egyptian public respondents) or reading the American Society of Questioned Document Examiners journal and the Forensic Access Newsletter (29.4% of the UK respondents).

The 'other' category of medical practitioners (Table 4.6) refers to reading books and articles covering biology, toxicology, and proceedings of local conferences (45.4% of the Egyptian public respondents), or toxicology and pharmacology books (16.6% of the Kuwaiti public group). Unlike the Egyptian private medical practitioners, those in the UK referred to journals such as the *Journal of Clinical Forensic Medicine*, *Criminal Law*

Review, *Medico-Legal Journal*, *Addiction Medicine*, and other medical and pathology journals (61.8%). Reading such professional journals should help in promoting medico-legal knowledge in various aspects. It has to be mentioned that these journals can also be subscribed to non-members through the Internet.

All of the private UK QDEs interviewed also mentioned that they read generalist and specialist forensic journals. Only one of the Arabic private sector QDE interviewees (H) mentioned that he read a medical journal which was issued every six months in addition to using the Internet. This individual carried out both medical and document casework.

In general, both Arabic public QDEs and medical practitioners and their UK private counterparts who participated in this study read journals not only related to their field of expertise, but also other well known journals in the forensic field which publish research and articles covering forensic work- including the recent discussions regarding the implementation of quality control and quality assurance within the practice. In contrast, half of the Egyptian private QDEs not only did not keep abreast of new developments in the forensic profession as a whole, but also in their discipline of speciality since they began operating as a private consultant. In addition, all of the Egyptian private QDEs and medical practitioners who said that they read forensic journals, only read journals which were related to their immediate field of speciality.

Thus, this study shows that respondents from the private sector who give opinion evidence on document and medicine in the Kuwaiti criminal court, were generally not involved in continuing professional development either through academic training, ongoing professional practical training, attending forensic conferences, or through reading relevant journals and periodicals. They also did not obtain any additional professional diplomas since they began operating as private experts.

4.2.1.1.6 *The awareness of important issues in the profession*

Forensic practitioners handling evidence in laboratories should ideally have basic forensic science awareness covering all forensic specialities.[302] Such awareness includes information in relation to scientific techniques, methodologies, prevention of evidence contamination, evidence assessment and interpretation, statistics and the effects of decision making during the investigation.[303] Having general knowledge in all forensic disciplines is considered one of the essentials to attain certification by professional organisations, such as the American Board of Criminalistics[304] and Forensic Access for example.

The aim of the next two questions (Tables 4.7 and 4.8) is to establish whether developing professional skills through continual reading, additional specialist academic qualification, and theoretical and practical ongoing training courses necessarily develops the awareness as to the most significant purpose of attending crime scenes.

- Responses of QDEs and medical practitioners

Only QDEs from the Arabic region stated that they 'never' benefited from attending crime scenes with a similar response from the Egyptian private medical practitioners group (33.3%). However, in general, the majority of both QDEs and medical practitioners from all groups mentioned that, when they did attend scenes, they benefited from the process of locating and gathering physical evidence and acquiring knowledge. All of the QDEs and medical practitioners, apart from the Egyptian private QDE group, added that the prevention of cross-contamination of physical evidence was also a benefit of attending crime scenes.

It has been said that few QDEs have the opportunity to attend the crime scene in the early stages of the forensic process.[305] However responses obtained from the 'other' category indicate that this might not always be the case as QDEs referred to knowing the surface on which the writings were executed, acquiring knowledge of the crime scene surroundings to establish whether there were factors which could influence normal handwriting (Egypt-public), determining the type of materials used in writings on walls or doors (Kuwait-public), ensuring that only relevant evidence was collected and gaining

insight from directly viewing physical evidence at the scene or by meeting people involved to hear more revealing information (UK). The 'other' category of medical practitioners refers to advising whether a death was suspicious. Indeed, one of the pathologist's tasks in death scenes is to direct the criminal investigation from the onset of a case and this was referred to by 7.6% of the UK respondents.

By applying the Fisher Exact Test to the QDE groups the differences in the results, apart from the two public groups against their regional private group, are statistically not significant. Among the medical practitioners groups the results, apart from both public groups against each other, are statistically significant. This demonstrates that the participants from both public and UK private sector medical groups are more advanced than their Egyptian private sector counterparts in the area of having an awareness of issues relating to cross-contamination. On the contrary, though, it is curious that such awareness was identified by 50% of the Egyptian private medical practitioners although they were not involved in professional activities which cover the proper application of their expertise in the forensic work, and gained forensic knowledge only through experience. This suggests that gaining forensic knowledge through experience may only help to develop competent practical performance and this will be seen later in their crime scene practice.

In general, the majority of both QDEs and medical practitioners from all groups had an awareness of the benefit of attending crime scenes. Whether the issue of preventing cross-contamination of physical evidence was only raised within the Arabic public and UK private groups as a consequence of their general knowledge of forensic practice and specifically quality issues, as they pertain to forensic science or from their own specific practices, is unclear. However it could be argued that since these respondents engaged in continual professional development through also reading other well known journals in the forensic field, they generally had an awareness anti-contamination protocol which is a crucial part of establishing quality control and quality assurance systems in forensic practice. This was not seen to be the case within the Egyptian private QDE group and half of their regional private sector medical group. It is known that, in the process of

questioning evidence led by prosecution scientists, one of the areas of inquiry that a defence expert would look for is potential contamination of evidence in the initial forensic investigative process.[306] The question though is can this important area of inquiry be pursued by a defence expert who is not aware of issues relating to anti-contamination protocols.

4.2.1.2 Certification

Arguably, forensic experts operating in private offices without membership of a professional organisation could lead to isolation from activities usually available to those members, for example, continual professional developments. Given that the Egyptian private sector respondents in this study are sole practitioners; that they did not meet the requirements necessary to develop and enhance their professional capability- neither before or after commencing the forensic practice- can it be ascertained whether or not they have at least been certified by a forensic organisation or professional body in order to demonstrate forensic speciality[307]; that professional competence is being maintained[308] and that opinion evidence being claimed was accurate.

The respondents were asked whether they were authorised by professional organisations to carry out forensic casework (see Table 4.9). The findings show that the majority of the QDEs and medical practitioners from the UK and the Arab public groups have received certification for their present occupation. In contrast, two thirds of QDEs and half of the medical respondents from the Egyptian private group did not acquire such professional certification.

The respondents were asked to elaborate on the origin of certification they received (Q10- Appendix A).

- Responses of QDEs

The type of certification available to the forensic document examiners from the four groups is different. All of the respondents from the Egyptian public group mentioned that they were certified by the Central Department of Forensic Document Examination, Cairo.

10% of these respondents added that they were also certified by the National Institution of Forensic and Social Studies, Cairo, and the Forensic Science Unit at George Washington University, USA. Of the certified Kuwaiti public QDE respondents, 50% received their certification from the Arabic Centre for Security Studies and Training, Riyadh, Saudi Arabia. 25% added that they were also certified by the GDOFSE and the remaining 25% said that they received certification from the Chemical Engineering Unit at Kuwait University. This equated to an academic degree in chemical engineering and not certification in the examination of questioned documents. Of the private Egyptian QDE respondents who stated that they were certified (33.4%), were in fact certified in forensic medicine and not in the examination of questioned documents.

In contrast, of the UK QDE respondents who mentioned that they had received certification (70.6%), over half stated that they are on the register list of the CRFP (one of those respondents added that he was a trained assessor in the CRFP as well), of which 22.2% also held the Forensic Science Society Diploma in question document examination, 11% stated that they were certified by the prosecution authority when they were formerly operating in a police laboratory and the remaining 11% mentioned that they were certified by the National Association of Document Examiners and the American College of Forensic Examiners, both locate in the USA. Of those not yet certified, 29.4% mentioned that they were in the process of registering with CRFP, clearly demonstrating its growing importance within UK forensic science community.

Within the QDE group responses, significant differences were observed using Fisher Exact Test. Although this study was confined to a low sample number, the results between the two public groups and between the Egyptian public group and their regional private counterparts, were found to be significant ($P= 0.038$ and $P= 0.0082$ respectively). This demonstrates that public QDE departments in the Arabic region are more concerned with certifying their staff than the independent Egyptian QDEs. The findings of table 4.9 also indicate that UK independent document examiners and handwriting analysts are keen to be certified by an external professional body such as the CRFP. None of the Arabic QDE respondents had acquired such certification and, instead, certification was either issued by their forensic departments after the completion of on the job training, or

after passing training courses held by other organisations. This type of certification does not equate to that of CRFP. Indeed, assessing the candidate's performance against necessary quality standards for each field of expertise separately is considered the preferred proof of competence in a forensic specialty.[309]

It is worth mentioning that not all UK independent QDEs wished to be registered by the CRFP. For example, A and H (interviewees from the UK), who work for the defence, asked, "Who are the assessors?". A- mentioned that he was already certified by the Quality Management Systems Limited (QMS). He explained that he was assessed and approved by QMS that he followed standards and guidelines of BS EN ISO 9002 for a forensic document and handwriting specialist and that, to remain certified, individuals must be re-assessed at regular intervals to prove the maintenance of competence. He finally mentioned that attaining this type of certification meant that quality assurance and quality procedure manuals were in place covering his laboratory practice. B (interviewee from the UK) further stated that he already subscribed to a code of practice, those of the Expert Witness Institution and the Forensic Science Society. He added that he followed the ISO Guide 43-1996 which is recognised by the United Kingdom Accreditation Service (UKAS). In addition, he was involved in a quality assurance trial which is organised by the Collaborative Testing Service (CTS), USA. He explained that this type of specialist test in document profession occurs annually when candidates must pass in order to maintain professional membership such as that of the National Association of Document Examiners, USA. H (interviewee from the UK) was concerned about how the CRFP draft their regulations. All of the above worries were explained by F (interviewee from the UK).

F- explained that it was important to assess individuals rather than accrediting organisations which may ensure competent protocols but not necessarily that individuals were doing their work properly. The CRFP was established after a number of miscarriages of justice took place in the UK where it was proven that these miscarriages were as a result of services provided by incompetent forensic practitioners. CRFP registers candidates under a specific forensic speciality and forensic practitioners would be known as competent in the area of a particular specialty. With regard to how to

convince private forensic practitioners to register since most of those who are in the CRFP panel are from the public sector, F- explained that it is inevitable to have a greater number of public forensic professionals on the panel as there are a greater number of scientists who work in public sector. He added that the other problem CRFP faced in attracting private assessors was time constraints. This meant that, in order for private practitioners to become involved in the assessment process, they have to be away from their practice. Therefore CRFP, as an independent professional body, may need to cover their costs. F- went further to explain that since it is common that private forensic practitioners often only have the chance to examine the prosecution expert's reports, CRFP has set different standard criteria in accordance with their practice. This includes confirming that the prosecution experts did the right tests for the case in question, to explain the accuracy of the prosecution expert's methods and the procedures used in their analysis and whether there were flaws in the police forensic report and, if so, could it be challenged and on which points. As he further remarked, if the CRPF panel assess only against analytical tests they may not get private forensic practitioners to come forward to register. In relation to how CRFP operate with the existing forensic organisations, F- explained that regulation and representation cannot both be met successfully. A regulatory body looks after public interest which is the main reason for the establishment of the CRFP. Forensic organisations look at the interests of the forensic practitioners. Having both together within one body may affect public confidence. As he further explained, the task facing forensic organisations was to promote standards and represent their staff, and the CRFP have to be independent in order to assess competence and whether candidates comply with the code of practice set by their organisations.

The need for the establishment of a body such as the CRFP was evident amongst all of the legal profession who were interviewed in the UK. As I (interviewee from the UK) stated:

"Anything that ensures a level of competence, a level of maintained competence and indeed examinations of procedures and protocols, I think, has got to be in the interest of the justice system. If you have a registration system which ensures fitness to practice, then it is a matter for the individual whether they register or not, but my advice would be obviously to register because if they don't they run the risk that their expression of opinion would not carry the same weight since they are not

> subject to that level of control. I have to be professionally introduced to my professional body every year as do solicitors, and if I don't comply with my professional duties set by my professional body, I am not allowed to practice."

J (interviewee from the UK) explained that, in Scotland, forensic experts must be authorised by the Secretary of State for Scotland to demonstrate their capability to act as expert witnesses. He explained that administrators issue such authorisation. He also mentioned that, in order to be authorised, experts must prove that they have acquired a recognised knowledge in the field of interest through academic degree, training in a recognised establishment and at least two years' experience. This type of authorisation was viewed as not the proper proof of competence in a forensic specialty. The assessment process taken by the CRPF panel does not consider references from "lawyers" and "non-professionals" such as the Law Society (professional body for solicitors in England and Wales).[310] As F (interviewee from the UK) commented, this type of authorisation in Scotland was not based on an assessment of competency, but by a judgement by police authorities, laboratory managers, or the legal profession. This, he added, "is only a signature and a matter of routine and does not prove forensic specialty". Currently in Scotland, he continued, procurator fiscal authorities are looking into this matter, and they were considering the CRFP policy as the appropriate approach to "check on the experts". In fact, the existence of corroboration evidence in the Scottish Law of Evidence[311], in many cases[312], was not enough of a safeguard against unreliable expert evidence. As a result, unsafe convictions have taken place in the Scottish criminal justice system as well[313], and serious concerns relating to the reliability of expert evidence have also been voiced.[314] Now in the UK, the increasing demand for the establishment of registered forensic practitioners is not limited only to those who operate in England and Wales, but intends to be extended to include Scotland and Northern Ireland.[315]

Such discussions in the UK help to develop legal professionals who keep abreast of the latest developments in science which in turn gives them an insight on important issues relating to high quality forensic advice and support. This in turn develops awareness among the forensic community to the fact that issues of quality may be seriously

discussed in court. These discussions were not mentioned by any of the interviewees from the Arabic region, amongst either forensic practitioners, or legal professionals.

- Responses of medical practitioners

When the medical practitioners groups were asked to mention the origin of their certification, it was found that participants within both Arab public groups referred to their qualification level and additional diplomas they had obtained as the type of certification they received. Similarly, UK medical practitioners referred to the same type of certification, but some added that they were certified as expert witnesses by the Law Society in the UK, by the police authorities when they formerly worked in public sector, by the General Medical Council (GMC) as a legal requirement after graduating from Medical School or by the Royal College of Pathologists. Finally, the Egyptian private medical practitioners, who stated that they had received certification (50%), mentioned that the Forensic Medical Association in Egypt certified them. No significant statistical differences were seen in any case ($P > 0.1$).

Currently in the UK there is a debate as to whether forensic medical examiners and forensic pathologists should register with CRFP and be listed as competent forensic practitioners since they were individuals who already registered with the GMC and possibly with the Police Advisory Board for Forensic Pathology (PABFP), and/or with the Association of Police Surgeons. In addition they often hold diplomas attained after additional post-graduate courses taken during their professional career until they have eventually been qualified to undertake forensic work.[316] GMC certification on its own was viewed as not specific for the forensic process.[317] However, the PABFP accreditation programme does demonstrate forensic specialty. It involves case reports reviewed by Home Office registered forensic pathologists, and is renewable every five years.[318] However, in order to promote public confidence in forensic practice in the UK, it was suggested that such an accreditation system should be regulated by an independent professional body such as the CRFP.[319] The importance of having registered pathologists can be illustrated by a criminal case which took place in England in November 1999. In this case[320], a woman was sentenced to life imprisonment for killing her two baby sons.

This conviction was based on opinion evidence given by two Home Office pathologists. In January 2003, new evidence was presented to the Court of Appeal which challenged the accuracy of opinion evidence presented in the initial trial. The two prosecution pathologists changed their initial testimony in favour of the new evidence. The Court of Appeal ruled that the conviction was unsafe and as a result the conviction was overturned. In this particular case it has been commented:

> "The medical evidence was not disclosed because of his failure.....to share with other doctors investigating the cause of death information that a competent pathologist ought to have appreciated needed to be assessed before any conclusion was reached".[321]

As Prof. Forrest stressed "Opinion evidence should be testable, not *ex cathedra.* That requires the information on which the opinion is based to be shared".[322] The advantage of establishing a system of professional registration is that levels of competence can be regularly assessed and, if necessary, registrants can be removed from the register if they no longer meet the agreed professional standards. This would promote increased objectivity and competency levels which surely would further the cause of justice.

All of the medical practitioners who were interviewed in the UK welcomed the idea of being on the CRFP register. As F (interviewee from the UK) explained, being on the Register List means that the candidate is approved to be competent in a specific area and this list is now available on the CRFP website so that both the public and the courts are informed. He added that Home Office pathologists are already in the registration process.[323] In a newsletter issued by the CRFP, it was mentioned, "registration continues to gather momentum across the UK. The initial target of registered forensic practitioners is within our sights"[324] and that judges, coroners, barristers and solicitors across the UK were already advised about the duties of CRFP. Now there are 1250 registrants in different ranges of specialities.[325] Expert witnesses in the UK expect courts to ask whether they are registered, and if not, why?[326] Some forensic practitioners "have already faced questions in court" regarding registration.[327]

Similarly, almost all of the legal professionals who were interviewed in Kuwait, Egypt and the UK supported the establishment of an independent authorising body to certify competent forensic practitioners. In fact, the interviewees from the UK viewed the CRFP as a reliable tool which courts can use to determine the reliability of expert evidence. For example, J (interviewee from the UK) mentioned that he had experienced an independent handwriting expert who gave opinion evidence in an area outside his professional competence and that this was challenged by the opposing party which resulted in ruling this type of evidence "inadmissible" by the court. He explained that CRFP could be a tool to ensure that this does not happen again as it proves forensic specialty. As L (interviewee from the UK) noted, "CRFP ensures that the qualifications and expertise being claimed were correct". Similar responses were obtained from the legal professionals who were interviewed in Kuwait and Egypt, illustrating their awareness of the potential of this type of registration in the support of their legal justice system.

4.2.2 Practical competence

The preceding information described the level of professional standing (levels of background qualifications, certification, continual professional development and training) received by participants involved in this study. The question arises whether or not this is put into practice at crime scene examinations and laboratory practice. It is also valuable to compare this to the abilities of those who operate at crime scenes but who may not have the same level of qualification or training. It has been said that the "development of basic forensic knowledge and the development of practical skills through participating in ongoing specialist training courses and reading 'appropriate literatures' can accomplish competence".[328] This suggests that some professionals in this field did not recognize acquiring knowledge only through experience as the best guarantee to the establishment of practical competence. On the other hand, Sensabaugh mentioned that academic training in forensic science is not essential to achieve competent practice. He believed that many good forensic scientists, who have entered this field, did not have exposure to forensic science beforehand and that years of experience in the field, might substitute for

academic qualifications.[329] Whether this alternative is of greater benefit to develop professional competence with respect to contamination and evidential recovery at crime scenes has yet to be seen. It may be that having additional professional qualifications and training do not necessarily prevent the incompetent handling of evidence from crime scene to and throughout laboratory practice.

4.2.2.1 Crime scene practice

Sections 4.2.2.1 through 4.2.2.3 establish whether responses obtained in the factual information (Section 4.2.1) are reliable and valid when compared with the responses relating to the participant's professional performance. The aim of this section was to establish whether the respondents from all groups follow a clear code of practice and a certain scientific procedure in collecting and gathering physical evidence at scenes of crime, whether there is any system for quality control to prevent physical evidence from contamination and, under the current system followed by the respondents, what the possibility of contamination of physical evidence is.

It is common that criminal investigators have begun in recent years to depend more on forensic science to solve crimes. The purpose of all the functions and activities performed by the criminal investigation is to furnish the process of prosecuting criminal cases. If forensic evidence "is not recognised and properly collected and preserved, it will be lost, and any important links between a suspect and the crime will never be known or established".[330] In fact, even if a link was established, there is a high risk it could be compromised. This could happen if, for example, contamination of physical evidence took place at crime scenes and especially in the early stages of criminal investigation. In fact, contamination of trace evidence, if taken place prior to the laboratory work, could affect the accuracy of the analysis results. This could have a direct impact on the criminal justice system in that the prosecution begins to build its case based on contaminated evidence. As a result, all the resources used and efforts made in prosecuting a criminal case could be lost if the issue of contamination was identified in court. Certainly, it is a good reason for the defence to weaken the forensic value of such evidence even if it is the only piece of evidence found at the crime scene and has a crucial role in reaching a

verdict. Further, contamination is the "unwanted transfer of material from another source to a piece of physical evidence and cross-contamination is the unwanted transfer of material between two or more sources of physical evidence".[331] With the advance in technology, the risk of contamination becomes particularly more likely as a result of the sensitivity of techniques used in DNA analysis.[332] This requires forensic practitioners to take all necessary precautions to prevent physical evidence, and the scene itself, from being contaminated. Risks associated with contamination can be avoided if the process of recovering, handling, packaging and transporting the forensic evidence at and from crime scene is carried out under strict guidelines. Before investigating the issue of contamination it is important first to shed light on the nature of crime scenes attended by the respondents.

4.2.2.1.1 *Crime scene participation*

- Responses of QDEs

In table 4.10 the respondents were asked whether they are normally required to attend the scene of a crime. A large number of QDE respondents did not participate in this question and this is predictable for a reason. The nature of document and handwriting analysis does not necessarily require attendance at crime scenes. However, this is not always the case as 23.5% of the UK QDEs indicated that they did attend crime scenes from time to time. Again, this response may indicate that defence experts in the UK have opportunities to visit crime scenes in the early stages of proceedings. The findings of table 4.10 were cross-tabulated with table 4.1 (unit of work). The UK QDEs, who mentioned that they attended crime scenes, were among the 41.2% who stated that their casework involved the examination of photocopiers, typewriters, erasers, and printers in counterfeiting cases. Many of these items may be examined "in situ" and therefore crime scene attendance may be required.

In this section the number of QDEs who had attended crime scenes was small and as a consequence further analysis was not possible.

- Responses of medical practitioners

Both public sector medical groups attend crime scenes on a regular basis and, although those who work in private offices often only have the chance to examine the public sector reports, half of the independent medical practitioners from the Arabic group and more than two thirds from the UK mentioned that they attended crime scenes (Table 4.10). This is predictable since the nature of medicine, specifically when applied to forensic practice, requires crime scene attendance. However for crimes against a person, such as assaults, crime scene attendance may not be relevant or have occurred. This was the case for 30.7% of the UK medical practitioners' respondents who operate as forensic medical examiners.

4.2.2.1.2 *The nature of crime scenes attended*

- Responses of medical practitioners

The 'other' category in table 4.11 refers to scenes of firearms, and this was encountered by all of the Egyptian public medical respondents. It is curious that scenes of this nature were attended by medical practitioners. Cases involving firearms may or may not result in fatalities. In cases of fatalities, the preliminary interpretation of gunshot wounds is required at crime scenes in order to direct the criminal investigative process. This might not be the case within the Egyptian public medical group as they mentioned that they participated in practical and theoretical training in weapons' examination and microscopic comparison of bullets (see Table 4.3). It could be argued that the processes of side by side comparison between a bullet fired from the gun found with a suspect and the bullet taken from the corpse of a victim or recovered from a crime scene is not relevant to forensic medicine practice. This type of examination is often undertaken by a ballistics expert. However the Egyptian public medical respondents at least met one of the requirements necessary to raise their capability in the area of ballistics and that was, as they stated, through their involvement in training courses relevant to ballistic practice.

By cross-tabulating table 4.11 with table 4.3 the findings also confirm that there is no distinction in discipline of speciality within all Arabic medical groups and, therefore, the distinction in practice cannot be established. The situation within the UK private

sector practice is different and those who stated that they operate as pathologists, all mentioned that they attended scenes of suicide, homicide, suspicious death, arson, suspicious fire, explosion and road traffic accidents. Of the UK private forensic medical examiners, all stated that they attended scenes of sexual assault, rape, child sexual abuse, aggravated assault and battery, drug abuse and road traffic accidents. This may indicate that UK private sector respondents were involved in reconstructing the past- a process which may reveal that an event could not have occurred in the way described by prosecution experts, and could also reveal evidence which was not discovered in the initial investigation.

4.2.2.1.3 *Precautionary measures at crime scenes*

It has been said that, in order to assess a crime scene fully, it is preferable to attend the scene and view items left by the perpetrator "in situ" since they have "a significant effect on the subsequent course of events."[333] For example in homicide cases, blood splatter recognition may aid in solving any ambiguity regarding movement of individuals at the scene. Blood might be found on the victim's body, perpetrator, crime scene(s) and/or the tool used in the offence. By examining the shape of the spatter or stained blood one might establish:

1) The actual position of the victim as left at the time of the event.
2) The path way of the victim and/or the perpetrator.
3) Whether the victim was killed or committed suicide.[334]

In suicide cases, for example, the blood would normally be stained in a large quantity under the cut. Whereas in homicide cases, the blood might be splattered or splashed in different directions at a crime scene depending on the tool used for committing the offence, the origin of the cut, and whether a struggle had taken place at the time of the event.[335] Using medical means, a forensic practitioner makes assumptions, based on his/her specialist knowledge and experience, and then tests for them. What he/she finds, either proves or disproves a theory. Determining whether a case involves suicide or homicide throws a completely different direction on the case and provides a

good starting point for the criminal investigative process. Not attending crime scenes in such cases might lead to ambiguity and difficulty in reconstructing the actual event.

In Kuwait the process of handling physical evidence at crime scenes is often carried out by scene of crime officers (SOCOs). However in scenes of suspicious death, they are always accompanied by pathologists. Police pathologists often participate from the early stages of the criminal death investigation and may also be required to participate at any stage of the investigative process due to their role in the reconstruction phase of a crime scene and later during autopsy.[336] It has been said that pathologists' participation in death scenes "can maximise the information gleaned from a scene and optimise the evidence collection."[337] As C (interviewee from the UK) mentioned, the pathologists' duty was to guide the investigation process. He explained that, after their preliminary findings, they:

a. determine whether the death is suspicious or natural,
b. determine the time of death,
c. direct SOCOs and forensic scientists on the manner in which the victim was killed, allowing them to concentrate their search for a specific tool or object which may have been used in the crime,
d. and direct the search for specific biological fluids in death cases where sexual assault is involved.

Since pathologists often direct and give their preliminary findings at the scene means that they approach victims to look for signs of death. The findings of this study indicate that almost all of the crime scenes attended by the medical practitioners questioned were of a serious nature (homicide, suspicious death, arson, explosion, sexual assaults and rape - see table 4.11). In such scenes, it is common that biological and traces evidence such as explosives, gun residue or drugs may be involved, all of which have a great potential to contamination. Police pathologists should therefore consider the precautionary measures which need to be taken to minimise or eliminate contamination or cross-contamination of the deceased's body or of items which possibly will be required for other laboratory examination and then used by the prosecution in any subsequent legal proceedings. Wearing the proper protective clothing is a measure which pathologists should routinely be taking at crime scenes as a vital anti-contamination

precaution.[338] This is part of the quality assurance management system used at crime scenes by many professional organisations.[339]

- Responses of medical practitioners

The findings of tables 4.12 and 4.13 indicate that all of the UK private sector medical practitioners considered precautionary measures against contamination to a greater extent when investigating death scenes. None of the respondents from the Egyptian public group and only 25% of their Kuwaiti public counterparts, who access crime scenes more promptly, stated that they wore proper protective clothing. Similarly, none of the respondents from the Egyptian private group stated that they considered such an important precautionary measure at death scene investigations. Statistical differences were seen in respect of the practice of the UK private medical group and all of their counterparts from the Arabic groups ($P < 0.01$). The results illustrated that all of the UK medical practitioners' respondents followed a strict code of practice at death scene investigations as opposed to all of the Arabic medical practitioners (except for 25% from the Kuwaiti public group) groups.

There are three things to note from the findings of tables 4.12 and 4.13. First, if there was a case where precautions against contamination of physical evidence was necessary, it may be assumed that police experts would already have taken precautions in the initial selection and collection of physical evidence. However, although amongst all medical groups, only the Egyptian public group (25%) mentioned that they had practical training on the proper methods of collecting and packaging forensic evidence (Table 4.3) and, like their Kuwaiti public sector counterparts, they identified preventing cross-contamination as a benefit from attending crime scenes, participated in professional activities relevant to the application of medical knowledge to the forensic process and kept up to date with forensic literature, their present code of practice at death scenes could result in contamination of physical evidence thus increasing the risk of delivering unreliable expert evidence to courts. The current code of practice followed by the Egyptian private sector medical respondents at death scenes also suggests that gaining

forensic knowledge through experience only may not help to develop competent practical performance. Secondly, the present code of practice within the Kuwaiti public medical group at death scenes explains the reason why the new manager of the Forensic Medicine Department in Kuwait urged the establishment of new strategy which would enhance the quality of forensic medicine service. Thirdly, this study shows that UK independent medical practitioners followed a stricter code of practice than either of the medical groups from the Arabic region. Having an awareness of precautions against contamination at crime scenes amongst the UK medical group is an indicator that they are committed to a quality assurance system; a benefit in achieving reliable expert evidence for courts.

4.2.2.2 Laboratory practice

This section investigates whether all of the respondents were aware of and subscribed to a code of practice or Standard Operating Procedures (SOPs) when receiving and handling forensic evidence in their laboratories. Following a strict code means that a quality control system is upheld within laboratory practice. The aim is to establish whether the current procedures and methods followed in the laboratories of the respondents in this study give rise to reliable expert evidence.

4.2.2.2.1 *Exhibits in forensic laboratory*

- Responses of QDEs

Respondents were asked whether they received physical evidence in their laboratory and to mention the origin of exhibits sent (see Tables 4.14 and 4.15). All QDEs received items for examination directly to their laboratories. However, there were differences between the two sets of groups with respect to the origin of exhibits sent. All of the QDEs and medical practitioners from the public groups received exhibits sent by the prosecution lawyers whilst the majority of their private counterparts received exhibits sent by defence solicitors. It is possible that the respondents from the public sector did not understand the question asked since prosecution lawyers often send a written request indicating the type of examination to be carried out and not exhibits.

The Kuwaiti public QDEs mentioned that they also received exhibits from SOCOs. This may not be unusual as the Kuwaiti forensic science laboratory together with forensic medicine and SOCO departments are centralised under the GDOFSE. In Egypt, forensic medicine and document departments are separate from the SOCOs department. There is a reason to suggest why so little evidence of this nature is presented by SOCOs amongst the Arab public sector. Precautionary measures against contamination in the process of handling evidence relating to disputed documents may be considered as not important, for example, and this can be clearly seen as 61.5% of the Kuwaiti QDE respondents received exhibits from CID, and 15.4% from custom officials, while almost all Egyptian public respondents received items directly from the prosecution office.

The 'other' category in table 4.15 refers to insurance companies (Egypt-public QDEs), private individuals, banks, financial institutions and commercial organisations (UK- private QDEs).

- Responses of medical practitioners

The 'other' category of medical practitioners refers to police stations (UK) and other pathologists (Kuwait). Table 4.14 also shows a distinct difference between public and private medical practitioners where the majority of the public groups did not receive exhibits while all of the Egyptian private respondents and the majority of their private UK counterparts, received exhibits in their laboratories. Forensic laboratory practice within the medical profession means a post-mortem for pathologists and interpretation of wounds and injuries of live victims for medical examiners. Therefore, not receiving exhibits in medical practice is understandable since, unlike scientists who receive samples from different channels with a request for certain analysis, pathologists after conducting an autopsy either send samples to the relevant forensic discipline (serology, firearms, toxicology, histopathology, etc.) or a scientist would attend the autopsy and take the samples required for certain analysis. For example in a shooting case where death occurs, a pathologist gives a description of the external appearance of the deceased, often taking x-rays of the whole body to discover the location of bullet fragments; describes the bullet entry and exit, and dissects the deceased's body to describe the bullet internal path.

The aim is to illustrate the cause of death. Then he would remove the bullet, pack it, and send it to the ballistics unit. These steps are often taken by prosecution pathologists. Pathologists acting for the defence, however, examine prosecution medical reports, assess the strengths and weaknesses of the initial examination and procedures followed[340], often conducting a second autopsy and re-examining the deceased's organs or blood to confirm or challenge the pathological or serological findings reached by prosecution pathologists.

A medical examiner working in the public sector has a different task. He receives a written request relating to the parties involved in the case in question. Depending on the type of case, he would describe wounds, injuries, genital organs, any alleged (defensive) wounds and take x-rays to establish possible broken bones or internal damages. Medical examiners also need to be aware of issues relating to anti-contamination protocols. Since they deal mainly with live victims, it is possible that they examine both victims and suspects involved in the case in question. They therefore may need to consider precautionary measures which would prevent the transfer of trace or biological evidence from victims to suspects, especially in cases involving gunshot residue, explosives, drugs and rape allegations. These include changing gloves used for examining victims and later examining suspects, ensure the cleanliness of instruments used for examining victims and later to be used for examining suspects and ensure that victims and suspects are examined in separate rooms. If these precautions were not considered by the state medical examiners, there is a high risk that defence lawyers could nullify the prosecution case in that, the only reason for the presence of trace or biological evidence on a suspect was through transfer from the victim, implying the medical examiner's failure to follow the appropriate anti-contamination procedures. Medical examiners acting for the defence have a different task. They often examine reports written by opposing experts and, depending on the time lapse after the initial examination, often re-examine suspects and live victims. It is curious though that 23.1% of UK medical examiners (cross-tabulation) mentioned that they did not receive exhibits, possibly because they did not regard individuals involved in a case as exhibits.

The findings of this section also show that there is a difference in the origin of exhibits sent to both groups of private medical practitioners since UK respondents

received items from various different channels (SOCO, CID, Crown prosecution, hospitals, defence solicitors, Customs and Military Police). It is obvious that, unlike the state authorities in Kuwait and Egypt, those in the UK use private sector services on a larger scale. This began in the UK after the Forensic Science Service (FSS) converted to agency status in 1991.[341] Before that, the police and prosecution service were the direct customers of the Home Office FSS. The conversion into agency status required the FSS to introduce direct charging. The high cost of their services has led the police to shop around for cheaper forensic science services which are also often used by the defence.[342] It was found that the impact of the new agency status increased the use of "in–house work".[343] This initiated problems in the criminal process. A study by the House of Lords Select Committee on Science and Technology in 1992 revealed that the police chose cost over scientific quality allowing an opportunity for poor quality forensic evidence.[344] In addition, the change to agency status by the FSS created challenges in the market and an increase in the level of independent forensic practice. In 1994, 5% of police cases were examined by private document analysts.[345] In 1997, the FSS announced that police forces delivered 20% of various types of cases to independent forensic offices.[346] This means that the number of cases in which independent forensic services were consulted is rising. Since there are many document experts and forensic pathologists acting for the defence in the UK, it was found that some document evidence[347] and pathological evidence[348] with poorer quality standards were used by police. As a consequence, some private forensic practitioners in the UK have been viewed as individuals who present a poor quality service to justice[349], and that they increase the risk of unreliable expert evidence.[350] This may be the reason why the competency of some defence experts was considered to be "less than satisfactory" to the extent that some were identified as "complete charlatans".[351] Undoubtedly, those few bad apples may not only affect the reputation of competent private forensic practitioners, but that of the profession as a whole. Therefore issues of miscarriages of justice, as a result of flawed expert evidence in UK criminal trials, have become the centre of recent discussions in legal and political settings, forensic conferences and publications.[352]

The increased use of private experts in the UK was another reason for discussing the need to set up a registration council to certify competent forensic practitioners.[353] After a long debate over the actual function of such a council with the already existing forensic organisations[354], the CRFP was first introduced in 2000 with the task of assessing the level of competence of individuals against defined standards agreed upon by the forensic community. In fact, it has been said "the true status of 'expert' witnesses called by the defence in some cases can be difficult to gauge or challenge. This is an area that, in time, will benefit considerably from the establishment of the CRFP."[355] Standards were first set for document examiners, pathologists and forensic medical examiners among other five forensic specialities.

4.2.2.2.2 *Standard operational procedure (SOP)*

The implementation of quality procedures and valid methodologies in forensic practice are issues which should be considered in the process of questioning the reliability of expert evidence in courts. In fact, they are among the essential issues being recently discussed by commentators from both the forensic and legal institutions. This developed awareness among courts who started to consider these issues in the process of determining the admissibility of opinion evidence given by experts. This required forensic communities to rigorously apply SOP as a part of the quality control manual they follow in their practices. It has to be mentioned that SOP should be according to established standards used to monitor the quality of evidence and ensure that it satisfies specified criteria. This in turn provides sufficient confidence that a laboratory's service satisfies given requirements for quality. Having established this means that a quality assurance system is upheld in the laboratory. Professional organisations accredit forensic laboratories based on established quality standards and certification bodies set performance based standards for forensic practice from crime scene to court. Forensic practitioners, who wish to obtain competence certification, need to demonstrate that they comply with these standards. For example, the National Association of Medical Examiners (NAME) has set accreditation standards in order to improve the quality of the medico-legal investigation of death in the USA. Medical practitioner's offices and

systems must prove that they have standards policies and procedures in their laboratories in order to be accredited by NAME.[356] This is also required from forensic document examiners who wish to be certified by the American Board of Forensic Document Examiners (ABFDE)[357], USA. The ENFSI is another example. According to the ENFSI strategic plan, those who wish to be registered as competent forensic practitioners in Europe need to demonstrate that they meet the performance criteria being established by this authorising body. One essential criterion is the implementation of SOPs within the laboratory practice. This includes following an unbroken chain of continuity of evidence (chain of custody) from crime scene to court, analytical results and reports being subject to peer review, keeping records of reports, identifying items with problems and consulting others to resolve the matter and contamination management protocols and tools used for testing were being cleaned.[358]

It has been said that "a Professional Code of Practice is essential for any one wishing to be a professional forensic scientist".[359] There should be no reason why testing procedures in various forensic science fields should not be standardised by the establishment of guidelines and procedures with which experts are expected to comply.

The respondents were asked whether they follow SOPs and, if so, to mention the procedures which they follow. The aim is to establish whether the respondents from all groups comply with the standards criteria set by authorising bodies or professional organisations. The standard operating procedure set by the ENFSI will be used as a key performance target to assess the effectiveness of forensic laboratory services being provided by practitioners participating in this study. The extent to which the Egyptian defence experts participating in this study meet internationally accepted standards of quality will be examined.

- Responses of QDEs

The awareness of following standard operating procedures can be clearly seen by the majority of the QDE respondents from the Egyptian public group and their UK private counterparts (see Table 4.16). When the respondents were asked to elaborate on the code of practice they follow, 70% of the Egyptian public QDEs indicated that the Head of the

unit approved their reports, and that they ensure that exhibits received were securely packed, sealed and matched the description written by the sending authority. Of the UK QDEs who stated that a quality system was in place (70.6%), all mentioned that this meant compliance with all aspects of management of the practice including the handling of forensic materials, examinations, report writing and quality assurance process. The latter respondents added that they protect document evidence according to international laboratory procedures such as that required by ISO 9002 standards. ISO 9002 is an international certification ensuring that candidates conform to certain standards. There are various certification bodies that approve a register to ISO 9002 levels of quality and service. In order to achieve such certification, forensic laboratories need to demonstrate that they follow a quality procedure manual, a policy which ensures maintaining quality standards, quality management including security, a policy demonstrating that files are constructed and what types of written information are within them, a procedure which ensures the continuity of evidence, standardisation of recording, peer review of casework by both colleagues and an external independent body, continual development and training of staff and instruction used in accordance to the manufacturer's operating manuals.

None of the respondents from the Egyptian private QDEs stated that they followed a code of practice in their single-person organisations.

A large number of the Kuwaiti public QDEs mentioned that they did not have standard operating procedures in their laboratory. This is curious as there is only one publicly funded Forensic Science Laboratory in Kuwait. The variation of the responses from Kuwait raises a question as to whether or not they have a quality control manual in their laboratory. A personal interview with the Director of this laboratory was conducted for clarification. He explained that a Quality Control Unit was established in the year 2001, and that his duty was to ensure that the quality control manual was being followed, demonstrating that a quality management system was in place within this laboratory. In addition, N (interviewee from Kuwait) who operates in the Unit, mentioned that she had twenty one years of experience in the forensic science field. She added that she had three months of specialist training in areas relating to quality assurance at the FSS, UK. Her job, she explained, was to create a manual or procedure (which meets the FSS Code of

Practice) for the methods and the techniques appropriate to each forensic discipline and speciality separately. She further explained that her second duty was to monitor the quality of analytical data through running blind tests, random testing on samples already analysed, checking the final results of forensic analysis, checking instrument calibration, and recording procedures and methods of examination and analysis. These activities, she stated, were carried out on a regular basis without the scientist's knowledge except for the checking of their final analysis by colleagues and individuals in charge of their units. She therefore suggested that the scientists may not be aware that such activities were undertaken by the laboratory as a part of proficiency testing which indicates that quality assurance is in place and that the laboratory is performing up to the standards of the profession. This might explain the variation in the responses obtained from the Kuwaiti forensic laboratory.

- Responses of medical practitioners

The findings of this section indicate that the awareness of following a quality control manual was identified by the majority of the respondents from both public groups and the UK private group. When the respondents were asked to elaborate on the SOP that they follow, all of the respondents from the public groups indicated that this meant they strictly followed chain of custody protocols, ensured that tools and instruments used for autopsy and examination were clean, that reports were reviewed by more experienced staff, in serious cases advice from experienced colleagues was sought, they strictly followed precautionary procedures which preserved the integrity of trace evidence while examining deceased's clothing, followed contamination management protocols including wearing protective clothes during post-mortem analysis. Of the UK private medical practitioners who used SOPs in their practice, all indicated that they took the appropriate precautionary measures in cases of re-examining the deceased's body, rigorously ensured maintenance of chain of custody protocols, carefully examined the prosecution's report and carefully read the request sent by the authorities.

This study shows that none of the Arabic private QDEs or medical practitioners mentioned that they followed SOP in their practice, a difference which, when compared with the Arabic public sector and UK groups, was statistically significant. All of what has been described by the respondents from these groups met the standard operating manual set by the ENFSI. On the contrary, a quality control system relating to SOP is not upheld within the Arabic private groups practice. However, there is one important issue which has to be mentioned. The Arabic public sector medical groups mentioned that the wearing of protective clothes was within the code of practice they follow in their mortuaries. Again, if police pathologists did not consider preventative measures against evidence contamination at the early stages of death scene examinations, no matter how strictly a quality assurance system is maintained in their mortuaries, there is a high risk of questioning the reliability of their pathological findings.

4.2.2.2.2.1 Identifying exhibits with problems

This is part of the quality control standard being developed by authorising organisations in an attempt to ensure the continuity and security of forensic evidence at laboratories. Handling physical evidence must occur under strict guidelines in order to be in a position to account for each item once it enters the criminal investigative system. Most police investigation departments and forensic laboratories follow a system with a chain of custody protocol, which is established as "the witnessed written record of all individuals who have maintained unbroken control over the evidence since its acquisition by a police Agency".[360] The rationale behind applying such a protocol is to preserve the integrity of the evidence which is characterised by a need to: 1) protect the evidence from loss or unauthorised release; 2) maintenance of custody; 3) identify and locate every evidence type to determine that it is maintained in custody; 5) approve in advance the release of evidence; 6) identify the person who will handle the evidence after its release; 7) record the reason for releasing the evidence; and 8) indicate the final position of the evidence.[361] Rules demonstrating the unbroken chain of evidence should be strictly followed and recorded throughout the whole process of handling forensic evidence. Certainly if there is a break in the continuity of exhibits, and it is not identified at the time of receiving these

exhibits into the laboratory, no matter how strictly quality standards are followed in this laboratory, the accuracy of analytical results could be challenged with a chance to create doubt on the reliability of vital expert evidence in courts. Evaluating the rules of collecting and preserving scientific evidence in Egypt and Kuwait will be a means of measuring the reliability of expert evidence in criminal proceedings. These concepts are major factors that impinge upon the whole process of a trial, and many legal practitioners could nullify their cases if they did not realise the importance of the proper rules of handling forensic evidence.

In countries such as the United Kingdom, for example, the court may not accept an exhibit in which the integrity of the item may be compromised, and such evidence was being challenged in the courts.[362] The awareness of quality control relating to chain of custody protocols within the legal profession in the UK was clearly demonstrated by an interviewee from the UK. As I- stated:

> "Protocols in forensic practice do exist in the UK and if an item was lifted from a crime scene, it should be packed and sealed now and then. The seal should only be broken in the police laboratory under strict conditions of security. Courts assume that forensic practitioners live up to these standards and they 'cannot look over their shoulders the whole time'. Courts rely to a certain extent on the professionalism of those who carry out the forensic investigation and that there should be an element of trust in the forensic practice."

Regarding the procedures of collecting and preserving forensic evidence in Kuwait, four Supreme Court Judgements were found[363] in which it was considered that such procedures were tools and methods of organising and systematising the work of forensic laboratories and protecting the evidence itself from being destroyed during transportation. However, the Court did not consider any violation of these procedures as sufficient to invalidate the evidence. The Supreme Court leaves the final decision to the trial court itself and, if it finds that the failure of preservation procedures affected the analytical results, then the strength of the evidence would be affected rendering it inadmissible. Clearly these judgements provide a chance for lawyers to challenge the reliability of expert evidence. They can use the failure in preservation and collection procedures to

undermine results of forensic analysis. However, although in both Egypt and Kuwait such challenges exist, they are not used. This is addressed further in Chapter Five.

The findings of this study indicate that a large number of the respondents from all groups received exhibits sent by unauthorised personnel (see Table 4.15). This may suggest that there is a high risk of receiving exhibits with problems into their laboratories. Therefore, the respondents were asked whether they identified problems associated with exhibits sent to them and, if so, to explain the precautionary measures undertaken (see Tables 4.17 - 4.19).

Cross tabulation between tables 4.15 and 4.17 was applied in order to establish the origin of exhibits which were listed as having problems associated with them (types of problems associated with exhibits are listed in table 4.18).

- Responses of QDEs

80% of the Egyptian public QDEs mentioned that they 'sometimes' received exhibits with problems. Of these, 87.5% received these items from the prosecution with the remaining 12.5% being received from insurance companies. Of the Kuwaiti public QDE group (38.5%), all received items with problems from the prosecution. Within the Egyptian private QDE group (66.6%), all received such items from defence solicitors, with 50% added from the prosecution too. The situation in the UK is significantly different with all the QDE respondents stating that they 'sometimes' received items with problems from customs officials (90.9%), CID (81.8%), defence solicitors (81.8%), Crown Prosecution Service (81.8%), the military police, insurance companies and commercial organisations (72.7%), and SOCOs (63.6%). There may be a reason for this greater response from UK forensic document examiners. The UK respondents are very prudent in identifying such mistakes in exhibits by following good practices which enables them to identify possible flaws in procedures of handling document evidence. This may suggest that such degrees of awareness could not have been developed if issues relating to the proper handling of evidence were not seriously discussed in UK courts.

- Responses of medical practitioners

Within the medical groups, (83.3%) of the Egyptian public group stated that they 'sometimes' received exhibits where difficulties were encountered. All received the items from prosecution authorities. Of the Kuwaiti respondents who stated that they 'sometimes' received items with problems (60%), 66.6% were received from the public prosecution office and CID and 33.4% from SOCOs. Of the respondents from the Egyptian private group who stated that they 'sometimes' received such items (66.7%), all named defence solicitors or public authorities as the source. The responses from the UK group were different with all of the respondents mentioning that they either 'rarely' or 'never' received exhibits with problems associated with them.

The most frequent problems encountered with document and medical evidence sent to the respondents included a lack of sufficient information and the improper packaging of the items (see Table 4.18). The 'other' category of the UK medical group refers to lack of original copies, for example, as they stated "a copy of x-rays". Although this answer was not necessarily relevant to the question asked, it is important to recognise one of the problems independent forensic practitioners may face in their practice. In fact, the 'other' category of QDEs group also refers to insufficient specimens or reference materials, the lack of original documents (UK), inadequate quantities of exemplars or standards which ultimately may hinder the process of side by side handwriting comparison, and difficulties in the dictation process either because of lack of originals, or difficulties in reaching the person in question (Egyptian-public). The original questioned document is always preferred for a proper examination.[364] Private forensic practitioners often do not have the opportunity to access the originals of suspected documents whereas forensic scientists working in public sectors have this advantage.[365] In these cases, private experts guide the court with results based on a copy of the document in question rather than the original. This issue will be explored in more detail in section 4.3.

Although it could be argued that, in the process of handling document evidence, cross-contamination may not be as much of an issue because of the nature of this type of evidence, 23.5% of the UK QDEs still found this to be a rare problem in the items they received. This may be because the recovery of contaminants such as latent fingerprints,

biological evidence or trace evidence was identified as important. Precautions applied to document evidence include securing other types of forensic material associated with the original document or handwriting in question. For example, certain guidelines may be taken to ensure the safe handling of contaminated document evidence and the preservation of associated trace evidence. If these guidelines were not strictly maintained throughout the handling process there is a high risk of losing the associated evidence and, therefore, further laboratory analysis may not be possible. For that reason it is important to trace the origin of where the mishandling of document evidence had taken place. This was seen to be possible by following chain of custody protocols.[366] UK and both public sector QDEs identified that a break in the chain of custody was sometimes a problem. This was not identified as a problem by any of the respondents from the Egyptian private QDEs. Given that the majority of the latter respondents 'sometimes' received problem items from unauthorised personnel (defence or prosecution lawyers), this study suggests that either there was an awareness regarding the proper way of handling document evidence amongst legal professionals, or individuals receiving items of evidence were not aware of issues relating to continuity of evidence. If the former, this study investigates whether defence solicitors in practice in both Kuwait and Egypt are aware of chain of custody protocols (see Chapter Five). If the latter, this study shows that the Egyptian private sector group did not participate in professional activities as all the other groups did especially specialist training courses and professional proceedings which generally cover issues relating to chain of custody protocols. Alternatively, they may have gained the knowledge through experience. It is curious though that none of these respondents mentioned that the procedure relating to the unbroken chain of handling forensic evidence was within the code of their laboratory practice unlike all the other groups in this study.

- *Corrective actions*

It has become clear that forensic practitioners should ideally follow a clear guideline and take the appropriate precautions which address problems associated with exhibits received. In table 4.19 the respondents were asked to describe their attitude toward

exhibits that have some or all of the problems listed in Table 4.18. The 'other' category of the UK QDE group refers to contacting the sender of such exhibits in order to obtain further information or materials, giving advice as to the correct procedure for release of exhibits, rectifying any problems, obtaining more suitable specimens and checking that all exhibits having mistakes were listed and described properly in reports after informing the submitting party of such mistakes.

Thus, apart from the fact that the Egyptian private experts need to enhance their awareness in issues relating to chain of custody, this study in general shows that quality control relating to identifying problems with exhibits sent to the experts was in place within all the groups in this study. The respondents of all groups follow a clear guideline regarding when to accept exhibits, or refuse them, and it is obvious that exhibits having problems associated with them were usually either not accepted or accepted where the problem was mentioned in the final report. Only 8.3% of the respondents from the Kuwaiti public QDEs would do the analysis as usual despite problems with the exhibits (see Table 4.19).

4.2.2.2.3 *Quality assurance relating to peer review of forensic casework*

It has been said "Everyone connected with the justice system expects forensic science to be infallible. *It is not.*"[367] It has also been stressed that the quality of work of forensic practitioners "cannot always be assured"[368] and, therefore, an independent verification of forensic analysis was suggested.[369] Forensic practitioners are fallible and like any other profession mistakes can happen. However, the ultimate consequence of flaws within this particular profession could and have caused the loss of a person's liberty or life. Accordingly, it becomes important to detect or discover mistakes before the final report is released.[370] The best way to discover this has been seen to be through peer review.[371] Certainly, this type of checking was highly recommended in order to ensure the conclusions expressed in the report were supported by the documentation and the results were accurate. It is a quality assurance method developed to ascertain forensic practitioners' compliance with laboratory procedures. The review includes the checking

of examinations performed, the basis of the results and findings reached, procedures followed, documentation and whether it is sufficient to support the findings in the report and whether it reflects the findings described.[372] Peer review is part of the requirements for accrediting forensic science laboratories under, for example, NAMAS, NIS 46, Accreditation for Forensic Analysis and Examination. To illustrate its growing importance within the forensic communities, in the U.S. for example, peer review was viewed as an essential part for a "more complete professional".[373] As a consequence, there is a training programme specifically established for forensic laboratory managers explaining the significance of peer review in the forensic process. Attending such a programme provides an insight into the standards required which help in evaluating the quality of forensic practice on the basis of peer review. This type of programme is part of the American Society of Crime Laboratory Director's Code of Ethics which prompts laboratory managers to adhere to the "peer certification programme".[374] In fact, the rationale behind the UK professional registration and one important factor for establishing quality assurance and validation guidelines was to check the work of forensic practitioners on the basis of peer review. Indeed, scrutiny by peers in the profession is a vital component of good practice primarily because it lessens the risk of any major flaws in the practice.

The responses obtained from the interviewees of the Arabic legal professionals indicated the need for this type of professional checking. However, as they emphasised, this was necessary exclusively for defence experts. N (interviewee from Kuwait) explained that the prosecution experts were trusted among the legal profession and in court, and their sincerity was always assumed unless the opposing party proved otherwise. This trust was built through close communication at court and through attending specialist training courses which were given by these experts. He finally commented that the work of the public sector forensic practitioners was at least being checked by managers or colleagues, but what about those who operate in single-person organisations and, specifically, those who did not attain professional membership. O and P (interviewees from Kuwait) further explained that, since the use of private sector forensic expertise was only recently increasing in criminal court proceedings, more time

was needed to build up the same level of trust. As they further suggested, since most defence expert witnesses were sought from Egypt, they should provide some sort of certification as an indication that their work was being checked by professionals in this field. Most of the legal professionals who were interviewed in the UK also agreed on the need for the establishment of some sort of mechanism for the purpose of more scrutiny of expert evidence. M (interviewee from the UK) strongly recommended the CRFP for this purpose. As he suggested:

> "The CRFP is a tool to ensure that forensic practitioners operated under a recognised standard and that their work is regularly checked and scrutinised by professionals in this field. This is an approach which would have the benefit of lessening the risk of errors in their forensic analysis."

It is obvious that the legal profession from the different regional countries involved in this study preferred registered forensic practitioners and this implies rigorous scrutiny of their work by other professionals in the field. Certainly, the users of forensic science services are not in a position to judge the quality of forensic work products or management.

- Responses of QDEs and medical practitioners

The respondents in Tables 4.20 and 4.21 were asked whether they follow a quality control system relating to peer review. The majority of the QDEs and medical practitioners from the Egyptian private group stated that their final results were 'never' checked. This is in contrast with almost all of the QDEs and medical practitioners from the other groups who said that their analytical results were 'always' reviewed. These results were statistically significant for all groups.

By cross-tabulating table 4.20 with the findings of table 4.9, it was found that, of the UK QDEs who stated that their analytical results were 'never' confirmed (11.8%), all were not certified and were among those who said that they were in the process of registering with the CRFP. Similarly, all of the Egyptian private QDEs and medical respondents who mentioned that their casework was 'never' checked, were uncertified. The findings of table 4.21 indicate that of the respondents from both sets of the Kuwaiti

public groups and the Egyptian public medical group who mentioned that the Head of their unit reviewed their analytical results, 46.1% of Kuwaiti QDEs and all of both Arabic public sector medical respondents also had their work checked by a more experienced colleague. By cross-tabulating this with years of experience, it was found that most individuals had less than five years of experience. Indeed, analytical results of new recruits need to be carefully checked by colleagues and by more experienced personnel in the field. All of the Egyptian public QDEs mentioned that only the Head of their unit approved their analytical results. This may be because almost all of their colleagues (90%) had similar years of experience (<9 years- Table 4.4).

In this study, one factor to test the reliability of defence expert evidence in Kuwait criminal courts was through examining the present code of practice they follow from crime scene to court and to what extent they have succeeded in complying with quality standards. It could be argued, that unlike the public sector forensic practitioners, defence experts involved in this study are sole practitioners and the opportunity to have their casework checked by others is not generally available. It is curious though that only respondents in the UK did not consider operating in such organisations as an obstacle against peer review. This possibly due to the fact that the majority of UK QDEs and medical practitioners were either members of forensic organisations, registered with professional bodies, or both. However, their Arabic counterparts were found to be isolated from forensic organisations which probably gave them less incentive to subscribe to a particular code of practice or code of conduct. This suggests that these practitioners may need to register with a professional body and/or apply for professional membership in order to benefit from casework review to ensure and instil confidence in the quality of their evidence. This type of commitment becomes even more important after knowing that all of the Arabic private sector respondents from both sets have given expert evidence in Kuwait criminal courts (see Table 4.24).

4.2.2.3 Court testimony

Tables 4.22- 4.25 deal with report writing and expert witness' testimony. This section is in two parts. Quality control relating to retaining forensic reports in case of further inquiries is one part and the type of information required from forensic experts in courts is the second part.

4.2.2.3.1 *Retaining forensic reports*

Keeping forensic reports for future inspection is one of the indicators that quality control is upheld within the laboratory practice.[375] The aim is to illustrate that forensic practitioners maintain documentation on cases which have been accepted for examination. Documentation should include results of analytical tests, observations, conclusions, methods and procedures used. This becomes crucial in cases where the forensic evidence may be requested at a subsequent criminal trial, or on appeal. Keeping a record of reports is also necessary in order to facilitate the process of peer review.[376] Since, in the assessment process, authorising bodies determine competence based on review of a portfolio of previous casework, it is vitally important that registries have properly saved records of their casework so that it would be possible to investigate the methods and procedures they used from the early stages of the forensic investigative process. Forensic practitioners, who wish to maintain registration with the CRFP, for example, must abide with the CRFP Code of Conduct which states:

> "Make and retain full, contemporaneous, clear, and accurate records of the examinations you conduct, your methods, and your results, in sufficient detail for another forensic practitioner competent in the same area of work to review your work independently."

Standards relating to preserving forensic reports must also be demonstrated as part of a laboratory's code of practice in order to pursue accreditation for forensic analysis by NAMAS, NIS 46.

Indeed accurate documentation of technical practice, and methodical preservation of these documents were the main factors which have facilitated the reviewing of 124

cases conducted by the FEL from 1988 to 1996, and which eventually helped in identifying the quality assurance system being followed by this laboratory.[377]

- Responses of QDEs and medical practitioners

Respondents were asked whether information about the analysis and methods of examination was being properly recorded. The aim is to investigate whether reports were being secured for future review when needed. The findings of table 4.22 indicate that all of the respondents prepare reports. For public sector individuals this was most frequently for the prosecution and occasionally for other governmental authorities. For private sector individuals reports were prepared for defence solicitors and also for prosecution and other governmental and non-governmental authorities (cross-tabulation with Table 4.15).

Apart from some of the QDEs and medical practitioners from the Kuwaiti public group, the standard operating procedure relating to the keeping of records of forensic reports is within the code of laboratory practice of all the groups within this study (Table 4.23). Those from the Kuwaiti group who do not keep copies of reports were among the respondents who mentioned that they 'do not know' whether SOPs were in place in their laboratories (cross-tabulation with Table 4.16). It has to be appreciated that keeping records of reports is an activity which an individual forensic practitioner should routinely undertake. Not having an awareness of such responsibility could develop complications in future inquiries, and an issue which could be challenged in court in that the laboratory failed to meet accepted standards of quality. However, statistically, the difference was deemed not to be significant when comparing the Kuwaiti responses with the responses from the other groups. This means that the small number of negative responses may not be representative.

4.2.2.3.2 *Forensic experts in courts*

The respondents were asked to describe the type of information they were mainly asked about in courts. The aim was to establish whether they were asked about specific issues such as test methods and procedures used in the process of handling and analysing forensic evidence. In order to avoid biased responses, issues relating to contamination,

chain of custody protocols and the nature of expertise were not listed as an option in table 4.25, giving the respondents a choice to mention these issues in the 'other' box. The type of information asked in courts was cross-tabulated with the level of professional performance of the respondents from the crime scenes to the laboratories in an attempt to establish the risk of submitting unreliable expert evidence in courts, and to what extent legal professionals succeeded in challenging this type of evidence.

- Responses of QDEs and medical practitioners

4.2.2.3.2.1 Giving opinion evidence

The findings of table 4.24 demonstrate that the number of forensic reports written was not necessarily correlated with the number of times opinion evidence was presented in court. Forensic reports may or may not involve, or result in, a court appearance. This can be clearly seen with the majority of respondents from all groups who write reports (Table 4.22) mentioning that they 'sometimes' gave expert evidence at criminal trials (Cross-tabulation). In fact the UK QDEs, who mentioned that they 'rarely' gave evidence at trials, explained that court evidence was given in only 20-25 out of 300-400 cases. This indicates that the respondents are only being called when there is a need for their expertise. Attending court could be for various reasons, to explain or clarify ambiguous points in forensic reports, to illustrate various points in the report, or on the request of either counsel or a judge.

4.2.2.3.2.2 The need for adversarial expertise

Table 4.24 also shows that private sector forensic practitioners tend to give evidence more often, illustrating their role in providing courts with specialist knowledge and the need for adversarial expertise in Kuwait, Egypt and the UK. Courts in these countries may have confidence that defence experts provide them with reliable evidence. However, of the Egyptian private medical respondents, who mentioned that they 'nearly always' gave evidence at criminal trials (83.3%), none considered precautionary measures against

cross-contamination when investigating death scenes, none followed SOPs in their laboratory practice including the checking of their reports, they did not acquire the level of professional standing as the other groups did, were not involved in professional continual training and development, were not qualified to undertake forensic work at all, and half gave opinion evidence outside their field of expertise. In contrast, of the UK private medical respondents who stated that they 'nearly always' gave evidence at trials (30.8%), all were involved in the proper professional activities which they applied in practice, illustrating their commitment to quality standards.

4.2.2.3.2.3 Questioning evidence

It was essential to investigate whether the respondents in this study were asked in court about the procedures of collecting forensic evidence at crime scenes and about the methods and guidelines used in their organisations. This applies exclusively to the sole practitioners working for the defence in both Kuwait and Egypt as their laboratory procedures and reports were not checked by professionals. Could it be then that they were subject to some sort of monitoring system in court?

- *Contamination of evidence*

Given that the crime scenes attended by medical practitioners from all groups in this study were of a serious nature, and at which contamination was common, none from the Kuwaiti public and the Egyptian private groups were asked to explain the procedures of collecting evidence at crime scenes and to explain the methods they used in their practice (see Table 4.25). This may explain the reason why anti-contamination protocols at crime scenes were not seriously considered by almost all of these respondents.

- *Interpreting evidence*

The most common question all groups were asked in court was with regard to their findings and the interpretation of evidence (Table 4.25). Lawyers may need to acquire sufficient knowledge in the field of forensic science in order to be part of monitoring the reliability of expert evidence in court. This requires lawyers who ask specific questions

relating to the examination phase of the forensic process. As far as this study is concerned, this applies mainly to defence lawyers in practice in both Kuwait and Egypt as firstly, the findings of this study show that the Arabic public sector medical practitioners did not meet accepted standards of quality in relation to precautionary measures at death scene examination. The awareness of this type of precaution could have been improved if they were rigorously cross-examined by the defence on issues relevant to contamination. Secondly, defence lawyers need to ensure that their experts meet and maintain minimum levels of quality in their practice in order to counteract potential challenges by the prosecution. The present standard of operating procedures followed by the private sector forensic practitioners suggests that this type of checking may not exist.

Patricia Ayd and Merle Troeger in Carl Meyer (ed.), *Expert Witnessing, Explaining and Understanding Science*[378], placed lawyers in a position to have experts as a main source of forensic knowledge. They explained that lawyers can gain this knowledge at pre-trial conferences where scientists explain their scientific opinion of the last stage of the scientific process. This limited level of consultation may force lawyers to accept any information as scientifically sound when in fact it may not be. Robertson and Vignaux however, in their book, *Interpreting Evidence, Evaluation forensic science in Courtroom*[379], advised the legal profession to question the accuracy of scientific evidence rather than only asking questions relating to the final stage of interpretation. They recommended that questions should be asked relating to the procedures and methods used in the forensic practice, and particularly to the procedures concerning quality control. This is an approach to monitor the accuracy and reliability of the scientific process in courts. This important advice by Robertson and Vignaux was published in journals accessible to the legal profession.[380]

Another approach in educating lawyers in the forensic practice was by Townley and Ede in their book, *Forensic Practice in Criminal Cases*.[381] They explained in detail the proper scientific methods used in forensic investigation at crime scenes and in laboratories. They listed a number of forensic disciplines and specialities and wrote, in detailed description, the procedures and techniques undertaken in each area of speciality

separately including the possible errors which could occur in each stage of the forensic investigative process. They provided lawyers with guidelines on the proper way of selecting experts by listing quality standards set by different forensic organisations as indicators which lead to good practice. They further advised UK lawyers to seek the CRFP as the preferred option to ensure competent forensic practice. This book provides valuable information to all of those who use forensic science services and those who wish to gain a better understanding in the area of forensic practice. Intrinsically, this book is to be regarded as a benefit for lawyers who wish to question expert evidence more effectively.

- *Police experts' reports*

The findings of table 4.25 indicate that only respondents from within the private groups were asked to examine and review other experts' reports. One of the key roles of defence experts is to interpret reports conducted by police experts.[382] The aim is to discover any areas of conflict in their report or practice and to identify the impact of some factors which the prosecution scientist has not observed.[383] To be more precise, defence experts are "charged with investigating the soundness of the prosecution's scientific findings and the scope, if any, for some alternative innocent explanation for them".[384] They do that by checking the analytical results and findings reached by the police scientists, preparing a report on their findings and explaining and evaluating the prosecution expert's opinion to the defence.[385] This means that defence scientists draw their conclusions based upon assessing the way in which the initial examination was carried out including a detailed scrutiny of the procedures followed which could reveal potential contamination of evidence for example. However, how much bestowal of trust should be given to defence experts who themselves are not subscribed to a code of practice? How can these experts discover any flaws in the procedures and methods used by the police experts and subsequently, direct defence lawyers in asking the right questions in courts? In simple words, poor quality practice may result in unsound challenges, and this applies to the respondents from the Egyptian private groups as their regional public sector medical

respondents did not follow the precautionary measures necessary at death scene examinations.

- *Continuity of evidence*

The 'other' category of QDE group (Table 4.25) refers to issues relating to continuity of evidence which was encountered by 18.7% of the UK respondents. These issues were discussed earlier in section *4.2.2.2.2.1*.

- *Nature of expertise*

The 'other' of medical practitioners group refers to questions relating to the nature of experience, and this was also encountered by 23% of the UK respondents. None of the respondents from the Arabic groups were asked the same questions in court.

Decision makers in courts expect to receive a thorough consideration of the relevant issue within the field of expertise. The onus may also be on the lawyers to ensure that experts give testimony only on matters within the limits of their specialty. Among all groups, only those from the UK were questioned on issues of this nature, illustrating that proof of specialist knowledge is seriously discussed in the UK courts.[386] This is a legal requirement in the English law of evidence,[387] and there are a number of cases in which expert evidence was excluded by trial judges because of the expert's lack of expertise on the matter on which he/she was giving evidence.[388] This of course developed awareness within the forensic communities who urged the establishment of guidelines regulating the parameters of expert opinion evidence and it has become clear that evidence given by experts is not acceptable unless the individual is suitably qualified in the area on which he/she claims expertise.[389] It is within the code of practice and code of ethics set by forensic organisations in the UK and the U.S. that members should declare that their responsibility towards courts is to provide opinion evidence within their professional competence. Failure to adhere to this code results in the loss of membership. For example, the Expert Witness Institution (EWI), UK, states that experts must declare:

> "I have done my best, in preparing this report, to be accurate and complete. I have mentioned all matters which I regard as relevant to the opinions I have expressed.

All of the matters on which I have expressed an opinion lie within my field of experience."[390]

Members of the EWI must attach and sign this declaration in their final reports.

Another example is the American Academy of Forensic Science guidelines which states:

"Forensic scientists should undertake cases and give opinions only in their area of expertise, attained through education, training, and experience."[391]

Similarly the CRFP, in the process of assessing competence, selected referees may be contacted to reveal information relating to competence which may not be elicited from the submitted portfolio of their staff. Referees could be asked about "whether applicants function within the specific framework of an organisation"[392], and forensic organisations require members to abide by their code of practice. Further, candidates who wish to be on the ENFSI list "must have a clear understanding of their duties and responsibilities and should fulfil these at all times according to this code of conduct".[393] One of these duties and responsibilities is to know the limits of their competence and provide expert advice and evidence only within those limits.[394] This means that certifying bodies, as part of the assessment process, ensure that applicants were committed to the codes set by their organisations, or if they are already registered, to ensure that candidates abide with the code of conduct and code of practice set by them as an authorising body. This type of safeguard is not present in Kuwait as this study shows that some private sector forensic practitioners gave testimony evidence on issues relating to questioned documents as well. Some other examples illustrating this type of testimony given by defence experts in Kuwaiti courts were presented in Case No. 97/98 Jenayat Al-Jabreyah, Kuwait, 20. 10. 1998, and in Case No. 14/97 Mena'a Abdullah, Kuwait, 25. 6. 1997 (see Chapter 1). This could have been avoided if these practitioners did take up membership of professional bodies. In the Kuwaiti criminal court, there are no precautions against unreliable expert evidence other than taking the oath before giving opinion testimony.[395] On some occasions private experts were not even asked for the nature of their expertise or their credentials before accepting their testimony into evidence.[396]

It is important to investigate the reasons why some private sector forensic practitioners in Kuwait and Egypt had the chance to provide opinion testimony on

matters outside the limits of their speciality. Firstly, the present low monitoring system in the criminal courts of these two countries may increase the risk of admitting such unwanted testimony and this will be illustrated in Chapter Five. Secondly, this study shows that the Egyptian defence experts have a role in providing the Kuwaiti and the Egyptian criminal courts with specialist opinion evidence and, from the cases highlighted, there is a need for such type of expertise to be available in cases other than those involving documents and medicine. This may encourage formulating the only opinion evidence currently available (document and medical) into an opinion which would perfectly fit the case of the hiring party. In other words, since the only forensic expertise currently available to the accused in Kuwait and Egypt are those involving handwriting identification, document authentication, pathology, and medical examination, this may encourage solicitors to shop around seeking expert opinion from one expert to another until they find the one who would, for financial or other reasons, produce opinions which would favour their case and, as such, produce disreputable experts who may give testimony on matters outside their immediate specialist knowledge. The question though is why are pathology and handwriting/document the most common areas of expertise available to defendants in Kuwait and Egypt? In fact this was seen to be the case in the UK as well.[397] There are three reasons to be suggested for the widespread availability of these particular types of expertise to the defence in the three countries. First, question document analysis involves mainly economic crimes such as fraud.[398] Similarly, the medical profession are often involved in compensation allegations[399] as a result of, for example, medical malpractice, or traffic/work accidents. So, real checks exist as to what medical and document examiners can testify in such cases. Secondly, since independent experts often only have the chance to examine prosecution expert's reports, specifically in side by side comparison of documents/handwritings and wound interpretation, they may not need expensive equipment for this type of examination and this is illustrated in table 4.26. Thirdly, there is an ongoing debate as to whether side by side comparison of document and handwriting and wound interpretation involve scientific methodology, or are more experience based.[400] If it is only based on experience (technical knowledge), then anyone may claim

expertise in these two areas if they are appropriately experienced. This debate was first raised in the U.S. common law on the grounds that, if expert testimony is not based on scientific methodology, it fails to satisfy the criteria of Federal Rules of Evidence (FRE) 702. Rule 702 says: "If scientific, technical, or other specialised knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert.... may testify thereto in the form of an opinion."[401] Before this rule, the *Frye*[402] decision allowed courts to determine the validity of novel scientific methods which have to be generally accepted in the scientific community. This means that, since document examination and wound interpretation were not perceived to be scientific, they cannot be tested against *Frye*. In 1993, the United States Supreme Court announced the *Daubert test*.[403] This test identified four factors necessary to meet the specialised knowledge requirement of FRE rule 702. The judge should consider whether the theory or technique has been tested and subjected to peer review and publication, the degree of the method's or conclusion's acceptance within the relevant scientific community, and the potential error rate of the method used. The Ninth Circuit Court of Appeals has added a fifth factor to *Daubert*, whether an expert opinion was developed specifically for litigation. In *Daubert* test, the distinction between science and techniques used in forensic practice was first defined as they come under the Rule 702 criteria. This required the U.S. forensic community to ensure competent practice whether through the use of a valid scientific methodology, or other techniques, and trial judges were charged with the role of "gatekeeper" ensuring that expert testimony was reliable.[404] Up to this point there was no clear distinction as to whether expert evidence was admissible if it was not based on valid scientific methodology and technique. A debate arose as to whether expert testimony based on experience or specialised knowledge was to be analysed under *Daubert*.[405] This may well be the position with document authentication[406] and interpretation of wounds and injuries.[407] In *Kumho*[408], the Supreme Court held that the *Daubert* factors should be applied to all expert evidence but that in all cases they should be applied flexibly. This means that the distinction between scientific and technical knowledge was removed under *Kumho*. Accordingly, expert testimony is admissible even though it may not be based on a strict scientific foundation. *Kumho* may have increased

the risk of unreliable expert evidence being presented at some U.S. courts, simply because it is difficult to assess the validity of technical knowledge which is only developed through experience. Bernstein stated[409] that, since technical knowledge is based on experience, it is "subjective" and therefore cannot be "criticised". This suggests that assessing the level of experimental or technical expertise of a given scientist within the U.S. criminal justice system is a problem. They therefore may need to consider using the certification/registration bodies such as the CRFP rather than leaving these decisions up to the court. Mistakes as a result of pretended expertise occurring within the criminal justice system, if not identified, may affect the decision making process, and may result in the wrong conviction of innocent people. Having registered forensic practitioners may ensure that expert testimony is within accepted professional standards of quality, and this "is what the CRFP has been set up to give."[410] This also applies to the criminal justice system in both Kuwait and Egypt as some Arabic defence experts gained professional knowledge only through training with more experienced personnel when they were first involved in the forensic process.

Thus in relation to questioning expert evidence in courts, the findings show that issues of scientific procedures and methods undertaken by forensic practitioners are not being seriously discussed in both Kuwaiti and Egyptian courts. The implications of not asking questions relating to competent practice and issues such as contamination may be significant. The need to examine the contamination issue becomes crucial as the use of DNA typing in the forensic process becomes more common. As mentioned in Chapter Two, Kuwaiti courts have accepted to include DNA evidence in the system of proof and judges now appreciate and trust this type of evidence in the course of fact finding. If forensic practitioners feel that their work is not subject to auditing in courts, they might not develop a serious attitude towards the accuracy of the procedures and the methods that tend to lessen errors in their practice, especially if the work of these practitioners is not being checked by professionals. The findings also reveal that some forensic practitioners operating in Kuwait and Egypt were not asked about the nature of their expertise before giving evidence. This developed the chance to present expert evidence

on matters outside the limits of immediate forensic discipline and without being suitably qualified. The issue of court monitoring system of expert evidence will be discussed further in Chapter Five.

4.2.3 The balance of resources available to both sets of forensic practitioners

The legal systems practiced by Kuwait, Egypt and the UK give defendants the right to a fair trial and to have the availability of expert witnesses. This means that fairness surely requires that access to forensic facilities within the prosecution services be matched by the defence. The balance of resources between the public sector and private sector forensic practice is an ongoing problem in countries allowing adversarial experts. Since all private sector respondents in this study operate within single-person organisations, this section will investigate whether these respondents have access to appropriate forensic facilities like their public sector counterparts. This includes the availability of technical or specialised equipment and forensic journals.

4.2.3.1 Technology used in forensic laboratories

In table 4.26, the respondents were asked whether they use advanced technical equipment in their laboratory.

- Responses of QDEs

All of the respondents from both Arabic public QDE groups, who indicated that they used instrumentation, mentioned that they used Visual Spectral Comparator (VSC 2000 HR for ink analysis), ESDA (indented writing), Stereo Microscope, UV, IR, IR Luminescence Rays, Docuo Center, Electronic Microscope, Magnifiers, and Microscopes with different lenses. The UK QDEs mentioned that they used ESDA, Projectina Docu Center 3000, VSC 2000 HR, Magnifiers, and Microscopes with different lenses. In contrast, 66.7% of the QDEs from the Egyptian private group did not mention the use of this type of equipment. One third of the latter respondents, who stated that they used advanced technical instruments, were those who operate as both questioned document and forensic medical practitioners. The equipment they mentioned was not specifically

related to document and handwriting analysis which included the use of a pressure measure instrument, Stethoscopes, cotton sticks and examination tables, all of which are not classified as advanced equipment, and are mainly used in examining assaults against live victims.

Table 4.26 indicates that the state funded forensic laboratories have access to advanced instrumentation and it is common that forensic facilities are at the highest level in public forensic laboratories. In fact, in as early as 1974, a commentator from the UK argued "can a one-person facility accord an equal status as the well equipped metropolitan facilities manned with trained and educated personnel?"[411] The issue of 'equality of arms' in the UK was investigated by the Royal Commission on Criminal Justice in 1992.[412] The Commission had submitted proposals after a study on *The Ability to Challenge DNA*, which concluded that "both prosecution and defence lawyers should have fair access to the Forensic Science Service (FSS)". It is curious that, although the issue of equality of arms still exists in the UK, the independent document examiners from the UK group indicated the use of advanced technical instruments, which in effect, is comparable to those used by the public sector QDE groups participating in this study. Some other examples were given by the UK QDE interviewees. B- explained that his laboratory was well equipped with instruments such as ESDA, Stereomicroscopes, and Video Spectral Comparator. A- added that he used the Measurement of Internal Consistencies (MICS). He explained that this "State of the Art" technique measured the density of ink producing a three dimensional image on a computer. The type of instrumentation mentioned by all of the private sector QDEs who were interviewed in Kuwait and Egypt was restricted to the use of magnifying glasses and basic binocular microscope for side by side comparison. The use of advanced instrumentation amongst UK QDEs maybe to outdo the competition in the market place and this became true after the FSS new agency status or because UK practitioners can access such equipment and facilities through the public sector or certain university departments.

- Responses of medical practitioners

All of the public medical practitioners, who confirmed the use of advanced instrumentation in their practice, stated that they used an autopsy bench, solutions to clean the table and tools, aspiration instrument to vacuum solutions, balances to determine the weight of the deceased's organs, manual and electronic saw, X-Rays, unfrosted morgue refrigerator, and a Cryostat instrument which gives a preliminary diagnosis of tissues taken from organs. All of the tools mentioned by the latter respondents are used in a post-mortem room. They added that they used a pressure measure instrument, Stethoscope, examination table, tools used for examination such as vaginal Speculum, cotton sticks, and Neurological Hammer. All of which are used in medical examinations of live victims.

All of the Egyptian public medical practitioners added that they used a Microscope to compare ballistics and bullets taken from the deceased and IR to examine bullets entrance on clothes. These responses illustrate the validity and reliability of data gathered since all of these respondents mentioned that they carry out firearms casework and use equipment relevant to ballistics in which they all have had training (see Table 4.3).

7.7% of the Kuwaiti public sector medical practitioners added that they used Computerised Histovision, tissue processing, tissue embedding instruments, Microtomes, and Microscopes. These tools and equipment are often used in histopathology work.

Almost all of the UK private medical practitioners did not participate in table 4.26. There is a reason for this. Defence pathologists in the UK often conduct a second autopsy, which is often performed in the mortuary department (mainly in a university), in the presence of the prosecution pathologist who conducted the first autopsy. Therefore, all the necessary equipment to conduct a second post mortem examination is available. Accordingly, defence pathologists in the UK may not need to have their own instruments and tools within their organisations.

4.2.3.2 Access to specialist journals, articles and books

- Responses of QDEs and medical practitioners

In table 4.27, the respondents were asked whether they were being supplied with periodicals, books, and articles relevant to the forensic field. The 'other' category of QDE groups refers to British public libraries (11.8% of the UK private sector respondents).

The findings of table 4.27 shows that the respondents from the public groups have more chance to access forensic journals and other specialised books since their employers guarantee the availability of such periodicals. However, those who operate in single-person organisations are self-dependant on purchasing such journals and books through libraries and the internet for example. Being a member of some forensic organisation(s) can facilitate access to forensic periodicals. For example, a member of the Forensic Science Society receives the journal *Science & Justice* and the *Interfaces* newsletter, both of which cover various aspects of the forensic field and certainly improving the quality of forensic evidence is one of the issues covered. The findings of this study reveal that 82.3% of QDEs and 30.7% of medical practitioners from the UK read *Science & Justice* compared with none of the respondents from the Egyptian private groups (cross-tabulation with Table 4.6). Since the majority of the Arabic private sector QDEs and medical examiners mentioned that they have access to relevant journals through the internet, it is curious that they did not mention reading the *Science & Justice*, a journal which can be ordered through the Forensic Science Society's web site.[413]

In general though, tables 4.26 and 4.27 highlight that access to advanced technical equipment and forensic journals may be one of the problems faced by private forensic practitioners, which is one of the apparent differences in resources available to prosecution and defence experts. This raises the issue of 'equality of arms' with ongoing attempts to stop this problem in order to avoid further complications collate rated with the firm application of the adversarial legal system of justice.

4.2.3.3 Funding defence expert witnesses

In this section, empirical studies were sought in order to shed light on another problem facing defence expert witnesses in countries applying the adversarial legal system. Fairness in the criminal justice system can be further achieved by providing free legal aid to indigent defendants in an attempt to ensure a complete defence can be prepared. Although in the UK there is a clear provision for free legal aid for defendants[414], it has been argued that defence access to competent forensic services is influenced by inadequate legal aid funding.[415] As a result, an inquiry by the Runciman Commission took place which concluded legal aid be equally available so that independent forensic laboratories can operate effectively.[416] Defendants in the UK are further protected against unfair trial under Article 6 of the Law of the European Convention on Human Rights.[417] The Scottish courts have been bound by this legislation since 1998 and the English and Welsh courts since October 2000.[418] This means that judges in the UK must guarantee a fair trial, otherwise defendants can appeal to the European Court on the ground that their right for fair trial was breached.[419]

Until recently, Kuwaiti judges were not bound to provide funding for free legal aid and there is no clear, written provision of state funding to individuals who cannot fund their own defence in criminal trials. There is a reason for this. In the UK, experts who carry out civil trials are generally paid by the plaintiffs whereas, in criminal trials, they tend to be paid by the Legal Services Commission (LSC) with funds derived from public taxes. In Kuwait, citizens do not pay tax and judges often ask expert witnesses called by the defence to determine their fees where the responsibility for paying them rests with the defendant.[420] The reason for this, as a judge from Kuwait stated, was that if the defendant was not convinced by the prosecution expert's observations and findings then he was the one who asked for this service to prove the opposite, and therefore he should pay for it. The question though is: are all defendants O.J. Simpson? One of the forensic scientists hired by Simpson was paid $ 35,000 in cash in addition to $ 50/hour just for scrutinising the prosecution expert's testimony.[421]

A personal interview was conducted with some of the private sector forensic practitioners in the UK which aimed to establish their attitude towards the amount of

allowance they received from the LSC. One interviewee mentioned that solicitors sought his services directly and that they were responsible for paying him. He explained that solicitors recover his fee from the LSC and, according to the rules regulating the donation from the LSC in Scotland, if the defendant cannot afford the forensic services depending on the type of the case in question, the LSC might cover the expenses. E (UK) explained that he did not get paid enough because solicitors can easily get money for a preliminary report which is basically not enough in cases that require more practical work. The practical work done in the universities, for example, costs more than in public laboratories because testing is not being done routinely. In the universities, certain control samples may need to be purchased for use in a particular case, whereas in public laboratories, control samples are being used routinely for a larger number of cases. Another interviewee from the UK stated that she was not getting paid enough for defence services. She explained that, for defence work, she was normally paid £305/day, whereas working for public clients, such as a local authority, she could get paid up to £85/hour. This means that she is restricted by legal aid rates.

Thus, it can be said that, in Kuwait, the defendant's right to a fair trial is violated, and in need of complete service for the defence. If some independent forensic practitioners, who operate in countries allowing financial aid for seeking their services, are complaining of uneconomic conditions, what are the alternatives for an indigent defendant in a system where such aid has not yet been legally granted?

4.3 Discussion of the forensic practitioners in respect of their attitude towards the evaluation of the level of professional competence

In this section both private and public sectors were asked (in an open-ended question) to evaluate the other group in respect of their experiences and whether they considered them to be qualified (Q31 and 32- Appendix A). This section investigates whether the forensic practitioners of both sectors exchange information or engage in discussion with each other on a regular basis in respect of difficulties within the practice including qualification, skills, effective training and matters relevant to competent practice. In addition, since it is common that private sector forensic practitioners formerly worked in

the public sector, it was important to know their attitude towards quality management of document and medical examinations in the state laboratories. The public sector groups were asked to evaluate the professional performance of SOCOs in the process of handling forensic evidence. The private groups were also asked whether there were problems associated with items they received from the public forensic laboratory. Some of the issues discussed earlier in this Chapter were also highlighted in this section by some of the respondents. These issues will be discussed again but will be interpreted from different perspectives.

4.3.1 Opinions of the public forensic practitioners on their private counterparts and about the SOCOs practice with regard to handling the forensic evidence

4.3.1.1 Responses from Kuwait

4.3.1.1.1 Responses of public sector handwriting and document examiners

The majority of the respondents (69.2%) viewed their private QDE counterparts as being highly qualified because they have many years of experience in the profession. Some added that they encountered many cases in which private QDEs discovered flaws in the prosecution reports although, they stated, that private experts often only have access to copies of originals. Originals were viewed as being essential for authentication of handwriting and side-by-side comparison in order to construct an opinion based on "solid grounds". 15.4% stated that they had never been in contact with private sector QDEs and, therefore, they could not evaluate the effectiveness of their practice. The remaining 15.4% did not respond to this question.

The same respondents were asked about the work of SOCOs in respect of packaging physical evidence and writing the information needed on each exhibit label. 38.4% of the respondents said, they had never received exhibits directly from SOCOs. 30.8% did not participate in this question. Only 30.8% of the respondents participated in this question. This illustrates the reliability of the responses obtained since in table 4.15 only one third of the respondents from the Kuwaiti QDE group indicated that they received exhibits sent by SOCOs. The respondents who participated viewed the Kuwaiti

SOCOs practice as being weak and "full of mistakes" in the process of handling and packaging physical evidence. They further explained that SOCOs often had the opportunity to access crime scenes at the early stages and, therefore, needed to be scientifically trained and involve in specialist refresher training courses in order to maintain the quality of forensic evidence they handle. Otherwise, as they commented, the analytical results and obviously the integrity of evidence could be affected which would have a direct impact on the reliability of this type of evidence in court.

4.3.1.1.2 Responses of public sector medical examiners and pathologists

100% of the respondents viewed private medical practitioners as being highly qualified since, they explained, they had developed their skills through many years of experience in this field.

30.8% of the respondents stated that ongoing training courses were required to improve the quality of SOCOs in areas relating to the packaging and handling of physical evidence. The remaining 69.2% of the respondents did not participate in this question. The findings of the Kuwaiti medical practitioners also indicate the validity and reliability of data gathered as only those who participated in table 4.15 in relation to receiving exhibits from SOCOs, answered this question.

4.3.1.2 Responses from Egypt

4.3.1.2.1 Responses of public sector handwriting and document examiners

The Egyptian public QDEs had a different view on their regional private counterparts. The majority of the respondents (70%) explained that many QDEs in Egypt were untrained and professionally unqualified. They described private practitioners as being "hired guns" that always shaped their opinion to favour the party paying them. As they commented, "the many years of experience behind the witness box made them good at it". They finally said that such unethical conduct in this particular field could mislead the court. 30% of the respondents explained that some of the independent QDEs were scientifically qualified and that others entered this profession only through experience. They added that it is known that private QDEs examine a limited number of cases which

may limit their ability to develop skills especially when they did not receive ongoing specialist training courses after their retirement from the public sector many years before. They recommended that, since the quality standard of private sector service was in doubt, private practitioners should prove that they subscribe to an accepted code of practice. Almost half of the latter respondents added that private QDEs, by the very nature of their practice, were hindered by receiving only copies of documents and that examining original signatures and writings was crucial to determine the actual mechanics of the writing in question. They finally stated that this could lead them to unintentionally providing a misleading opinion.

In table 4.15, none of the Egyptian public QDE respondents mentioned that they received exhibits sent by SOCOs, yet 17.6% of the respondents in this section regarded them as lacking the knowledge in the quality standards relating to the proper handling of forensic evidence. They explained that they sometimes received exhibits that were improperly packed, were not sealed, were without complete information and that sometimes with all the difficulties listed.

4.3.1.2.2 Responses of public sector medical examiners and pathologists

41.8% of the respondents viewed their private counterparts as being highly qualified and experienced and subscribing to a code of practice including an awareness of their commitment to courts. In contrast, 25% of the respondents said that "the poorer ones tend to be in institutions where there is only one practitioner and there is no one to check his/her findings", and these individuals were a cause for concern. They further explained that most of the private medical practitioners always challenged the prosecution reports although, they added, they knew they were providing wrong opinions and the only reason they did so was for financial benefit without regard to professional fidelity. They commented that most of these practitioners saw their duty as being to the hiring party rather than the courts. 16.6% of the respondents also viewed private medical practitioners as being qualified and experienced however, they mentioned, they utilised their expertise in serving whoever paid them. The remaining 16.6% of the respondents stated that defence medical experts were not involved in professional training courses after

retirement, and with the limited cases received in practice, they needed to "raise their standards of professionalism". They recommended that this could be achieved through continual refresher training courses.

In relation to SOCOs practice all of the respondents explained that, in Egypt, the process of recovering, selecting, lifting, packaging and transferring of forensic evidence was undertaken by the prosecution and CID and not by SOCOs. 75% of the respondents added that since both prosecution and CIDs were not trained on issues relating to proper handling of evidence, cross-contamination and contamination could and had taken place which, in many criminal cases, negated the only valuable piece of forensic evidence.

4.3.1.3 Discussion

The most common problems associated with defence expert's practice as viewed by the public sector respondents are listed below in sub-sections.

4.3.1.3.1 *Experience and expertise of defence experts*

The findings of this section illustrate that access to original documents is one of the most common difficulties facing the private practice. This problem was also encountered by all of the private QDEs who were interviewed in both the Arabic and UK regions. Since defence experts often draw their conclusions based on copies of originals, this may require a high level of skills. More precisely, they have to be suitably qualified in the areas of document and handwriting in order to ensure a competent service to the defence. It has to be emphasised that the term "qualified" implies an appropriate combination of academic and/or professional qualifications, internal and external training, experience and skills.[422] It has been said that conflicts in testimony of document evidence were rare and that, if there appeared to be a conflict, it was with individuals with limited experience and training.[423] These rare occasions were found to be among those who had acquired professional training only through examining documents on an occasional basis and, as a result, provided "weak and often conflicting testimony".[424] In the same phrase, some of the Egyptian public QDEs and medical practitioners in this section suggested that defence

experts carrying out limited casework, and the time lapse since retirement, required them to be involved in continual training and development to maintain professionalism.

Having many years of experience in this field may help to develop professional skills but, the question is, can they be developed only through examining documents on an occasional basis? More precisely as Prof. Caddy asked "can learning on the job achieve professional competence?"[425] This is to say that years of experience alone, without the involvement of other professional activities such as ongoing training courses, reading relevant journals and text books and attending relevant conferences, may not necessarily develop skills. This applies exclusively to defence expert witnesses as, in practice, they carry out a limited number of cases as opposed to their counterparts from the public sector. Indeed, the need for years of experience in the forensic profession is just as important as the need for maintaining skills and knowledge in the area of specialty.[426] However, can professional activities be available to sole experts who are not members of any professional organisation? Unlike the private sector forensic practitioners, the police experts find no difficulty in regulating their activities as they can easily access training and external validation.[427] Forensic proceedings, one of the activities which help in maintaining professional skills, tend also to be dominated by police forensic experts.[428] Therefore it has been suggested that there is a need for international meetings within the forensic science community to be open to everyone.[429] Indeed scientific as well as managerial methods and information should be shared among forensic practitioners. This type of sharing expertise between laboratories is highly recommended by professional organisations because it provides a forum through which forensic practitioners exchange and discuss methods, results and the latest developments. Given that in Egypt there are institutions established to regulate professional activities for forensic practitioners, the question is whether some individuals have the attitude to enrol in such activities. The involvement in meetings and activities relevant to the profession is important for a reason. It is common that criminals are always developing new techniques and methods for committing crimes with the intent to leave a more complicated scene and to add more challenges to the criminal investigative process. Science is a rapidly developing field and, since forensic science is the application of natural sciences to legal

significance, it means that forensic techniques in identifying criminals are also developing. This requires forensic practitioners to enhance their specialist knowledge through their involvement in relevant activities in order to stay current with new updates in their profession. In simple words, expertise can develop depth in the subject matter but experience alone with a limited number of caseworks of a similar nature may narrow the skills needed to manage new problems which tend to be more common as techniques in identification and individualisation are evolving.

It is curious that a considerable number of the Kuwaiti state QDEs and medical practitioners viewed defence experts as being highly qualified only because they were individuals who had many years of experience in the profession. These respondents did not make a distinction between a qualified expert and an experienced expert. "Experienced" means "gaining skills and knowledge through active involvement in caseworks over a number of years", whereas, "qualified" means "an individual declared competent in a certain subject or field". Experience is only one of the elements considered in the process of determining competence and the respondents from the Arabic private sector groups acquired the relevant knowledge only through experience.

4.3.1.3.2 *Experts for hire*

The findings of this section are also curious since, although the same defence QDEs and medical practitioners often give expert testimony to both Kuwaiti and Egyptian courts, the public groups had a different opinion on their private sector counterparts. All of the medical practitioners and the majority of QDE respondents from the Kuwaiti public sector considered them highly qualified and experienced. However, the majority of the respondents from the Egyptian public QDEs and medical groups described them as being biased.

In fact, some private forensic practitioners in the UK have also been viewed as being "hungry for business to keep their machines and laboratories running"[430] and because their earnings are largely dependant on their client base, they may deliberately twist their opinion to fit the needs of the hiring party. This was the reason why they were viewed as being "liar-for-hire".[431] As a consequence, the issue of the overriding duty of

experts in the UK was emphasised to be to the court in the last reform of expert evidence under the civil procedure rules[432] and in the latest proposals to reform the criminal justice system.[433] Biased testimony may "contribute to scientifically unfounded liability verdicts."[434] A good example of this is what happened to Dr Clift. Dr Clift, a reliable forensic scientist, was suspended by the British Home Office, with whom he had worked for over twenty-five years, because he quoted his role as being biased to the police. As a result, some of his cases were investigated amongst which was a murder case where the trial judge ruled the release of an accused after he had spent eight years of a life sentence convection in prison. The trial judge in this case said that "Dr Clift's evidence had been discredited".[435] This case shows that if an expert is not bound by the code of conduct set by his organisation, he could lose his professional career and certainly he may no longer be trusted as an expert witness. This illustrates the reason why, in this particular profession, it is important that forensic practitioners are registered[436] or, at least, are members of forensic organisations.

4.3.1.3.3 *Expert opinion in adversarial procedure of trial*

16.6% of the respondents from the Egyptian public sector medical group mentioned that defence experts were always in disagreement with the prosecution expert's findings. Judges call for expert witnesses to state their opinion on a matter within their specialist knowledge when the court itself cannot form an opinion because a special study, skill or experience is required. When conflicts in opinion evidence occur it could be counter productive. It could be argued that, since it is only a matter of opinion, conflicts are inevitable. Roberts and wilmore explained that "expert evidence depends upon agreement between scientists which may not last and experts may disagree on the interpretation placed on agreed findings of fact."[437] This has been seen to occur more often in an adversarial trial system. As a consequence, it has been said that such a system presents evidence in a way which "hampers the jurors' construction of a story"[438]. Therefore commentators from the UK proposed that evaluating the reliability of expert evidence should be under the control of the Judicial Studies Board and that juries should know about the results of this assessment process.[439] Further in the UK, it has been said that

instances of disagreement prolong the process of cross-examination which would be a waste of time and incur extra costs. Replacing parties appointed experts with a "single joint expert" was suggested to be the proper norm to avoid this.[440] Spending lengthy time in cross-examination was also found to have an impact on the jurors' assessment and ability to recall a case. A study was carried out to examine ways of enhancing the quality of a jury's decision-making in matters of confusion.[441] It was found that, in some cases, giving a written statement of the expert witness's opinion before testimony helped the jury's ability to recall a case.

All the suggestions made by the UK regarding conflicts in opinion evidence aimed to establish precautions against the confusion which may occur during the deliberation process. Such efforts are not in existence in Kuwait and judges, in many criminal cases, were confused by two and some times by four conflicting opinions. The complication of this, of course, is that judges cannot decide which expert evidence to give more weight to and, as such, may exclude testimony evidence even if it is vital to decide a case.

4.3.1.3.4 *Professional performance of SOCOs*

With regard to evaluating SOCO's practice, some of the QDE respondents from both Arabic public groups and one third of the Kuwaiti medical group criticised the professional performance of SOCOs. They mentioned that refresher training courses were required to improve the standard of quality of SOCOs in areas of packaging and handling of physical evidence. However, it is also evident that the Kuwaiti state medical practitioners acquire the proper way of handling forensic evidence but do not always put this into their death scene practice (see Table 4.12).

Scientific investigation does not begin at the laboratories but at the early stages of crime scene examination.[442] If forensic evidence is not properly handled and secured at the initial scene examination, there is a high risk that such evidence loses its forensic value and the forensic laboratory's findings could be compromised with a very high possibility of it being excluded at trial.[443] It is known that the collection of physical evidence, which will eventually be tested in forensic laboratories, is primarily a matter for the discretion of the police. Therefore, SOCOs need to be trained in the proper ways

of crime scene investigation, and "the better the training, the higher the quality of starting materials the scientist will have to work with".[444] In fact, scene of crime examiners were described as "the ears and eyes of the scientist who cannot attend the scene" and, therefore, crime scene examination has a vital impact on the accuracy of laboratory results.[445]

For this reason, it is questionable whether handling forensic evidence at the crime scene requires a more scientific approach and/or only specialist training. Commentators suggested that scene investigators must attain the proper forensic knowledge covering all of its specialist disciplines in order to effectively decide what type of physical evidence to look for in a particular crime, and the potential forensic value of it in the forensic analysis process.[446] In fact, the preservation of the integrity of evidence was seen to be considered from the early stages of the criminal investigative process. This is usually carried out by the first investigator who is responsible for securing the crime scene until the arrival of scene examiners. The UK saw raising educational qualifications for first investigators attending crime scenes as crucial to lessen the risk of contamination.[447] Therefore, it has been suggested that a Bachelor of Science degree is required for recruitment into the Police Scientific Support Services since they have an important role in crime investigation.[448] If there is a trend towards educating investigators who, in essence, are not involved in the handling process of forensic evidence, what about crime scene examiners? Scientific contribution during crime scene investigation is also required from SOCOs. According to Prof. De Forest:

> "Scientists need to be the ones who, in concert with scene investigation, define the scientific problem in detail and attempt the solutions to them. Crime scenes and physical evidence present problems that are fundamentally scientific in nature. Scientific input during crime scene investigations is needed."[449]

In recent years the UK SOCOs were trained to achieve best practice.[450] Such training was improved in 1990s when SOCOs began to undertake specialist training courses arranged by the National Training Centre for Scientific Support to Crime Investigation at Durham.[451] The aim was to raise the occupational standards of competence for crime scene investigation. T (interviewee from the UK) explained that

the trainers in this centre were "accredited" and acquired specific certification in this regard. He added that trainers were academically qualified by the University of Durham, as well as accredited by the Association of Chief Police Officers, and were subject to reassessment once every year. In fact, the trend is going further towards training SOCOs to the point that they can function as expert witnesses.[452]

It has become clear that precautionary measures at the crime scene requires specialist training courses on the proper means of handling forensic evidence which, in due course, gives rise to quality evidence before commencing the forensic analysis process. For this reason, the need to apply a quality assurance system in crime scene investigation was seen to be just as important as applying it to forensic laboratories. This was first recognised by the National Association of Testing Authorities (NATA's) in Australia who had taken the initiative in certifying crime scene investigators aiming to ensure high quality scientific evidence being delivered to forensic laboratories.[453] They developed a document for accreditation in the field of crime scene investigation and court performance. For the first time, SOCOs must possess a Bachelor's degree, or equivalent, in a field of science in order to satisfy the requirement of NATA's ISO/IEC 17025.

It can be seen that all of the diligent efforts made in the UK and Australia to reform crime scene practice have been concentrated on re-educating and re-training already trained crime scene examiners. What would the situation be then if unauthorised personnel, who never undertook specialist training courses, handled scientific evidence at crime scenes and delivered them to the forensic laboratory or mortuary? This situation happens in Egypt since all of the Egyptian QDEs and medical practitioners explained that the process of recovering, selecting, lifting, packaging, and transferring forensic evidence was undertaken by the prosecution. This confirms the consistency of the gathered data as the findings of tables 4.15 - 4.17 showed that all of the Egyptian public sector medical practitioners, who said that they received exhibits with problems, mentioned that they were mainly sent by the prosecution. 20% of the Egyptian QDE respondents added that the process of handling forensic evidence is undertaken by the CID (Table 4.15). U (interviewee from the Egyptian CID office) said that since he had been in his current job (11 years), he had never taken any classes or training courses relating to forensic

science/medicine. He explained that he and his team often handled forensic evidence at crime scenes and transferred them to the forensic laboratory. He added that he had never heard of issues relating to contamination and protocols of chain of custody as they pertain to the forensic process. Similar responses were obtained from his team. Regarding this issue Prof. De Forest commented:

> "We appear to have relegated the framing of questions to non-scientifically educated detectives leaving criminalists with technician functions and fancy hardware, operating in a reactive mode, doing only what is asked of them... In what other scientific field are scientific problems circumscribed and defined solely by others?"[454]

It has been proven in many criminal cases that scientists and SOCOs, who obtained a degree where they demonstrated their specialist scientific knowledge in the forensic field, had many years of experience and were trained in the proper way of handling forensic evidence, often made mistakes in their practices.[455] In order to avoid mistakes, such as those which occurred in the O.J. Simpson case through "sloppy police work"[456], only authorised personnel- who were well trained on the proper way of handling forensic evidence and had gained the knowledge necessary to preserve the quality and integrity of this type of evidence- should be allowed to participate in the initial stages of crime scene examination. Refresher training courses should also be included on a regular basis and consideration should be given to the implementation of proficiency testing in order to measure their ability to apply the knowledge and make accurate observations as both are essential elements to improve the decision making process at crime scenes.

4.3.2 Opinions of private forensic practitioners on their public counterparts and whether the items they receive from the public laboratories are adequate for further analysis

4.3.2.1 Responses of private forensic practitioners who present opinion evidence to both Egyptian and Kuwaiti criminal courts

4.3.2.1.1 Responses of handwriting and document examiners

All of the private sector QDE respondents indicated that, in their opinion, public sector QDEs needed more experience in the field and that they considered them to be unqualified. 75% of the respondents stated that state QDEs needed to be trained for as long as they worked in the laboratory, and 25% of the respondents stated they were poorly qualified because they showed little interest in improving their expertise. They added that, in addition to specialist training courses in handwriting analysis, questioned document examiners have to take courses in physiology to understand the effects on writing. They finally stated that there was a rapid increase in questioned document cases and that the availability of appropriate training programmes could not cope with the greater demand of staff.

25% of the respondents further suggested that public sector QDEs needed to be more skilful in interpreting their results and reporting their final conclusions. In addition, almost all of the independent QDEs indicated that expertise in forensic document examination could not be established in two or three years. Finally, two respondents viewed forensic science as a pyramid beginning with a broad base of general information and peaking with training and experience in a specific speciality.

When the same respondents were asked to describe the items they received, 65% of the respondents stated that they never received an original copy of suspected documents in a questioned document case. The remaining 35% indicated that they had never received items from the public laboratory, but do interpret reports generated from their laboratory.

4.3.2.1.2 Responses of medical examiners and pathologists

All of the independent medical respondents viewed the practice of their public sector counterparts as being less than satisfactory. As they mentioned, public sector medical practitioners were committed to a wide range of caseworks from different authorities which made them concentrate only on turnaround rates. They further explained that this reflected on the quality of their service as they did not have enough time to enrol in professional training courses on a regular basis. 25% of the respondents added that their public sector counterparts lacked speciality in their area, and that a large number of them lacked discipline. They explained that a considerable number of medical practitioners operating in the Egyptian public sector were originally physicians who entered the forensic field without specialist training. As they mentioned, the public sector were not fulfilling their legal requirement in respect of training of newly recruited general practitioners or pathologists (which demands one year of training). They finally recommended that there was a need to raise standards of management of the public medico-legal administration in Egypt.

In respect of the quality of exhibits they received, none of the respondents participated in this question.

4.3.2.2 Responses from the United Kingdom

4.3.2.2.1 Responses of handwriting and document examiners

71% of the QDE respondents explained that police laboratories in the UK, to a large extent, set the quality standards for the rest of the laboratories. They viewed the public sector practitioners as having varying degrees of expertise and their work was of varying quality. In the main though, they felt that the public laboratories were staffed by experienced scientists with high level of professionalism and most of the work seemed to be of a reasonable standard. However, as 25% of the respondents added, there were few experts who needed to maintain training and the level of professional competence and experience of the public forensic practitioners was mixed. The good ones were very professional and worked to a high standard. Although, they commented, there was a need

for them to be involved in refresher training courses and for them to submit reports early. The poorer ones, they explained, do not always make the most appropriate examination. They finally concluded that the public sectors had suitably experienced reporting officers, but more recently some what less experienced personnel had been reporting cases. 17.6% of the overall respondents stated that the police did not usually have time to examine sufficient suitable material submitted for examination and that a wide range of casework was not often handed by smaller laboratories. They further added that "less experience is gained in a given time" and that public scientists were good scientists but under poor management. 5.7% of the respondents mentioned that public laboratories were unwilling to state positive opinions and they always weakened the evidence. They finally sustained their view by an example. As they mentioned, "fingerprint identification is now a complete shambles because of reduced standards". The remaining 5.7% of the respondents said that they had not had much personal experience with public sector laboratories and that, occasionally, they were asked to comment on reports/statements generated from their laboratory. However, they explained, published papers by those scientists were, in general, technically clear and useful observations were made.

When the UK QDE respondents were asked whether they received exhibits adequate for further analysis, 53% of the respondents were satisfied with the quality of items they received in their laboratories whereas, 17.6%, were not. The latter respondents said that sometimes the police had difficulty obtaining suitable handwriting samples and this was not usually their fault. As they explained, public sector reports lacked explanation with only brief forms. They added that they also received complaints from the legal profession about public scientists not sufficiently educating counsels as to the essential consideration of matters. Another 17.6% of the respondents indicated that, although they had often received inadequate, incomplete or unsuitable exhibits supplied by the police, they worked on with the materials submitted and mentioned the problems associated with exhibits in the final report before the release. They explained that in many cases they requested further exemplars, however, they got unwanted materials which often enabled them to form an opinion of greater strength than prosecution experts.

This as they finally stated, "would usually make a stronger case against the defendant." 11.8% of the UK QDE respondents did not participate in this question.

4.3.2.2.2 Responses of medical examiners and pathologists

46.1% of the UK respondents viewed the prosecution medical expert's practice as being of a high standard. 23% of the respondents though had a different opinion. As they mentioned, miscarriages of justice always resulted from public sector practice. They further illustrated their view by mentioning the poor quality standard of practice which took place in the early 1970s. They finally explained that "if adversarial experts were not there, mistakes in the public sector practice would never have been identified." It is curious though that 30.9% of the respondents did not participate in this question.

With regard to the quality of exhibits they received, only 7.7% of the respondents participated in this question and they viewed the standard of SOCOs in handling forensic evidence, as being more than satisfactory.

4.3.2.2 Discussion

It is clear that there is a difference between the two private groups in respect of their opinion towards the level of competence and experience of their public sector counterparts. All of the Arabic private sector respondents considered them inexperienced and unqualified and that public QDEs needed to be involved in continual training and development. Whereas the majority of the UK independent QDE respondents and 46.1% of their regional medical practitioners considered their public counterparts as being experienced with a high standard of practice. The most common problems associated with police expert's practice as viewed by the private sector respondents are as follows:

4.3.2.3.1 *Difficulties within public sector forensic practice*

4.3.2.3.1.1 Problems associated with casework rate

- *Developing skills and experience*

Ansell explained[457] that question document examiners, who act for the defence, were shown to be more effective professionally because of being self-taught which, over the years, had developed experience. This level of experience was viewed[458] as important in that it lessens the risk of potential mistakes in the practice. On the other hand, Ansell added that public forensic practitioners who are trained once could not reach this level of experience.[459] There are two issues regarding Ansell's comments; first, his statements were not sustained statistically and were only a matter of opinion. Can it be ascertained that the more years in practice the less the likelihood of mistakes? Secondly, he did not make a distinction between experience and expertise. The level of professional standing or qualification (academic courses, specialist training courses, readings, etc.) determines expertise or specialist knowledge in a particular area, whereas experience can be developed by actively being involved in casework for a number of years. Surely, having both is essential to improve professional skills. The question once again is, can expertise be developed only through involvement in a limited number of caseworks? In order to discuss this issue further it is important first to view the difference in casework rates between private and public sector forensic practice. The difference can be illustrated from the interviews which were conducted in the three regional countries. All of the interviewees who operate in single-person organisations mentioned that they carry out 30-60 cases per annum. In contrast, forensic practitioners working in the public sector carry out cases ranging from 300–500 per annum. This suggests that although having many years of experience, private sector experts may not have the chance to develop their expertise because of limited caseworks providing of course that these experts were not involved in any professional activity while in practice. On the contrary, the increase in caseload within the public sector practice can provide the opportunity to develop skills especially if practitioners were supported by a course of study and involved in ongoing training courses. V (interviewee from Kuwait) described the impact of the increase in caseload within the public sector from a different perspective. As he mentioned, when cases were limited in the past, the development in professional expertise had gone along with the existing resources and casework rate and there was accessible training courses for the limited staff in practice. He further explained that the new change in the nature of

crimes resulted in the development of new forensic disciplines and each discipline had different areas of speciality which in turn increased the need for specialist expertise. This demanded an urgent need to recruit scientists which, in turn, satisfied the demand for an increase in casework rates. However, he said, the quality of the service was affected for two reasons; poor selectivity and decrease in specialist training courses. For the former, the rapid increase in caseload necessitated managers to randomly select individuals without considering the professional standing which, in turn, directly affected the quality of scientific evidence. For the latter, the rapid increase in recruitment affected the capacity of budget granted for training courses which is an essential part for developing expertise- especially for the new recruits.

- *Continuing development*

It can be argued that the increase in caseload may also decrease the chance of involvement in continual development. Chisum explained[460] that the increase in caseload within the state forensic laboratories increased specialism which, in turn, decreased the time required to update general forensic knowledge. There are two issues to be discussed regarding Chisum's statement. First, it is not clear whether he related the increase in specialism as a result of an increase in crime rate or in crimes of a different nature. It is known that forensic science has become more specialised. However this has not occurred as a result of an increase in crime rate rather as a result of the discovery of new methods of personal identification which, in effect, required the establishment of specialisations in a more narrowly defined discipline. For example forensic medicine, in the past, included forensic pathology, forensic toxicology and forensic psychiatry. The present forensic medicine also includes forensic odontology and forensic anthropology. Secondly, Chisums' statement suggests that there are some commentators who view the increase in caseloads as a hindrance against continuing professional development in this field. What about those who operate in single-person organisations with a limited casework rate, is there a time constrain to involvement in ongoing professional activities?

- *Turnaround Rate*

The increase in caseload within the public sector practice may also have an affect on the turnaround rate and this was seen to be a problem by 25% of the UK respondents. In fact, the need to enhance turnaround rates was mentioned by Lord Aulds in his report on the English criminal justice system.[461] The problem of turnaround rate within the state forensic practice is inevitable as there are certain tests requiring considerable time. The attention rather should be towards the quality of the final report. In other words, focusing on turnaround rate together with an increase in caseload may lessen the ability to write proper scientific reports while the engagement in limited casework is an advantage to attain high quality and detailed forensic reports.

The argument as to whether casework rate can have an affect on the development of expertise or skills and whether experience can substitute academic learning are areas of interest which should be further tackled. The continuous increase in caseload within the public sector forensic practice however is inevitable and therefore the delay in turnaround of casework or difficulties in engaging professional activities is understandable. The question which must be asked though is whether raising standards of professional expertise and having many years of experience in the profession are of greater benefit to develop technical competence. In simple words, the debate should focus on the quality of the evidence which a qualified expert offers. This issue was covered in section 4.4.2.

4.3.2.3.1.2 Speciality and discipline

25% of the Arabic private medical practitioners in this section said that their public sector counterparts lacked speciality and that they lacked discipline. The first theme is the distinction in speciality in the forensic medicine discipline (medical examination and pathology) which exists among the medical practitioners of the UK, but not among their Arabic counterparts. As, A (interviewee from Kuwait) explained, "unfortunately there is no speciality in our work, and those who conduct autopsy examine live victims as well". Again, there is a difference between these two branches of medicine as they pertain to the forensic practice. One similarity between the two is that they both engage in the process

of interpretation of wounds and injuries. For this reason, B (interviewee from the UK) recommended the integration of these two branches of medicine and those who conduct forensic autopsy should also examine live victims. He explained that by, interpreting wounds and injuries of rape and sexual assaults, a pathologist builds up his interpretation skills in post-mortem. He further illustrated his point by an example. As he mentioned, although never exposed to forensic autopsy, police surgeons in the UK attend death scenes to determine whether the case in question involves criminal death. In the meantime, as he said, not all criminal deaths require wounds and injuries interpretation. He finally recommended that medical examiners and pathologists should interchange practices for several years and then specialise. In fact, this could be a solution to the present shortage in forensic pathology in England which was seen to be the result of the need for a high standard of qualification[462] and, at the same time, lack of professors in forensic medicine.[463] Issues relating to speciality in the forensic medicine practice are seriously discussed within the UK forensic community. In fact, this concern went further to recommend that forensic autopsy should be more narrowly defined. Prof. Forrest explained that there is in need for a group of pathologists to investigate "drug abuse death", others "infants' deaths", for example.[464] It appears once again that the Egyptian private medical practitioners overlooked the fact that they carry out cases involving both pathology and medical examination yet they ask for speciality within the public forensic medicine practice.

The second theme is relating to the need for forensic discipline amongst the Arabic public medical groups, the Arabic private sector group commented. The findings of this study show that the majority of the Kuwaiti and Egyptian public medical practitioners had both academic and specialist training courses in the application of medicine to the forensic work prior to commencing casework. This is in contrast to all of their regional private sector counterparts who were trained only once and by a more experienced colleague when they were previously working in the public sector. Again, experience alone is not specific enough to indicate that an individual is qualified to undertake forensic work[465] Experts giving evidence in criminal courts should be professionally qualified in their defined discipline.

4.3.2.3.2 *Defence experts and the adversarial application of criminal procedures*

4.3.2.3.2.1 Pre-trial disclosure of reports

In this section, the private groups have a different opinion in respect of items received for further analysis. The majority of the Arabic private QDEs stated that they had never received an original copy of suspected documents in a questioned document case compared to the majority of the UK respondents who stated that the document evidence they received was sufficient for analysis. However, this may not always be the case as 17.6% of the UK QDEs explained that the public reports lacked adequate explanation, and sometimes they received inadequate exemplars sent by the police which enabled them to form an opinion of greater strength than prosecution experts. This may be related to problems of disclosure within countries practising the Anglo-American system of procedure. This subject is not relevant to the topic of this study. However, since it is listed as a problem by some of the UK respondents, it is worth shedding light on the nature and the extent of such a problem within the private sector who practise in a traditional adversarial legal system and to further investigate this problem in Kuwait as a country practising the inquisitorial application of criminal procedures.

Gallop stated:

> "Historically, private practitioners in the criminal field have worked mainly for the defence. This is because, until relatively recently, police science was the sole preserve of the public sector. However, things have changed and opportunities now exist for the private sector to exert its influence right across the board."[466]

This may indicate that defence and prosecution expert witnesses in the UK share similar opportunities in terms of access to case development. However in the UK, it was proven in many cases that non-disclosure of material evidence on the part of the prosecution not only questioned the safety of a conviction[467] but also was a reason for miscarriages of justice.[468] Suppression of material evidence in the UK was seen to be against the fairness hoped for in the adversarial legal system.[469] Therefore, full disclosure of evidence materials on the part of the prosecution "has been the subject of development over the last 20 years"[470]. According to the Criminal Procedure and Investigation (CPI)

Act of 1996[471], UK, the prosecution must disclose to the defence all relevant and unused materials whether such materials have the tendency to incriminate or exculpate the accused in the case in question. In legal terms, although such right is mandatory[472], it is still debatable whether the CPI Act of 1996 was in place or rather was "applied properly."[473] In fact, the accused's right for a fair disclosure in the UK is further protected under the European Convention on Human rights.[474] Similarly, in the U.S., although prosecution disclosure of evidence material to the defence including the results of proficiency tests is a legal requirement[475], a study revealed that "49% of expert respondents stated that attorneys had withheld relevant data from them[476]". This of course may affect the normal flow of the criminal investigation process.

In Kuwait, however, the suppression of material evidence is not an issue. It has been said that the inquisitorial legal system "should guarantee the rights of the defence and avoid the problem of disclosure". This is evident in Kuwait as the defence can have the chance to prepare for adversarial debate before trials based on reviewing the 'written file'. In fact, this file includes a record of the police investigation and interrogation of accuseds and witnesses, the agent of the public prosecution, detention and of the initial inspection of scenes of crimes including scientist's reports. The prosecution relies on this file in the process of establishing the facts.[477] Article 40 of the Kuwaiti Law of Criminal Procedures and similarly, Article 31/2 of the Egyptian Law of Criminal Procedures were very clear on allowing the agent of the public prosecution to attend the initial investigation of crime scenes in order to prove that the elements of a crime (the place, date, time ..... the crime was committed) were met.[478] The Kuwaiti legislature further advised the agent to seek relevant specialist expertise to conduct forensic examination of evidence recovered from crime scenes.[479] It is obvious that the Kuwaiti legislature followed the public prosecution system.[480] According to Decree No. 167/1963 of the Kuwaiti constitution:

"The Public Prosecution Office shall conduct penal charges on behalf of society. It shall supervise the affairs of the judicial police in the enforcement of penal law, the pursuit of offenders and the execution of judgments. Law shall regulate this body, lay down its duties and define the conditions and guarantees for those who assume its functions."[481]

It can be seen that agents of public prosecution in Kuwait have the power to direct and supervise police investigations and to interview witnesses or accuseds. This overriding duty in the investigation process is undertaken by the '*Procureur*' or the investigating magistrate in the French system and, similarly, they use the criminal file which is known as '*Dossier*'.[482]

The trial judge in Kuwait, as part of the preparation process, reviews the written file. This right was announced by the Supreme Court judgement that:

> "...the court has to reach its conclusion based on logical accepted evidence which was presented during the investigation and trial, and which has a foundation in the papers of the case."[483]

Since the written file is eventually within the discretion of judges, this guarantees pre-trial access to it by defence lawyers, a commitment which facilitates a fair chance to prepare for adversarial debate. A Kuwaiti defence lawyer in an interview with a journalist said that such an obligation decreases the risk of "surprises" at trials and minimises the danger of non-disclosure of exculpatory evidence.[484]

4.3.2.3.2.2 The role and the importance of adversarial experts

Some of the Arabic and UK private QDE respondents mentioned that they had never received items from the public sector, but do interpret reports generated from their laboratory. Given that there are complications in the private sector practice especially their appointment late in the proceedings, exhibits were already examined and analysed, and the police experts were assumed to have taken all efforts that tend to secure physical evidence. For example, one part of any forgery case is often to take a copy of the original document(s) or handwriting(s). Other forensic evidence may coexist with the original documents and therefore, is often dealt with in a way to preserve contaminants such as latent fingerprints, biological evidence or trace evidence. In cases involving latent fingerprints, after the recovery of fingerprint impressions (which might require ninhydrin), handwriting examination takes place. Thereafter, private experts provide their scientific opinion based on the final report conducted by the police experts, a copy of the originals, or both. The aim is to check analytical results undertaken by prosecution

experts and, if necessary, carryout further tests needed; clarify the strengths and weaknesses of prosecution expert's findings and explain the significance of scientific findings to the case in question.[485] This means that defence experts play the role of monitors of police expert practice, and the very nature of their duty is to discover any flaws in the procedures and methods used by the opposing experts.[486] As J (interviewee from the UK) explained, the beauty of the adversarial legal system was that scientists were challenged in criminal courts by opposing scientists which gave rise to lots of reforms in the forensic practice. This type of checking by adversarial experts was found to be effective in ensuring "safer verdicts", "safer science" and "saving public money".[487] In fact, 23% of the UK medical practitioners in this section stated that mistakes within the public sector practice would never have been discovered if they were not challenged by defence experts. As Gallop put it:

> "While many examples of poor practice have occurred in the private sector, the fewer but more high profile ones have involved scientists in the public sector working for the police. This is undoubtedly because work for the police formed part of the evidence on which people were convicted, whereas poor practice among independent scientists might merely have resulted in unsustainable challenge at best or wrongful acquittal at worst – neither of which might be of much interest to the press."[488]

In another article, Gallop further mentioned:

> "It is important that at some stage a similarly well-qualified forensic scientist checks to make sure that the conclusions the police/Home Office scientist may have drawn from this findings are sound in the context of all the circumstances of the case and that there is no obvious alternative and innocent explanation for any of them."[489]

The importance of having a system allowing adversarial experts can be further illustrated in the following criminal cases which took place in the UK. In a child death case[490], prosecution pathologist interpreted the wounds and injuries on the child's body to be as a result of parental abuse. The father of this child claimed that the family dog was responsible for these wounds. The parents were sentenced to life imprisonment on the basis of the police pathologist's findings. This conviction was quashed after five years

when new clues were discovered challenging the initial pathological evidence. The defence pathologist gave new evidence relating to the manner of death which was in agreement with the father's assertion that his daughter was attacked by the family dog. John Hemphill v HMA[491] was another case which took place in Scotland. The time of death was crucial in determining the defendant's involvement in this case. The defendant was convicted of murdering his girlfriend in 1995. The defence in 2001 raised an appeal on the grounds that the time of death estimated by the prosecution pathologist was questionable. The defendant was accused of shooting his girlfriend three times, and the prosecution pathologist testified that the blood on the defendant's jacket front was as a result of back splatter due to close range shooting and that death was instant after the shooting. The defence on appeal brought alibi witnesses to testify that the accused was hugging the victim and, as a result, the blood came on to his jacket front. The defence was trying to assert that the accused was not the killer and that he came home, found his girlfriend shot and therefore tried to rescue her. The defence pathologist in this case said that the victim could not have died instantly and that she was alive after the shooting for at least 15 to 30 minutes. He further sustained his findings scientifically explaining that bullet penetration led to the spreading of blood while she was trying to breath. This was the defence theory for the existing blood on the accused's jacket front which was consistent with the alibi witnesses. The accused was acquitted.

In addition to others[492], these were two cases illustrating the importance of adversarial experts and that bad investigation was led by unsound forensic scientific evidence in the early stages of the criminal investigative process. The engagement of competent second opinion in these cases had an important role in the furtherance of justice. In fact, the private forensic practitioners in the UK were described by some commentators as the contributors to the recent development of the forensic profession and that they were the first to request certification.[493] So literature, real criminal cases and the findings of this study illustrate that defence experts in the UK are of a high standard of professionalism. This may cause police experts to become more serious and take the utmost precaution regarding the accuracy of their forensic analysis knowing that their findings, if not accurate, could be challenged. Such a challenge does not exist in the

Arabic region covered in this study. In simple words, had the work of the state Kuwaiti and Egyptian medical practitioners been rigorously checked and scrutinised by defence experts, they would have considered wearing the proper protective clothes throughout death scene examination.

Thus to conclude, the discussion of the forensic practitioners in respect of their attitude towards the evaluation of the level of professional competence reveals general and specific issues of the application of forensic science and medicine as it relates to the delivery of justice. In general, the Arabic public groups viewed the many years of experience of private sector forensic practitioners as an important indicator to determine the quality standard of evidence. In contrast, the Arabic private sector practitioners thought that their public sector counterparts needed to improve their level of expertise. However the findings of this Chapter show that the respondents from the Arabic public sector groups were involved in activities which aid in developing professional skills including their attainment of specialist training courses when they were first recruited. The issue that has to be confronted is, how can the Arabic private sector respondents require something that they do not apply in their practice? Indeed, these respondents were not involved in any professional activity since they had chosen forensic science as their professional career and, unlike the public groups, did not acquire any formal specialist academic qualification and formulated their specialist opinion only through experience. Arguably, since private sector forensic practitioners are not pressured with time, they may have the chance to engage in such activities. Within the private sector groups participating in this study, this type of commitment was seen to be only within the UK groups. The majority of the respondents from the latter groups considered their UK public sector counterparts to be highly qualified but some observations were made relating to turnaround rate and insufficient items received which generally does not necessarily express the level of professional competence.

4.4 Conclusion

In this study, one of the key elements to evaluate the reliability of defence expert evidence in the Kuwaiti criminal justice system was to examine the present standard level of quality of forensic evidence being delivered by these experts and to what extent they have succeeded in performing their role in supporting the administration of justice in Kuwait. Such an examination was seen to be possible by a comparative approach focusing on two important factors - professional standing and practical or technical competence. The most significant findings are as follows.

The respondents from the Arabic public sector groups and the British groups had formulated their specialist opinion through their involvement in relevant professional activities including their participation in professional continual developments. All the activities mentioned indicate that individuals were professionally qualified to undertake forensic work. In contrast, none of the respondents from the Egyptian private sector groups were involved in such activities and they formulated their specialist opinion only through experience. The respondents from this group were found to be isolated from discussions and sharing expertise often available to members of forensic organisations. This has reflected on their understanding of the fact that preserving the integrity of forensic evidence is the most important objective for attending crime scenes. The level of professional standard amongst the British defence experts (in this study) is more advanced. These experts were keen to pursue certification which proves forensic discipline. They either are on the professional register list and/or are members of professional organisations. This type of commitment facilitated their involvement in forensic conferences and ongoing professional training courses including courses relating to their role as expert witnesses in courts as opposed to none of the respondents from the Arabic groups of both private and public sectors.

Quality control, in relation to precautionary measures against contamination in the process of death scene examination, was only witnessed within the respondents from the UK group. These respondents had better met the standards of quality than either of the medical groups from the Arabic region as they had acquired a high level of professional standing which they put into practice. Further, the awareness of following a standard

operating procedure in the laboratory was only identified by the respondents from the Arabic public and UK private groups. One of the benefits of utilising such a procedure is the peer review system. From the professional point of view, the present death scene performance within the Arabic medical groups may indicate that raising the level of expertise may not necessarily lead to competent practice. However the procedures implemented in their laboratories included the system of peer review meaning that their work was at least subjected to professional scrutiny before being released. Compliance with such an important system was seen to be within the laboratory procedure of all groups participating in this study except for the Egyptian private sector groups.

In summary, the findings of this Chapter indicate that defence experts who give opinion evidence in the areas of document and medicine in the Kuwaiti criminal court did not comply with the code of practice set by professional organisations, the code which promotes the establishment of high quality forensic evidence. They were generally not involved in professional continual training and developments and did not have the same level of professional standing as the respondents from the other groups. The methods and procedures they used, and their findings, were not checked by professionals in this field and were uncertified. This encouraged a number of these experts to give opinion evidence on matters outside their professional expertise. There were no indicators that they followed protocols which give rise to quality forensic evidence. Further, there are some observations to be made regarding the Arabic public sector practice. Firstly, both Kuwaiti and Egyptian public groups may need to be involved in ongoing training courses including courses covering expert testimony in court. Secondly, the present quality management system of the medico-legal practice at death scenes within these two groups is also an area of interest which should be enhanced. Thirdly, the process of handling scientific evidence by non-authorised personnel in Egypt is a matter which should be seriously tackled.

The question as to how much bestowal of trust should be placed on the present quality standards being followed by the defence experts who give opinion evidence in the

areas of document and medicine in support of criminal justice in Kuwait needs to be further investigated. The other key element to evaluate the reliability of evidence submitted by these experts is to examine the present court monitoring system by defence lawyers. Such monitoring system and particularly by these lawyers is also vital as there is an increased use of expert evidence by the prosecution in Kuwaiti criminal courts and as the present state medico-legal administration within this country lacks quality management system at death scene examination. In order for defence lawyers to effectively participate in such a system, they are required to have a greater understanding of forensic practice, the degree of understanding which allows them to detect expert evidence of dubious reliability in courts. This will be explored in more systematic fashion in the next Chapter.

CHAPTER FIVE

THE CRIMINAL COURT MONITORING SYSTEM OF EXPERT EVIDENCE BY DEFENCE SOLICITORS IN KUWAIT- A COMPARATIVE STUDY

5.1 Introduction

5.2 The results and discussion of the analysis of the defence solicitors' questionnaire is presented in:

5.2.1 Comparison between defence solicitors in Kuwait, Egypt and the UK in respect of their awareness of forensic science practice

The results are presented in two parts:

5.2.1.1 Factual information

5.2.1.1.1 Years of experience

5.2.1.1.2 Types of casework undertaken

5.2.1.1.3 Kind of criminal cases carried out

5.2.1.1.4 Source of basic knowledge in the field of forensic science

5.2.1.1.4.1 *The awareness of forensic science practice*

5.2.1.1.4.2 *Exposure to forensic science at law school*

5.2.1.1.4.3 *Exposure to forensic science by attending relevant seminar(s)*

5.2.1.1.4.3.1 Type of seminar(s) attended

5.2.1.2 Engaging the services of forensic science

5.2.1.2.1 Consulting forensic experts

5.2.1.2.2 Defence lawyers and scientific evidence in criminal courts

5.2.1.2.2.1 *Cross-examining prosecution expert evidence*

5.2.1.2.2.1.1 The nature of the cross-examination

5.2.1.2.2.2 *Awareness of the chain of custody protocols*

5.2.1.2.2.3 *Assessing the reliability of defence expert evidence*

5.2.1.2.2.3.1 Flaws in the practices of defence experts

5.2.2 Opinion towards the present level of professional competence of forensic practitioners by defence solicitors from Kuwait, Egypt and the UK.

The results are presented in three parts:

5.2.2.1 Opinion on the private sector forensic practice
5.2.2.1.1 Discussion
5.2.2.1.1.1 *Code of professional practice and professional conduct*
5.2.2.1.1.1.1 Experts for hire
5.2.2.1.1.2 *Competent adversarial experts*
5.2.2.1.1.3 *Conflict opinions on the level of competence of defence experts*
5.2.2.2 Opinion on the public sector forensic practice
5.2.2.2.1 Discussion
5.2.2.2.1.1 *Turnaround rates*
5.2.2.2.1.2 *Conflicting opinion evidence*
5.2.2.2.1.2.1 Impartial expert testimony

5.2.2.3 General observation

5.3 Conclusion

5.1 Introduction

Forensic science as a profession is in fact a combination of unrelated fields, science and law. This makes forensic science an occupation that has an immediate impact on society. Legal systems demand that parties' complaints be addressed by court decisions in a prompt and authoritative manner and, in cases involving science, forensic experts who apply natural science in their work are often called upon to assist in the resolution of issues before a court and indeed to provide findings of truth on which these decisions are often based.[494] The legal system in countries practising common law has established rules and guidelines for the admissibility of an expert's evidence and the forensic community have started to set up standards of quality in an attempt to ensure that only reliable forensic evidence can be submitted to courts. Surely the value of forensic scientific evidence not only depends on the accuracy of analytical results and the proper handling of this type of evidence, but also on how evidence is classically presented in courts. Experts are called in courts to testify and lawyers present their observations on an expert's testimony to the tribunal of fact. Lawyers are professionally committed to providing competent legal representation for their clients. Such a commitment requires lawyers to be capable of monitoring the quality of evidence submitted by their own and opposing experts thus having a role in assessing the reliability of expert evidence in courts.

In the UK and the US, the application of sophisticated techniques to forensic science has created confusion among judges who evaluate the admissibility (reliability and relevancy) of expert testimony and juries who weigh scientific evidence. This confusion was found to be as a result of the way the evidence was presented and represented in courts.[495] The impact of forensic scientific evidence on the trier of facts is an important issue and it has been emphasised, "A lawyer who wishes to present a scientific expert owes it to his client and to himself to come to a detailed personal understanding of the scientific principles and methods used and relied upon by his own experts so that he can make a sensible record and persuade the Jury to accept his expert's conclusion on the basis of logic rather than faith."[496] This requires legal knowledge, skill, thoroughness and the preparation necessary for the competent representation of scientific

evidence on the part of the lawyer. However, whether or not lawyers who do not have the proper level of awareness of forensic science practice are able to assist courts in understanding scientific issues and in assessing the reliability of expert evidence, especially in light of recent advances in the scientific techniques used, is a matter of debate which is highlighted in this Chapter.

It has been said that "one problem that DNA testing will not remedy is inadequate legal counsel"[497] and that "Even though DNA evidence has come a long way in the last ten years and many lawyers have a great knowledge about the use of DNA evidence, unfortunately many do not"[498]. This is predictable as a study published by the *Los Angeles Times* found that those who chose the legal profession usually had a social science undergraduate degree and that most avoided high school classes in algebra, differential calculus and statistics.[499] As a commentator put it "I know that it has been said that lawyers know how many beans make five, but I doubt if legal arithmetic extends much further".[500] Indeed, the application of new scientific techniques to forensic science is often unfamiliar territory to lawyers. The alternative is to depend solely on experts for advice. The question though is can they verify this type of advice without having a basic understanding of the science underlying expert testimony? It has been proven in case after case that defence counsels fail to consult competent scientific experts and it was also clear that, in many cases, defence counsels fail to effectively cross-examine the prosecution's scientific experts or to adequately review their reports. As a consequence, innocent people were wrongly convicted because of such incompetent legal representation of their cases by defence lawyers.[501] Obviously, these types of lawyers are not capable themselves of explaining the conclusions of their experts and have difficulty in cross-examining experts called by other parties. In fact, it has been emphasised that effective cross-examination is the best test of "courtroom science" and that lawyers could do this if they sufficiently addressed issues of an expert's credibility and tested the reliability of the scientific evidence presented by their experts. [502] The lawyers' role in testing courtroom science was described as:

> "Our court is like a symphony- the forensic scientist is like a musical instrument while lawyers are like the musician. The musician's skills determine whether the instrument will produce music or simply make noise."[503]

Commentators in the UK recommended that in order for lawyers to achieve such a level of courtroom monitoring skills, they need first to be educated in the science that they represent at trials[504] and "fully understand what the scientific evidence means and feel thoroughly at home with it".[505] It has become clear that commentators in the UK saw that the establishment of registered forensic practitioners was needed as well as the need for forensic science education of lawyers as both are the two key elements required in order to confidently ensure the reliability of expert testimony and the validity of the scientific techniques these experts use. This was in an attempt to lessen the risk of confusion which could occur along with the decision making process when introducing scientific evidence into their criminal justice system.

Up to this point it is apparent that, although judges in countries using common law are regarded as individuals who are guided by laws controlling the use of expert evidence, the rapidly changing areas of forensic science such as with DNA technologies have continued to create the problem in the decision making process of understanding and evaluating such evidence.[506] Arguably, commentators in these countries would not urge lawyers to have a greater understanding of forensic science practice unless they regarded them as individuals who should assist courts in the process of monitoring the reliability of expert evidence. The situation in countries using civil law is no different. It has been said that scientists practising in these countries are not being challenged in courts on issues of quality[507] and that the formality inherited in the inquisitorial legal system was viewed as an obstruction against competent scientific evidence being presented. The deficiency in this kind of challenge has been emphasised to be predominantly concerning the scientific evidence submitted by defence experts. [508] Accordingly, it has been argued "who is to validate the independent scientific advice offered to the accused to enable his/her legal representative to ask the pertinent questions of the state scientists in court?".[509] This was seen to be as a consequence of "a lack of

awareness of the scope and limitations of scientific evidence by the legal profession".[510] This means that like countries adopting adversarial legal system there is an urgent need to improve the process of checking the quality of scientific evidence in courts using inquisitorial criminal procedures and this was seen to be vital in order to promote the establishment of reliable expert evidence. Lawyers are required to grasp the importance of the application of science to criminal cases and to have the knowledge sufficient to test the quality of scientific evidence presented by their experts and to effectively cross-examine expert evidence led by the prosecution. To achieve this level of court monitoring system, lawyers need first to fully understand the science underlying the expert's testimony and have a basic knowledge of protocols and scientific methods undertaken by these experts.

The situation in Kuwait is even worse as judges have fewer alternatives in ensuring the reliability of scientific testimony. In criminal proceedings, the determination as to whether the scientific techniques are valid and reliable and therefore whether to admit the expert testimony into evidence are decisions which judges have to make. Yet, the Kuwaiti legislators have not set clear standards or criteria on which judges can rely to ensure that only expert testimony and evidence which is grounded on scientific principles may be presented in court. Even more, unlike in the UK and the US, in Kuwait until recently there has been no authorising professional body or recognised forensic organisation which provided some sort of proof of competent forensic practice and judges alone are relied upon to weigh and to evaluate the effectiveness of sophisticated scientific testimony. Understanding and evaluating this type of testimony is often a heavy burden. Inevitably, courts have began to rely more on forensic experts explaining scientific issues. However how much bestowal of trust should be placed on experts explaining their own scientific findings? It is the duty of the trial lawyers to provide judges with the tools to undertake this burden. Indeed, a reasonable lawyer may need to instil confidence in the decision makers that they can understand and evaluate the scientific evidence presented. That is to say that under the present circumstances in Kuwait, the only alternative available for judges is that the reliability of expert evidence and the validity of scientific

techniques used in forensic laboratories should be trusted and placed on opposing lawyers to bring it to light in the trial proceedings.

In Kuwaiti criminal courts, the increased use of forensic evidence by the prosecution introduced private sector forensic practitioners and this required a greater understanding of forensic science practice by the defence. Given that the defence expert witnesses used in this study originate in Egypt and also provide opinion evidence to the Kuwaiti courts, and that defence solicitors are the direct users of forensic services provided by these experts, the present and recorded level of awareness in the forensic science practice amongst defence solicitors in practice in these two Arabic countries is investigated. Defence solicitors in the UK are used as a baseline to assess the level of such awareness amongst the Arabic defence solicitors. The aim of this Chapter is to investigate whether defence lawyers understand the forensic scientific evidence they represent and cross-examine in criminal courts thus having a role in assessing the reliability of expert evidence. In other words, since this study regarded the Egyptian independent forensic practitioners as individuals who did not meet the standards of quality and some public sector pathologists in both Kuwait and Egypt as individuals who did not follow quality management systems at death scenes, defence solicitors in these two countries are required to have a sufficient level of knowledge in this field which enables them first, to effectively evaluate the quality of scientific evidence presented by their own experts thus countering potential challenges by the prosecution and secondly, to effectively identify any weakness in the procedures and methods undertaken by the prosecution experts. By achieving this level of involvement in court monitoring system, defence lawyers have satisfied their professional commitment in providing competent legal representation for their clients.

The organisation of this Chapter is in three main parts. First, the level of exposure to the field of forensic science amongst defence solicitors in correlation to years of experience and to the nature of cases lawyers carry out and whether these cases are in accordance with the type of expertise they consult is examined in section 5.2.1.1. Secondly, to what extent acquiring the proper level of knowledge in this field can help

lawyers in assessing the reliability of scientific evidence presented by their own experts and in the same interest can defence solicitors, who do not have adequate understanding of forensic practice, thoroughly check scientific evidence led by the opposing party (section 5.2.1.2.)? Thirdly, the defence solicitor's attitude towards the current quality of forensic science services provided by both state and private forensic practitioners and how they generally perceive forensic science is discussed in section 5.2.2. In addition, this chapter highlights the reason why private forensic practitioners were only recently introduced to the Kuwaiti criminal court proceedings despite the right for a defence expert opinion being available since the 1960's. Steps which would improve the present level of understanding of the forensic science practice amongst the Kuwaiti defence solicitors were also considered during the discussion sections of this Chapter.

The data gathered from the questionnaires are organised and listed in tables in Appendix C, while the questions asked are organised in subsections in this Chapter. Interviews were conducted with members of the legal profession in Kuwait, Egypt and the United Kingdom. These included judges, defence solicitors, advocates and the Crown prosecution Service. A copy of the questions used in interviews is shown in Appendix D. The answers received are used, as appropriate, to illustrate various aspects of the discussion and for reasons of confidentiality, interviewees are listed by letters.

Finally, issues are discussed including those which relate to the validity of the gathered data. Cross- tabulated figures, where appropriate, were used to establish the consistency and reliability of data gathered. The significance of statistical findings obtained from data is also discussed, as appropriate, during the interpretation of the results.

5.2 The results and discussion of the analysis of the defence solicitors' questionnaires. (Tables 5.1 – 5.13, Appendix C)

5.2.1 Comparison between defence solicitors in Kuwait, Egypt and the UK in respect of their awareness of forensic science practice

5.2.1.1 Factual information

Section 5.2.1.1 investigated the level of exposure to the field of forensic science amongst the respondents in correlation to years of experience and the nature of cases lawyers carry out and whether these cases are in accordance with the type of expertise sought by respondents.

5.2.1.1.1 Years of experience (Table 5.1)

The respondents were asked to mention how many years they had been in practice. There were few differences in the years of experience among the respondents from the three countries except those having 20 years or more experience constitute 30.4% and 19.4% of the respondents from Egypt and Kuwait respectively in comparison to 6.4% from the UK. Three times as many UK respondents have 15-19 years compared with the Kuwaiti respondents and almost five times as many UK respondents have 15-19 years compared with their Egyptian counterparts.

5.2.1.1.2 Types of casework undertaken (Table 5.2)

Although defence solicitors targeted in this study were only those working on criminal cases, a difference was found in respect of the type of case undertaken by the respondents of both Arabic and British groups. The majority of the respondents from Kuwait and Egypt undertake both criminal and civil cases compared with all of the UK respondents who only undertake criminal cases. Another difference was in respect of carrying out criminal cases in relation to years of professional experience. By applying cross-tabulation data, it was found that the majority of the respondents from Kuwait and Egypt had less than 14 years' experience in criminal litigations compared with more than 15 years within the UK group.

5.2.1.1.3 Kind of criminal cases carried out (Table 5.3)

The 'other' box for the Kuwaiti respondents included bribes, abortion, firearms and medical errors and for the Egyptian respondents included prostitution, firearms and tax smuggling. This question was structured to test the validity and reliability of data gathered and individual 'civil' casework as response options even though the question specifically stated 'criminal' casework. Cross tabulation of the results of table 5.3 with the findings of table 5.2 was needed in order to establish whether those who stated that they only carry out civil cases also answered the question- thus potentially introducing some degree of error in the responses. Only two of the respondents from the Kuwaiti group who stated that they only undertake civil cases, mentioned that they carry out criminal cases involving homicides, sexual assaults, rape, drug abuse, forgery and/or document alteration, arson and explosions. The small number of responses indicates a good degree of validation of data obtained from these questions.

5.2.1.1.4 Source of basic knowledge in the field of forensic science

Tables 5.4 – 5.7 demonstrate the levels of exposure to, and knowledge of, the field of forensic science amongst defence solicitors.

5.2.1.1.4.1 *The awareness of forensic science practice* (Table 5.4)

Respondents were asked to mention if they had knowledge of forensic laboratory practice and crime scene investigation. Cross tabulation of the results obtained from table 5.4 with the years of experience was needed to establish which country has taken the initiative to produce lawyers educated in the field of forensic science. It was found that within the UK group who stated that they had knowledge in the field, 31.8% had 20 or more years of experience, 45.4% had between15-19 years, 13.6% had between10-14 years and the remaining 4.5% had between 5-9 years of practice. Of corresponding respondents from Kuwait, 21% had 20 or more years of experience, 15.7% had between 15 –19 years, 15.7% had between 10- 14 years, 21% had between 5-9 years and the remaining 26.3% had less than 5 years of practice. It is obvious that the UK is ahead of time in producing

lawyers with sufficient knowledge in this field providing that all of the legal respondents from the three groups are from 36 to 47 years old.

When similar comparisons were made between the three groups who had been exposed to the forensic sciences, the results reveal that there were some fluctuations in respect of the correlation between years of experience and exposure to the field among the respondents of the Egyptian and the Kuwaiti groups (See Figure 5-1).

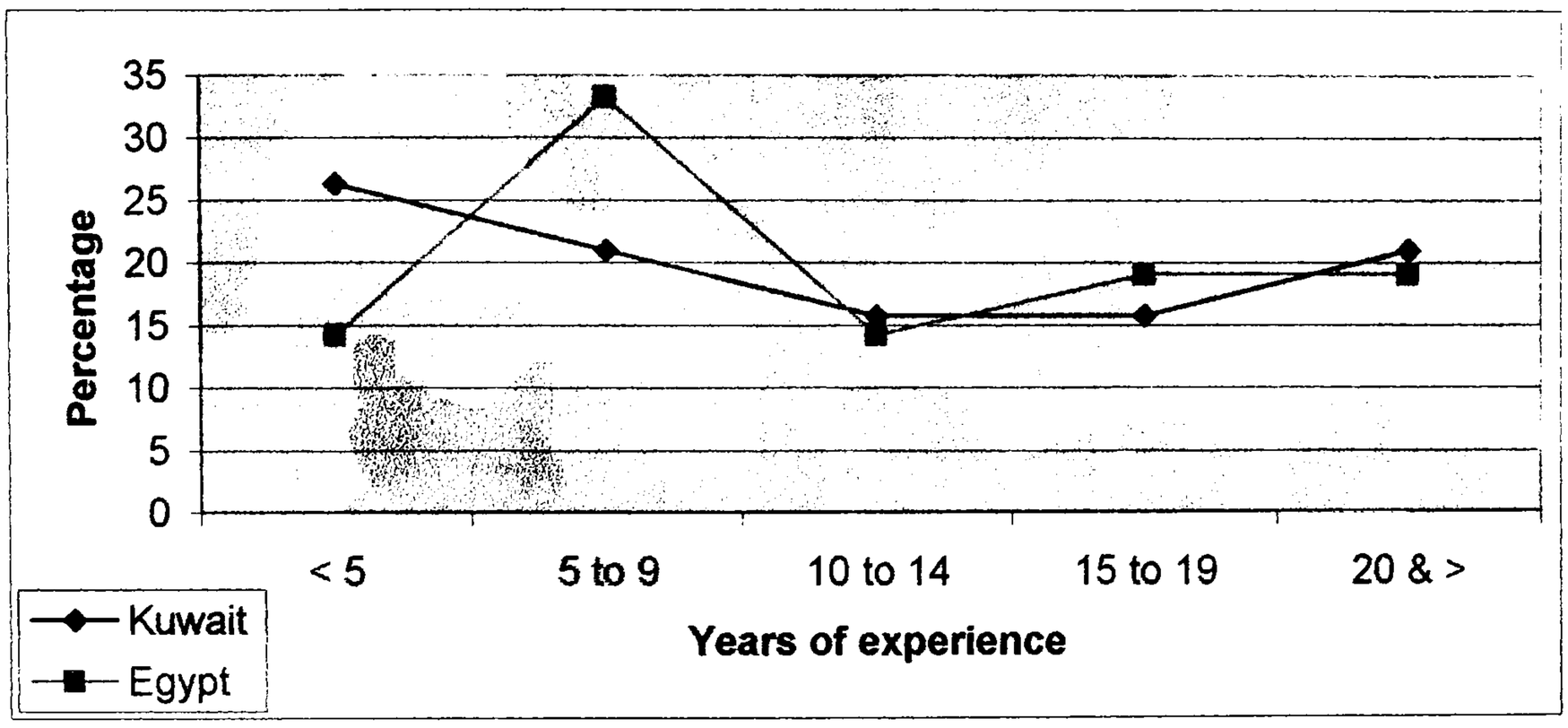

Figure 5-1: Years of experience among the respondents (Kuwait and Egypt) who have forensic science knowledge.

Within the Egyptian respondents, a peak can be seen amongst those who had between 5 and 9 years of practice compared with others indicating an increased awareness of forensic science amongst these respondents. In comparison, a gradual decline in forensic awareness is in evidence amongst the Kuwaiti respondents as their years in practice increases, rising slightly amongst those of 20 years or more experience. This variation of the responses from both countries might illustrate that gaining knowledge in this field may depend on the individual's efforts.

Of the Kuwaiti group who did not have awareness of forensic science practice (47.2%), 17.6% had 20 or more years' practice, 41.1% had between 10-14 years, 29.4% had between 5-9 years and the remaining 11.7% had less than 5 years' experience in the profession. Forensic science has only recently become a part of the law degree in Kuwait. This may explain the reason why the majority of Kuwaiti respondents who have no knowledge of forensic science had more than 10 years of practice.

5.2.1.1.4.2 *Exposure to forensic science at law school* (Table 5.5)

Of the respondents from Kuwait who stated that forensic science was a part of their law degree (27.8%), all had less than 9 years of practice thus reflecting its comparatively recent introduction into the Kuwaiti legal courses. This may also explain why only recently private forensic practitioners have been introduced to the Kuwaiti criminal court proceedings by defence solicitors despite the right for adversarial experts being available since the 1960's. Although in the UK and Egypt only some law degrees offer an optional forensic science course, the findings of table 5.5 illustrate that respondents from these two countries were keen to include such a course into their degree education.

In Kuwait, Egypt and the UK, an academic course in forensic science and forensic medicine is not mandatory for graduation, however it is compulsory for newly graduated lawyers who wish to join the prosecution services. It has to be mentioned that 'equality of arms' is an issue in this regard. This course is being funded and organised by the Procurator Fiscal Office in Scotland and by the Ministry of Justice in Kuwait and Egypt. The situation for lawyers who act for the defence is different as they face difficulties accessing such a course after graduation from law school. For example, in Kuwait, according to Decree No. 37/94 concerning the establishment of the Institution of Judicial and Legal Studies[511], Article (2) says:

> "The Institution shall look after the preparation and training of members of the prosecution service. This should raise the level of their professional skills. The institution shall also ensure that members maintain competence by organising continual training courses. This should raise their ability to grasp the new developments in relevant areas. The aim is to achieve a competent prosecution service."

This Institution was established in 1994 and in 31/1/2001 a Decree (No. 30/2001/Kuwait) was issued regulating the establishment of a committee to organise specialist training courses for members of the prosecution service. Forensic science and forensic medical studies are both listed in these courses. The organisation of these courses was clarified by -N- (interviewee from Kuwait). He explained that the Institution facilitates training courses in forensic practice which, over a period of 78 hours, involves

a theoretical and practical introduction to the field covering all of its disciplines. He commented that such a specialist course is only available to the prosecution and, as a consequence, defence solicitors may not achieve the same degree of understanding of forensic practice. This illustrates once again that the exposure to this field amongst defence solicitors depends on personal efforts.

5.2.1.1.4.3 *Exposure to forensic science by attending relevant seminar(s)* (Table 5.6)

The respondents were asked to mention if they attended forensic seminar(s). Cross tabulation of the 'NO' responses of table 5.6, with the responses indicating that forensic science was not a part of the law degree, can establish the individuals' exposure and evaluative skills with respect to scientific evidence. This is also aimed at establishing whether the respondents depended solely on forensic experts to translate their scientific findings rather than attaining some level of understanding of the underlying rationale of forensic investigation themselves. It was found that the Kuwaiti respondents who did not attend forensic seminars were not exposed to forensic science at law school. This compared with 40% of the Egyptian group who stated that forensic science was a part of their law degree. Within the UK group who did not attend forensic science seminars, 76.9% stated that they were exposed to the field of forensic science in law school. This raises a question in respect of the ability of defence lawyers, who have not had exposure to forensic science, to understand the science underlying an expert's testimony in order to confidently test the reliability of the scientific opinion presented by their and opposing experts. An alternative for these lawyers is to engage private forensic experts to explain the scientific findings and scientific methodology used in analysis where they may hear impressive sounding science when, in fact, it is not; and obviously issues relating to competent forensic practice may not be discussed. In fact, the level of exposure to forensic science amongst the Egyptian respondents may be reflected in the types of question they asked in court as 85.3% of the Egyptian public sector pathologists mentioned that they were questioned on issues relating to the methods used in laboratory analysis where as none of the Kuwaiti public pathologists were asked the same question (see Table 4.25). Further, since this study showed that there was a high risk of evidence

contamination under the present procedures followed by Kuwaiti state pathologists at death scenes (see Table 4.12), Kuwaiti defence lawyers need some mechanism to expose this error in practice and those without any knowledge of forensic practice may require competent private forensic practitioners to confidently achieve this.

The findings of this section also show that, of the Kuwaiti and Egyptian respondents who attended seminars relevant to forensic science practice, 71.4% of the Kuwaiti group and 62.5% of the Egyptian group were among the respondents who had forensic science in their law degree. All of these respondents had less than 14 years' practice. Again, this may illustrate that defence solicitors who are newer in practice are more enthusiastic about having a greater understanding of forensic practice.

5.2.1.1.4.3.1 Type of seminar(s) attended (Table 5.7)

The respondents were asked to mention the main focus of the forensic seminar(s) they attended. The 'other' box refers to a seminar entitled "forensic medicine examination between the prosecution and the defence" (7.1% Kuwait), a seminar entitled "how to investigate forensic evidence" (12.5% Egypt) and seminars entitled "benefits of forensic science and nature expertise", "forensic autopsy and injuries interpretation" and "quality management in crime scene investigation" (22.2% UK). It is the defence lawyers' professional duty to check the effectiveness of protocols and guidelines police scientists use in their practice. This is important as these scientists attend crime scenes in the early stages of criminal investigations with the potential of impact on the quality of forensic evidence if precautionary measures are not taken at this stage. This should ideally include understanding the procedures which would preserve evidence integrity and minimise contamination and this might not be achieved if the appropriate protocols were not strictly upheld from crime scene to court. Defence lawyers need to apply this type of checking in order to satisfy themselves on the competence and the ability of an individual expert to undertake forensic casework.[512] The findings of this section indicate that the level of attendance at forensic science proceedings covering both crime scene examination and forensic laboratory work is relatively higher amongst the UK group and this difference was seen to be significant between Kuwait and UK ($P = 0.058$) and

between Egypt and UK (P = 0.053). These differences indicate that UK respondents are more advanced in this area than either group as they had the chance to focus on issues, not only covering both crime scene and laboratory examination, but most importantly relating to quality matters and the nature of expertise within the forensic practice.

In general, the findings of section 5.2.1.1 show that the respondents from Kuwait, Egypt and the UK had many years of experience in criminal litigations. The type of criminal cases they carried out were of a serious nature (sexual assaults, rape, homicide, arson, explosive, drug abuse, forgery, and document alteration). However the levels of exposure to and knowledge of the field of forensic science amongst the UK and Egyptian respondents is higher than their Kuwaiti counterparts, a difference which was deemed to be statistically significant. This exposure is reflected in the level of forensic science studies incorporated into their law degrees (27.8% of Kuwaiti respondents, 42% of UK respondents and 43.5% Egyptian respondents), a difference which was also found to be significant between the UK and Kuwait, and between Egypt and Kuwait.

Defence solicitors who were interviewed in the UK and Egypt are another example illustrating that defence lawyers in these two countries are more enthusiastic in improving their knowledge and understanding of forensic practice. All of the interviewees stated that they gained the knowledge in the field of forensic science and medicine through their academic studies as a degree course in law school. This is in contrast to 85% of the interviewees from Kuwait. Further, the continued exposure to seminars and training courses relevant to forensic science practice should update their knowledge of new developments in this field. This was in evidence only within the interviewees from the UK who mentioned that they voluntarily attended relevant seminars and specialist training courses, reading text books, research and articles.

5.2.1.2 Engaging the services of forensic science

5.2.1.2.1 Consulting forensic experts (Table 5.8)

The findings of this study show that some Kuwaiti and Egyptian state forensic pathologists do not follow a quality management system at death scenes, others from the

private sector give opinion evidence on matters outside their area of professional expertise and do not meet accepted standards of quality. In addition, some Kuwaiti defence solicitors have never been exposed to the field of forensic science. Given that the only forensic services available to the defence in Kuwait and Egypt are those in the areas of pathology, medical examination, document authentication and handwriting analysis, it is vital to establish whether the private sector forensic practitioners in these two countries are being called upon by defence lawyers to give opinion evidence on matters outside their immediate areas of expertise. It is also important to verify the nature of cases experts were called upon by lawyers who had no previous exposure to the field of forensic science. This may shed light on the difficulties the Kuwaiti criminal justice system face when litigators lack the knowledge necessary to fully understand the scientific opinion which may prompt them to accept rather than question the nature of expertise and the quality of scientific evidence presented.

Respondents were asked to mention the types of cases when they consulted forensic experts. The 'other' box refers to ballistic experts (13.8% Kuwait) and voice identification experts (4.3% Egypt). It is also clear that the increased demand for adversarial experts in Kuwaiti criminal proceedings may outstrip the forensic services currently available. There are some discrepancies between the type of expertise available to defence solicitors in the Arabic countries and in the UK and the types of cases in which expert opinions are sought. Private forensic practitioners have been part of UK and Egyptian legal systems for a long time whereas, in Kuwait, such consultancy is still in its infancy. This may suggest that either table 5.8 contains responses which may be biased in some way or some of the Egyptian private sector forensic experts were consulted in cases not relevant to their immediate speciality. For example, in the process of constructing this research no independent experts were found in Egypt who specialised in areas such as fingerprints, voice identification, footwear impression, arson, ballistics and explosives. Nevertheless, cases requiring such expertise within private forensic practice were found by searching the appropriate court records in Kuwait and Egypt. The shooting case number 14/97 Mena'a Abdullah, Kuwait, 25 July 1997, is an example illustrating a forensic medical examiner giving opinion evidence in ballistics.[513] Case No. 97/98

Jenayat Al-Jabreyah is another example of a medical practitioner giving opinion evidence in arson.[514] In addition, the findings of Chapter Four also illustrate that some Arabic private sector forensic practitioners have been shown to give opinion evidence on matters not relevant to their forensic discipline and without being suitably qualified. In the UK the situation is different as the Directory of Expert Witnesses[515], used in this study for the selection of private sector experts, was found to include all of the areas of expertise listed in table 5.8.

In general, however, the findings of table 5.8 also indicate that the most common expert opinion requested by Kuwaiti and Egyptian defence solicitors correspond to the type of forensic services available to the defence. These include crimes against the person (rapes, child sexual abuse, homicides and aggravated assaults and battery), forgeries and/or alteration of documents. In the UK, however, different types of expertise are available outside the public sector and upon which defence solicitors can rely in constructing their cases. The reason for this may be due to the fact that UK solicitors can easily access independent experts through the large number of forensic organisations available, such as the Forensic Science Service, the Forensic Science Society, the Expert Witness Institution, Forensic Alliance, Forensic Access, Society of Expert Witnesses and independent experts operating in universities and in single-person organisations scattered throughout different areas of the UK. Such forensic organisations do not exist in either Kuwait or Egypt. The limited forensic expertise available to the defence in these two countries may develop closer relationships between the available experts and the hiring party and a risk of defence agents asking experts to provide opinions outside their field of expertise may arise. According to Stockdale, "many of those experts are a mixed bag, others are practising their expertise without any knowledge in the field, and some are advising beyond their field"[516]. Whether this happens may depend on whether the experts are committed to a code of professional ethics which would require them to reject rather than accept such casework.

By cross tabulating the findings of table 5.8 with the findings indicating that respondents have not had exposure to the field of forensic science (see Table 5.4), the following findings were obtained:

First, all of the Kuwaiti respondents consulted an expert in serious cases such as sexual assaults, homicides, drug abuse, arson and explosives. This may suggest that a lack of knowledge in this field among these lawyers encouraged them to accept alleged expertise in these areas and indeed, encourage forensic practitioners to conduct casework outside their immediate specialty in the knowledge that they will face little, if any, opposition. However this could be a point of contention by the prosecution and, as a consequence, the accuseds' right to a fair trial could be at risk. An accused has a constitutional right to a competent defence and if a lawyer who carries out criminal cases involving science does not have the proper knowledge about forensic examination techniques, methods, and forensic expertise, he/she may cause damage for his/her client's case. Secondly, the nature of cases where these lawyers consulted forensic experts involved vital samples that could link individuals to crime scenes such as blood, semen and hair. The use of DNA profiling could prove that these samples are limited to an individual in a given population. The strength of this link is presented in most of the courts by means of probabilities (in Scottish courts for example, the interpretation of DNA evidence is presented by means of likelihood ratio). In other words, the assertion that the accused is the donor of the samples recovered from a crime scene is often presented in courts by means of matching probability. Using match probabilities added new problems into the process as the sensitivity of DNA techniques requires the utmost contamination preventative methods to be taken throughout all the stages of the forensic investigation. However the possibility of defence lawyers without the proper understanding of forensic practice challenging the reliability of DNA evidence in the light of the present practices being followed by some of the Arabic state forensic pathologists at death scenes is in question.

5.2.1.2.2 Defence lawyers and scientific evidence in criminal courts

It is known that a reasonable forensic scientist working in a police laboratory applies science and technology in an attempt to keep the scales of justice in balance. However forensic scientists are fallible and mistakes can happen in their practices. Consequently, it is vital to have some sort of mechanism to detect these mistakes before the release of

their work, notably, through peer review. The argument though is what if this type of professional checking is not available to some forensic practitioners? This requires an effective court monitoring system. At the very least, any reasonable defence lawyer may need to study the police laboratory report with sufficient care so that, if the prosecution advanced a theory at trial that was at odds with a certain type of evidence, the defence would be in a position to expose it on cross-examination.[517] However, the rapid developments in science have created new challenges to lawyers who have to cross-examine evidence involving sophisticated science and indeed present it in a persuasive and understandable manner to judges, who assess the reliability of science, and to jurors who weigh scientific evidence.

Opinion evidence involving scientific sophistication often creates confusion among lay jurors and the judges who instruct them. This confusion is not surprising for members of the jury panel who often have to weigh probability evidence while they may never have been exposed to statistics and often on their first call for jury service. Similarly, judges cannot effectively evaluate the reliability of an expert's scientific testimony alone as they are often not familiar with scientific issues. As Jackson put it:

> "If we do not evaluate results, how do others evaluate them: what framework, what knowledge and what understanding do they have to help them evaluate the evidence in a robust, reliable way?".[518]

Jackson's comment was meant to establish scientists as the individuals responsible for evaluating scientific evidence. However, how much trust and confidence should be placed on forensic practitioners evaluating their own scientific findings especially if it happens that these practitioners operate in single-person organisations and in a country such as Kuwait where a system of professional registration has not yet been established?

The introduction of sophisticated scientific evidence created confusion in UK and US courts. This was seen as a result of the way in which scientists and lawyers in these countries perceived the adversarial approach to criminal trials. It has been said that the introduction of statistical assessment of DNA evidence in courts practising the adversarial legal system increased the potential for confusion which was seen to be created predominantly either by the way experts present DNA evidence or by lawyers'

fallacy.[519] Therefore, there have been several attempts in the US and UK to ease matters of confusion in courts aiming to lessen the potential risk of wrong verdicts. In the US for example some commentators recommended that:

> "It is also the responsibility of the court to try to prevent juror confusion caused by lawyers and experts who sometimes seem unable to explain scientific evidence in a language the jury understands".[520]

This meant that judges should interfere in matters of confusion. However this may require judges who first fully understand scientific evidence. Alternatively, the court appointed expert specified in Rule 706 FRE was introduced to assist courts in the scientific analysis and in understanding the technical issues. It could be argued that judges could also be blinded by science leading them to select the wrong expert for a particular issue. This was a reason to suggest a method called the "Multi-dimensional matrix system"[521]. In this system the criteria for evaluating potential expert witnesses could be appraised based on the following categories: possible conflict of interest, education, publications, experience in forensic practice, in design, in application and in court, technical and safety issues, available support and professional affiliations. This methodology aimed to determine which candidate had attained relevant expertise so that he could be confidently appointed as a court expert. Some commentators saw that court appointed experts may affect the tradition which normally exists in the adversarial system. Therefore, it was suggested that experts called by parties should educate judges in matters of confusion and assist them in choosing the right expert. This adversarial checking was found to be the better solution to ensure the proper selection of an appointed expert.[522] Another attempt in the US suggested educating judges in the scientific reliability of the methodology being challenged.[523] However the introduction of sophisticated science in US criminal courts also created confusion among juries who have the task of weighing scientific evidence. A study in the US has revealed that 27% of American adults face difficulties in understanding scientific inquiries. This means that there is a risk of electing some members of a jury panel from this group. Therefore it has been suggested that the jury should be selected from people who understand the methods and basic findings of science and, in the same way, select judges with a special

knowledge of science. Having achieved this, the duty of court appointed experts is restricted to testing scientific testimony presented by parties.[524] Furthermore, US commentators saw educating lawyers to understand scientific language as vital in establishing effective representation of DNA evidence at court[525] and avoiding future appeals for incompetent defence. [526] Finally, a research by the US National Institution of Justice concluded that having unscientific legislatures as the root of the problem and they "still have legislatures dealing with 8-track tape technology."[527] Therefore it was recommended that "those drafting the laws should be close to those working the crimes... [T] hey do not understand the technology they are writing laws about."[528]

The UK also faces difficulties in trials involving complex science with the same potential for confusion as experienced by US judges and juries. In such trials, it is argued that jury errors are often as a result either of incompetent legal representation or of scientific "malfeasance".[529] As in the US, the tribunal of facts in the UK has become even more confused after the introduction of the statistical assessment of DNA evidence into courts. Therefore, it has been questioned whether lay jurors should attend trials involving DNA evidence.[530] The Royal Commission on Criminal Justice in 1992 submitted proposals after a study on *The Ability to Challenge DNA*[531] which investigated problems associated with the use of DNA profiling as scientific evidence. One of the proposals introduced was to train judges and lawyers in the field of forensic science. This encouraged lawyers to become more interested in learning about the use of DNA results and to view it as a new line to lessen the potential value of evidence presented by an opposing party. This new line is known as lawyers' fallacy. Lawyers in their representation of DNA results by the use of statistics started to manipulate the probabilities in a way which would assist their cases. For example, a DNA expert would say that the chances of the DNA profiling of samples recovered from the crime scene and those of the accused matching is one in a million. With the prosecution fallacy the jury would hear, given that the accused already has a matching profile, the chance that these samples came from somebody else is only one in a million.[532] This kind of fallacy is called 'Numerical conversion error'.[533] It is the probabilistic interpretation of DNA results that led to the lawyers' fallacy being introduced to the UK courts.[534] Given the

nature of the adversarial system, lawyers were viewed as being biased and not seekers of truth.[535] The question arises whether or not lay jurors, judges and lay magistrates can overcome probabilistic evidence in the light of the so called lawyers' fallacy? Coghlan, in his article *Trial by Numbers: You Can't Rely On Statistics Alone*[536], explained that the fallacy being used by lawyers in cases involving DNA statistics could confuse the tribunal of fact and, as a consequence, could result in unsafe convictions. He commented that "at the heart of the problem is the tendency for judges, juries and barristers to think they understand probabilities when they don't." He further stated that "people don't necessarily know what to make of statistics, but it sounds impressive". This was enough reason to call for judges educated in statistical evidence in an attempt to lessen the risk of mistakes in the instruction phase.[537] Lord Auld in his proposals to reform the English criminal justice system also pointed out that courts need to be familiar with and understand forensic science.[538] Therefore, like the US, the UK has seen selecting members of the judiciary and magistracy as a solution to problems associated with the use of advanced science in courts.[539] Another solution proposed that judges in England and Wales may, in the near future, have the right to appoint their own experts to assess issues of statistics and to help discover any fallacies.[540] However it was argued that this solution would have an effect on the formality inherited within the adversarial tradition. The most obvious conflict is the defendant's right to cross-examine expert evidence presented against him. This means that a court appointed expert could limit the right for adversary and thus create complications in respect of the defendant's right to a fair trial.

Other commentators from the UK saw the increased use of statistics by the prosecution in courts required defence lawyers to also comprehend the underlying scientific methodology of statistics.[541] This was seen as being important to circumvent the prosecutors' fallacy. However even in situations where lawyers and judges perfectly understand the scientific methodology of statistics, complications occurred when juries were involved in such trials.[542] Some commentators had proposed a new approach to these problems, an approach which has not yet been proposed by the US legal and forensic communities. It has been said that, since confusion in courts is as a result of the way in which science is presented, the forensic profession should come up with some

mechanism to ensure the courts competent presentation of scientific evidence.[543] The UK government saw the CRFP as the appropriate mechanism.[544] It has been emphasised that an individual DNA expert on the register (after passing the reviewing process of their previous DNA casework) had been listed as competent in the application of DNA technology in the forensic science practice at a particular point in time.[545] This means that being on the competence list does not necessarily give an impression of the future. For this reason, the CRFP considers re-assessing competence at regular intervals.[546]

All of these proposals to rebalance the criminal justice system were instigated in an attempt to avoid confusion in the deliberation processes of trials. It is obvious that, although judges practising in common law countries are regarded as individuals who are guided by the laws of the evidence, complications do occur when science is applied to solve legal disputes. The situation then in a court where these laws do not apply could be even more complicated. It could be argued though that judges in Kuwait have more experience in dealing with courtroom science as they had accumulated knowledge over a period of time, whereas, juries in countries practising common law may be exposed to courtroom science only once. However the rapidly changing areas of forensic science is yet a problem facing Kuwaiti judges and the proposal concerning the establishment of judges educated in science cannot realistically be achieved in the near future. Since the confusion in courts was viewed as being predominantly the result of the way in which science was presented, the focus should be on the effectiveness of protocols and guidelines which forensic scientists follow in their practices and the training of lawyers on issues relevant to courtroom exhibits so that they have the long-term responsibility in assessing and cross-examining science in courts. Certainly improving the court monitoring system and its benefit on the quality of forensic evidence must be in the interest of justice.

The preceding information investigated the nature of expertise consulted and the level of exposure to forensic science amongst defence solicitors who participated in this study. The following sections will investigate whether those who have adequate knowledge in this field can effectively check the quality of scientific evidence led by the opposing party. In addition, to what extent did acquiring the knowledge help lawyers in

assessing the quality of opinion evidence presented by their own expert's witnesses thus avoiding potential challenges by the prosecution. Cross tabulation was used in order to establish whether the ability to assess the competency of forensic practitioners through effective cross-examination was different between lawyers with some forensic science training and those with none.

5.2.1.2.2.1 *Cross-examining prosecution expert evidence* (Table 5.9)

According to M. Hammer:

> "Lawyers frequently admit that they mentally switch off from the forensic evidence at a trial and that barristers avoid asking detailed questions of forensic witnesses for fear of asking one question too many. The fear of forensic science among lawyers runs from bottom to top of the legal profession."[547]

It has been said that "a number of lawyers admit they regard forensic scientific evidence very much as a closed book, dealing with it as quickly as possible and avoiding tackling it head-on".[548] Clearly, these lawyers face difficulties challenging science and alternatively may attempt to undermine the credibility of the scientist. As Pitluck put it "if you cannot attack the science attack the scientist".[549] This raised the question how lawyers could, without being exposed to forensic science courses or training, deal with scientific evidence[550] and participate in testing the quality of this type of evidence in courts? At the summer meeting of the Forensic Science Society in 1991, Gallop stated that:

> "It is important in this adversarial system of justice of ours for defence to have the opportunity to be made fully aware of the strengths and weakness of the scientific evidence; in order to probe the weaknesses just as a prosecution can build on the strengths. In this way, a balanced picture should emerge at court for the jury (the final arbiter on the matter) to weigh and consider, along with all the other evidence presented."[551]

The influence of defence lawyers who understand the forensic practice on the quality of scientific evidence has been looked into: "If we advocates have not performed our job effectively then a vital component safeguarding the quality of your work will have been lost – the quality of our advocacy matters to the quality of your science. I

would go further and suggest that the most important component in the forensic process in an adversarial system is the quality of the advocacy."[552] This requires lawyers who firstly fully understand the subject matter they are willing to challenge. However in Kuwait, as far as this study shows, scientists are not being challenged in court about their credentials and the nature of their expertise, and tables 5.9 and 5.10 will establish whether state scientists are being questioned in courts about the science they apply to forensic practice and issues relating to the quality of forensic evidence submitted.

The respondents were asked to mention if they rigorously cross-examined scientists in issues relating to forensic work. It was found that of 67.7% of UK respondents and 56.5% of Egyptian respondents who cross-examined forensic evidence led by the prosecution, 85.7% (UK) and 92.3% (Egypt) had some exposure to the field of forensic science either through university, attending forensic seminars or both. This compared with only 47% of their Kuwaiti counterparts. 90% of UK, 89.4% of Kuwaiti and 80% of Egyptian respondents who mentioned that they did not cross-examine scientists about their work were those who were not exposed to forensic science beforehand. This may suggest that they had either never experienced cases where there were weaknesses in the practice of opposing experts or that not having sufficient knowledge of forensic practice rendered them to accept scientific evidence without challenge.

5.2.1.2.2.1.1 The nature of the cross-examination (Table 5.10)

Contamination and protocols which prove that the integrity of evidence was maintained throughout the forensic process are potentially important issues throughout the forensic investigative process. The chain of custody protocol is the process of maintaining and documenting the chronological history of an exhibit from the collection through to reporting of test results to court. It should basically be possible to prove a link in the line of physical evidence from obtaining the item from the scene right through laboratory analysis to presentation in court. By following such a protocol, the origin of contamination to physical/trace evidence can easily be identified. The findings of table 5.10 show that the Kuwaiti and Egyptian state forensic practitioners are not generally being asked about issues relating to contamination preventative methods or to the chain

of custody protocols used in practice. In the courts of these two countries a low percentage of lawyers cross-examined expert evidence on issues of such a nature. The situation in UK courts is different as these issues were challenged more often by the respondents. The implications of not asking questions relating to competent practice may be significant. Since defence lawyers often cross-examine the police experts, this might explain why under the current methods and procedures followed by the state pathologists from Kuwait and Egypt there is a high risk of contamination of physical evidence at death scenes. Obviously, if forensic practitioners feel that their work is not subject to auditing at courts, they might not develop a serious attitude towards the accuracy of the procedures and methods in their practice. The need to examine the contamination issue will become more important as evidence such as DNA typing becomes more common and experts in this area begin to appear in the Kuwaiti criminal court. This was illustrated by Case No. 1202/99, Misdemeanour, Kuwait (for this case see page -6-).

5.2.1.2.2.2 *Awareness of the chain of custody protocols*

It has been said that effective representation requires professional skills on "who to ask, what to ask, when to ask, how to ask and how to sum up".[553] This can be achieved if defence lawyers who carry out cases involving science have an awareness of the underlying methodology behind the scientific testimony. This level of understanding is vital to "check on weak courtroom science."[554] It is known that the role of defence lawyers in an adversarial trial is to persuade the tribunal of facts that the prosecution has not reached the standard of proof required (beyond reasonable doubt). In trials involving expert evidence, one way of achieving this is to create doubt over the protocols of the chain of custody throughout the forensic process.[555] A good example was the O.J. Simpson trial.[556] In the trial, one item of forensic evidence was a pair of socks with blood on them. These socks were found in O.J. Simpson's master bedroom. Although DNA tests proved that the bloodstains were more likely to have come from one of the victims (his ex-wife Nicole Brown), the Court rejected these socks as evidence because they were not recorded at the time of their seizure during the securing of the house of the accused.[557] The appointed defence lawyers in this trial succeeded in highlighting the state

scientist's failure to properly follow protocols of the chain of custody. This illustrates that the court monitoring system was operating with varying levels of success obviously as a result of the degree of relevant knowledge that these lawyers had in this field which enabled them to effectively challenge such issues in court. Indeed, it is vital that defence lawyers have an awareness of protocols which tend to preserve the integrity of forensic evidence otherwise sloppy practice by prosecution experts will continue to potentially wrongly convict innocent people. As Gallop stated:

> "Sustainable verdicts are more likely if the provenance, continuity and integrity of relevant court exhibits have been authoritatively confirmed."[558]

In table 5.11, the respondents were asked to mention if they knew the procedures of the chain of custody. This question was aimed to check the validity of the responses obtained in table 5.10. It can be clearly seen that some of the responses were tailored in some way as 29.4% and 7.6% of the Kuwaiti and Egyptian respondents respectively stated that they rigorously cross-examined forensic practitioners on issues relating to a break in the continuity of handling trace evidence when almost all of the respondents of each group stated that they were unaware of these issues. This is in contrast to 66.6% of the respondents from the UK. The difference in knowledge in protocols of chain of custody between the Arabic groups and the UK was regarded as being statistically significant. This difference illustrates that the respondents from the UK are more advanced than either of the Arabic groups in that they are aware of important issues in forensic practice. To confirm the validity of these findings, the respondents were asked (in an open ended question) to elaborate; all of the UK participants defined chain of custody accurately as it relates to the forensic profession. Some of the definitions are quoted below.

> "Recording be put in place to prove the continuity of forensic evidence from the point of collection through laboratory examination to court. By following such an approach, the origin of cross-examination to samples can be easily traced."

> "A clear unbroken chain of handling forensic evidence from crime scene to court and this includes documenting the credentials of all those who collected or handled the evidence."

> "This meant proper link of physical evidence from crime scene throughout the analysis process to court including labelling and identification of individuals handling evidence."

The findings of tables 5.10 and 5.11 show that although the Egyptian respondents stated that they have been exposed to forensic science, they, as well as their Kuwaiti counterparts, have not been exposed to issues relating to the proper handling of scientific evidence. As a consequence, they may find difficulties spotting errors in the procedures followed by the prosecution scientists. This may increase the risk of unreliable expert evidence being submitted in their criminal courts because a vital component safeguarding the quality of scientific evidence is missing. Lawyers' respondents from these two countries need to be fully aware of the proper use of scientific support; that mistakes can happen in science but "the right skills and expertise could prevent mistakes from happening"[559].In contrast, the present level of awareness of forensic practice amongst the UK defence solicitors may be part of the reason for the abrupt shift within the UK forensic community, evidently the appreciation to implement standards which give rise to quality forensic evidence. This was obvious after the FEL case[560]and although this laboratory was proven to follow a strict quality assurance system, critics urged the establishment of lawyers who should rigorously check the weaknesses in evidence submitted by prosecution experts.[561]

5.2.1.2.2.3 *Assessing the reliability of defence expert evidence*

If lawyers lack knowledge in the field they represent in courts, they may not be able to adequately prepare their case. This may give a chance for the opposing party to discover such inadequacy. It is common that the client's interest is best served by effective preparation and representation of their case in court. Proper preparation surely not only involves knowing which field of science or expert knowledge is needed in a particular case, but also ensuring that clients' evidence is to be presented by a competent expert witness. In the US, there have been many cases recorded in which defence lawyers failed to consult the right experts.[562] For example, In *Skaggs v. Parker*[563], sometime after trial and conviction, Skaggs discovered that the defence insanity expert had testified falsely concerning his credentials and that he was not a licensed clinical psychologist. The defence lawyer in this case selected an expert without making any investigation of his

credentials. It has been emphasised that defence lawyers also need to understand how important the scientific issue is in the case and how much help an expert could give.[564] For example, in *Baylor v. Estelle*[565], it had been questioned how reasonable it was for a competent counsel not to recognise the exculpatory potential of semen evidence in a sexual assault case. Defence lawyers should take some measures to understand the laboratory tests performed and the inferences that one could logically draw from the results. Some lawyer's failure to competently prepare and present cases involving scientific evidence was also identified in the UK.[566] Thus, it has become clear that a reasonable lawyer may need to test the accuracy of the facts upon which his expert's conclusion is based.[567] Especially if it happens that these experts are not members of forensic organisations or not registered with professional bodies where their reports and analytical results are often subject to peer review and where they are committed to a code of practice and a code of conduct.

In table 5.12, the respondents were asked to mention whether they had experienced a case in which the prosecution challenged the quality of scientific evidence presented by their experts. The findings indicate that 41.7% and 56.5% of the Kuwaiti and Egyptian respondents respectively have experienced such cases as opposed to all of the UK respondents who stated that they had not. The difference in the data was deemed to be statistically significant between Kuwait and the UK and between Egypt and the UK, a difference which illustrates that the UK respondents were more advanced in the preparation of cases involving forensic science. The responses obtained from defence solicitors who were interviewed in the UK is another example. Some of the interviewees said seeking expert assistance does not mean that lawyers should believe every word experts say. They added that they felt that their knowledge in this field was sufficient to discover any flaws in the scientific and opinion evidence submitted by their experts. Such responses were not obtained by any of the defence solicitors interviewed in either Kuwait or Egypt.

The findings of table 5.12 were correlated with the level of experience of forensic science. Of those who experienced low quality scientific evidence submitted by their experts, 92.3% of the Egyptian group and more than half of the Kuwaiti group had no

previous exposure to the field of forensic science at all. Further, the findings of table 5.12 may be used to support the findings obtained in Chapter Four which indicated that UK private forensic practitioners met the standards of quality scientific evidence. This is predictable as these practitioners may realise that any flaw in their practice or ambiguity in court exhibits could be identified by the hiring party prior to court appearance.

5.2.1.2.2.3.1 Flaws in the practices of defence experts (Table 5.13)

The respondents were further asked to identify the specific reasons where errors or flaws in the practices of their experts occurred. It is known that a reasonable prosecution lawyer would check the credentials of defence experts and the quality of the scientific evidence they present thereby favouring the prosecution hypothesis. This means that even if the opinion evidence presented by defence experts is exculpatory, conflicts in experts' testimony or errors in the procedure of lifting, collecting, packaging, transporting, analysing and presenting this type of evidence may weaken its effectiveness and, thus, lessen its evidential value. The findings of table 5.13 show that 73.3% of the Kuwaiti legal respondents and 69.2% of their Egyptian counterparts experienced cases in which their expert evidence was challenged on issues relating to conflict in the results of the scientific analysis. This response may suggest that these lawyers either experienced cases in which their experts gave opinion evidence which was contradictory to what the prosecution expert had given and accordingly the court was convinced enough to rule the case in the prosecution's favour or experienced cases in which they offered two expert witnesses giving two pieces of conflicting opinion evidence. The other matter to raise here is the crucial factor of not having awareness of protocols of chain of custody amongst the defence lawyers from the Arabic groups. 30.7% and 26.6% of the Egyptian and Kuwaiti respondents respectively experienced cases in which the prosecution challenged their expert evidence on this issue. It is clear that cross-contamination, type of packaging and the procedure of lifting forensic evidence were also issues of debate by the prosecution in these two countries.

Thus, in general, this study shows that at the present level of awareness of forensic science practice amongst some of the Kuwaiti and Egyptian defence lawyers, there is a

high risk of defective representation in cases involving science as a result of a failure to test the quality of scientific evidence submitted by their own experts and by the prosecution's experts. These lawyers could not possibly participate in the court monitoring system and, as a result, there is a high risk of introducing unreliable expert evidence into their courts. The United Kingdom is more rigorous in training lawyers who are able to evaluate scientific evidence. For example, students at the Law School at Strathclyde University, Glasgow, can represent and cross-examine forensic evidence through mock courts with MSc students from the Forensic Science Unit as a part of their postgraduate law degree.[568] By reviewing the content of the course, a section was found advising lawyers on how to effectively challenge scientific evidence in courts.[569] Some of this advice includes challenging issues relating to "the witness, the underlying theory, the case specific application of the theory, and the conclusion (opinion)."[570] Each of these elements, as they relate to the forensic process, were described in detail and an insight was given on the line of questioning lawyers needed in order to ensure the qualifications being claimed were relevant to the case in question and the quality of the forensic scientific evidence being submitted in courts was of a high standard. In contrast, by reviewing the book available for the Kuwaiti law students, such specific advice was not found.[571] Law students in either Kuwait or Egypt, until recently, have not been exposed to training courses available to some law students in the UK especially relating to raising courtroom skills for effective preparation and cross-examination of scientific evidence. In fact, in the UK, there are many forensic organisations offering training courses for lawyers focusing on raising forensic science awareness and the understanding of the latest developments in techniques, methodologies and procedures used by forensic practitioners. Such important training courses are not available to defence lawyers in either Kuwait or Egypt.

Further, in countries using common law, many books and articles were published advising the legal profession on the proper way to cope with sophisticated scientific evidence and teaching them guiding principles which allow them to effectively test courtroom science. Some of this advice focused on attending forensic science courses, reading relevant literature and text books, participating in the investigation process of

crime scenes and being familiar with the laboratory work through visits on a regular basis. The involvement in such activities was viewed to be essential in order to improve the court monitoring system of science.[572] Imwinkelride in his book *The methods of Attacking Scientific Evidence*[573] explained techniques that defence lawyers can follow in the process of examining scientific testimony led by the prosecution. Further, Robertson and Vignaux, in their book *Interpreting Evidence, Evaluation forensic science in the Courtroom*,[574] advised lawyers to focus on questions directly relating to the procedures and methods used by forensic practitioners and, specifically, questions relating to quality control standards in forensic laboratories. Such guidance is not in existence in Kuwait or Egypt either by the forensic or legal communities.

The importance of forensic science classes, training courses and books being available to lawyers is that both practitioners (scientists and lawyers) improve their professional competence; lawyers gain the proper skills to ask the right questions in court and scientists avoid errors in their practice. In simple words, the more lawyers know about forensic practice, the better the quality of forensic science presented in courts will be. The trend towards the establishment of educated lawyers in this field that the UK legal community has witnessed over a number of years was instigated in order to develop safeguards against unsafe convictions in cases involving science and this interest "per se" has the tendency to develop caution amongst forensic practitioners and the fear that their results, their interpretation of these results, if not accurate and not carried out by competent individuals, are going to be challenged. Such a system allows the legal and forensic communities to bring science and law onto the same playing field especially, in the application of sophisticated scientific techniques to assess the evidence.

5.2.2 Opinion towards the present level of professional competence of forensic practitioners by defence solicitors from Kuwait, Egypt and the UK.

It has become clear that defence solicitors and forensic practitioners are both responsible for competent presentation of scientific evidence. In this section, defence solicitors were asked a specific question as to how they perceive forensic science services focusing on

whether they believe that both private and publicly funded forensic practitioners were qualified and subscribed to a code of practice.

5.2.2.1 Opinion on the private sector forensic practice (Q15-Appendix B)

Nearly half of the Kuwaiti respondents thought that they were unqualified compared with almost all of the respondents from the other groups who believed that they were qualified. The Kuwaiti respondents explained the reason why they viewed private forensic experts as being unqualified was because private sector expertise is often played towards the hiring party. They added that since independent forensic practitioners were recently introduced to Kuwait courts, the quality of their service needs to be and should be, identified. They further suggested that these practitioners should be under the control of the Ministry of Justice. This was seen as a solution to overcome two problems facing private practitioners; first, to ensure fair access to appropriate scientific facilities; and secondly, to ensure that they provide their services according to a recognised code of practice. They finally emphasised that there is a need for these experts to subscribe to a code of ethics.

5.2.2.1.1 Discussion

The responses obtained are organised in sub-sections while the issue of fair access to scientific facilities by the defence was not discussed as it was highlighted in Chapter Four.

5.2.2.1.1.1 *Code of professional practice and of professional conduct*

The responses obtained from Kuwait indicated that there is in need for defence experts to demonstrate their fitness to practise as well as a need for them to be committed to a code of ethics. O (interviewee from Kuwait) explained that these experts should be licensed before giving evidence in courts. In order to obtain such licence, he added, experts must first provide evidence that they follow quality standards including the checking of their work by peers. He further recommended that the acquisition of this type of evidence should be regulated by an impartial authority, such as the Ministry of justice. Similarly, P

and V (Kuwait) said that legal practitioners are not scientists and often depend on scientists to advise them on complicated technical issues. However he questioned, "is it the right advice"? They therefore recommended the existence of a list containing all experts who wished to act for the defence and that this list be under the control of the Ministry of Justice. They added that one of the benefits for establishing listed forensic practitioners is that it decreases the risk of "shopping around". M (interviewee from Kuwait) on the other hand believed that subscribing to a code of professional conduct was vital in order to ensure competent practice. As he explained, judges in Kuwait trust expert's testimony and since they are being sought only when there is a need for their expertise, courts may also need to ensure that these experts see their duty to be to the court and not to the hiring party.

Following a code of professional ethics is an integral part of the establishment of competent practice.[575] The question to be asked though is how to ensure ethical conduct. As Prof. Caddy explained:

> "Ethical status must initially arise from the moral status of a recruit which should perhaps be explored during the recruitment process. Details of moral philosophy and ethics can be taught through courses of instruction and the importance of impartiality conveyed through good laboratory practice in casework processing and evidence presentation. Whether or not personnel have adopted an appropriate ethical code may be assessed by monitoring."[576]

Experts following standards of quality, and no matter how strictly they may be, if they are not committed to a code of conduct, there is a risk of them providing biased opinion testimony. Given that defence experts in practice in Kuwait operate in single-person organisations where the opportunity for their practices to be monitored is generally not available, Kuwaiti lawyers should at least be a part of the monitoring process in order to ensure that these experts have an overriding duty to the court.

5.2.2.1.1.1.1 Experts for hire

The lack of awareness of forensic practice by some Kuwaiti defence solicitors (in this study) together with the impact of the new developments in science is an incentive to them to denigrate science and accuse independent experts of being biased. This answer is

to be expected from any authority but not from those who, in practice, are often the direct users of private sector forensic services in an attempt to use their expertise to win a case. Certainly, experts deserve remuneration for the effort and time they spend on a case. However primarily they need to demonstrate their adherence to a code of conduct which, in essence, would avoid any "temptation" to become "partisan".[577] Failure to follow such a code could cause the expert's scientific testimony to be ruled inadmissible or the jury to be instructed not to consider it when weighing evidence. Arguably, if some of the Kuwaiti lawyers perceive private experts as being "hired guns", it is within their professional duty to check whether these experts subscribe to a code of practice and a code of ethics. However, as defence lawyers often ask experts to search for an alternative interpretation of the evidence[578], it is questionable whether they are, in reality, willing to do this type of checking and especially on their experts. Like the private sector forensic practitioners, defence solicitors' earnings are also solely dependent on casework.[579] Should this be a reason to view them as not seekers of truth? In fact, on November the 9th 2001, the US Justice Department, as a part of the campaign announced to prevent "further terrorist acts", decided to revoke the attorney-client privilege by means of monitoring communications between lawyers hired by those who were connected to the events of September the 11th 2001.[580] The introduction of this new monitoring policy may indicate that defence lawyers are no longer trusted to be truth seekers.

The notion amongst the Kuwaiti lawyers' respondents that private experts are biased may in fact demonstrate the opposite. It may indicate that some experts frequently experienced cases in which the interpretation of their findings did not favour the defence case. That is to say that they perceive their duty to be to the courts only and not to the party hiring them. In such cases, as some of the private sector forensic practitioners who were interviewed in Egypt explained, lawyers in both Kuwait and Egypt did not consider their evidence in the construction of their case. To illustrate this, a defence lawyer from Kuwait stated:

"I first look at the laboratory report to find out whether it favours my client's case. If it does, then I accept it. If not, I would consider whether it could be challenged in any aspect. If it is a direct challenge to my client's case, I would search for another expert opinion to assist my case with an alternative interpretation."

The responses obtained by the above interviewees suggest that if all of the defence experts were "hired guns", they would yield to temptations and would, for financial reasons, accept to introduce opinion evidence which would perfectly fit the defence hypothesis.

The findings of this study show the problem of biased testimony by private experts being repeatedly mentioned by some state scientists (Chapter 4) and defence lawyers in Kuwait. If there are some defence experts giving such testimony, it illustrates how "a few bad apples" can affect the profession as a whole. Lawyers who have sufficient understanding of forensic practice can easily identify these "apples". One way to ensure impartial interpretation of forensic evidence is to check whether the interpretation of evidence was considered from the onset stages of a case. This requires an understanding of the hypotheses drawn by scientists and an awareness of the methods undertaken during the examination stages of forensic analysis which often have a propensity to prove or disprove these hypotheses. Establishing whether scientists used an alternative hypothesis in the interpretation phase of scientific tests such as the *Probability of the evidence if prosecution proposition is true* against *probability of evidence if defence proposition is true*, can develop confidence to the impartiality of the advice given by forensic practitioners. The use of this hypothesis is required by some forensic organisations and professional bodies in the UK. For example the CRFP, in determining competence, is assessing candidates against ten criteria. Whether an individual candidate considered alternative hypothesis in the forensic examination is one of the criteria.[581] As Jackson stated:

> "Clearly, the likelihood ratio requires us to consider two competing propositions – I cannot think of a better way in which to demonstrate an impartial approach."[582]

5.2.2.1.1.2 Competent adversarial experts

N- an interviewee from Kuwait had a different view on the quality of the private sector experts. He mentioned that the present knowledge in the field of forensic science by legal practitioners in Kuwait may not be sufficient to discover mistakes in forensic practice. However the use of a second opinion could discover these mistakes. He explained that

adversarial experts are trusted to be of high quality and integrity as they are known to be the ones who are able to identify flaws in the practice. The legal profession who were interviewed in the UK had similar views. I- for example explained that there were certainly a number of cases recorded in books where it has been subsequently shown that scientific and medical evidence given at trial was wrong. In all of these cases new evidence was introduced by defence experts in the Court of Appeal which challenged crucial scientific evidence previously led by the prosecution experts. The quality of adversarial experts in the UK, he emphasised, was the reason for the recent developments in the quality management systems within almost all of the forensic science laboratories in the UK.

5.2.2.1.1.3 *Conflict opinions on the level of competence of defence experts*

Although the same private experts who currently operate in Kuwait originate from and practice in Egypt as well, it is curious that the majority of the lawyer respondents from Egypt considered them to be qualified, a completely different view from a large number of their Kuwaiti counterparts. Whether the difference in the responses is relevant to the level of exposure to the field is not clear. Ideally, if forensic practitioners experienced cases where the hiring party asked specific questions relating to the quality of forensic evidence, they would consider the utmost precaution in their practices. This type of checking is in an attempt to avoid potential challenges by the prosecution thus providing competent preparation of cases involving forensic science. The findings of this Chapter indicate that some of the lawyer respondents from Egypt had better exposure to the field than their Kuwaiti counterparts. It could be that, in order for private experts to feel that they may face similar challenges in Kuwait, some regional defence lawyers need to consider improving their understanding of forensic science practice.

5.2.2.2 Opinion on the public sector forensic practice (Q17-Appendix B)

The respondents were asked whether they believed that the state forensic practitioners were qualified. Only 38.9% of the lawyer respondents from Kuwait regarded the public forensic practitioners as individuals who were qualified as opposed to all of their UK and

87% of their Egyptian counterparts. 61.1% of the Kuwaiti respondents explained that the reason why they viewed the public practitioners as being unqualified was because they experienced cases where the results of the forensic analysis changed if the expert dealing with that case changed. They therefore suggested that there was a need for more judicial control on the use of expert evidence. Further, the lack of experience among some of the state scientists, they stated, required them to engage in refresher training courses. They added that it was time to implement quality control systems within their laboratory practice. Poor turnaround rates for cases and lack of enthusiasm among the state forensic practitioners were also issues criticised by some of the lawyers from both Kuwait and Egypt.

5.2.2.2.1 Discussion

The most important observations made by the respondents are as follow:

5.2.2.2.1.1 *Turnaround rates*

Some of the Kuwaiti and Egyptian defence lawyers (in this study) indicated that they have faced problems relating to poor turnaround rates for cases carried out by state scientists. Given that police laboratories often produce reports for the prosecution, this response illustrates that the issue of disclosure of material evidence is not a problem in these two countries as defence lawyers can have access to case development in the early stages of a criminal investigation. This issue has been discussed in detail in Chapter Four. The poor turnaround rates within state laboratories is an ongoing problem while they experience an increase in caseloads and this has also been explained in Chapter Four (See section 4.3.2.3.1.1). The argument though is whether lawyers who do not fully understand the procedures and methods used for forensic analysis can estimate the time required for certain tests.

5.2.2.2.1.2 *Conflicting opinion evidence*

61.1% of the Kuwaiti respondents and some of the legal profession who were interviewed in Kuwait, indicated that they were exposed to cases where publicly funded experts gave

conflicting opinions. It is conceivable that opposing experts often disagree on the interpretation of scientific findings and this could be an example of how scientists accept an adversarial approach. However when it happens between two state funded forensic practitioners working in the same laboratory, it is a matter of concern. Conflicts in opinion evidence between experts called by the prosecution in the Kuwaiti criminal court have occurred. An example of this was Case No. 666/98 Jenayat Al-Jahra'a (See page-4-) where the trial judge refuted the medical experts' evidence offered by the prosecution and reached his final decision on the basis of other factual evidence.[583] Similarly, by searching the relevant court records, three incidents have been found where the appeal court overturned a conviction as a result of prosecution experts giving opinion testimony in the Court of Appeal which was in disagreement with their testimony in the first trial.[584] Judges in Kuwait were charged with the role of "gatekeeper", ensuring that expert testimony is reliable yet there are no clear guidelines governing the expert's scientific testimony. Matters of conflict, together with the introduction of sophisticated scientific evidence, may confuse judges and this could result in vital evidence being ruled inadmissible or acceptance of either opinion where such an acceptance may be incorrect.

5.2.2.2.1.2.1 Impartial expert testimony

In contrast, some of the legal profession who were interviewed in Kuwait stated that there was no risk of conflict in opinion evidence within the state forensic practitioners. N- for example explained that the existence of the triad committee (court appointed experts) raises the question whether they provide the court with impartial opinion since they are often individuals who are mainly selected from the state funded laboratory. What this interviewee was trying to imply was that there was a risk that court appointed experts would always give an opinion which was consistent with that given by their public sector colleagues. However this may not always be the case as there were cases mentioned in Chapter One illustrating that appointed experts were in disagreement with opinion evidence given by prosecution experts. In fact judges in some cases were faced by two court appointed experts giving two conflicting opinions. In any event, a solution was suggested by the interviewees, and by some of the Kuwaiti respondents, that the

GDOFSE should be under the control of the judicial system instead of the Ministry of Interior. They believed that this would ensure fairness and that impartial opinion testimony be given by the state forensic practitioners.

5.2.2.3 General observation

The majority of the Kuwaiti respondents criticised the quality of forensic services being provided by the public experts. Some of these respondents believe that there is a need to implement a quality control system within the state laboratory practice, obviously not knowing that such a system is currently operating in this laboratory. In general though, the respondents' criticisms were mainly orientated towards basic issues of the practice and not necessarily issues relating to the quality of the forensic evidence. This is to say that the level of knowledge in the field of forensic science amongst a large number of the Kuwaiti respondents may not be sufficient to criticise the procedures and protocols undertaken by prosecution forensic practitioners and this was illustrated earlier in this Chapter. A good example is the poor quality control of the Kuwaiti state pathologist's performance at death scenes. Would this have happened had the present level of professional competence of the state forensic practitioners been challenged in courts?

It is also obvious that a large number of Kuwaiti defence lawyers in this study recommend the establishment of professional registration. This means that there is a need for some sort of mechanism to monitor the quality of scientific evidence and it is clear that this type of monitoring has been emphasised to be predominantly concerning the scientific and opinion evidence submitted by private sector forensic experts. However the establishment of registered forensic practitioners is only one element safeguarding the reliability of expert evidence. The onus is also on defence lawyers to check that the competency and knowledge of professionalism is accurately reflected in the opinion evidence presented before courts. To achieve evidence of that effect requires improving the court evaluative skills of these lawyers. In short, raising the capabilities necessary to effectively test the reliability of forensic evidence in courts would develop experts who would be well prepared and judges who would appreciate forensic science as a method of

proof to confidently determine the truth. All in all, accomplishing this would secure clients' interest for a just trial which is an important factor for the furtherance of justice.

5.3 Conclusion

The aim of this Chapter is to encourage the establishment of Kuwaiti defence solicitors who have the proper understanding of forensic science practice. This is for two reasons: first, given the present quality systems within the practices of defence experts, these lawyers should have the ability to test the quality of scientific evidence and merits of opinion provided by these experts before court appearance. This is vital in order to counter potential challenges by the prosecution. Secondly, given the increased use of scientific assessment of physical/trace evidence by the prosecution, and the present level of quality control by some Kuwaiti state pathologists at the initial death scene examination, these lawyers should have the capacity to confidently spot weaknesses and flaws in practice and question these through effective cross-examination in courts. On the intellectual front, achieving this level of court monitoring system helps to establish reliable expert evidence in courts.

In comparing the current level of understanding of forensic science practice amongst defence lawyers operating in Kuwait and Egypt with those in the UK, the following findings were found:

The levels of exposure to, and knowledge of, the field of forensic science amongst the UK and Egyptian lawyers was higher than their Kuwaiti counterparts. This level was believed being sufficient to develop evaluative skills on the reliability of scientific evidence in the UK and Egyptian criminal courts. However, unlike the legal respondents from the UK, those form Egypt - and certainly from Kuwait - had no exposure to specific issues relevant to competent forensic practice. This reflected on their evaluation of the opinion evidence being submitted by their own expert witnesses and on the type of questions they asked during cross-examination. Obviously, the court monitoring system in the UK is more advanced as none of the UK legal respondents had experienced unreliable scientific evidence presented by their experts and issues relating to contamination preventative methods and operational protocols were rigorously cross-examined by these respondents. In contrast, issues of this nature have not yet been challenged by some of the defence lawyers in practice in Kuwaiti and Egyptian criminal

courts. These lawyers are unable to test the soundness of scientific evidence being presented by their experts and thus the potential to spot errors in the private sector forensic practice by the prosecution. These lawyers may also find difficulty in cross-examining scientific evidence led by opposing experts. Had the legal respondents from both Arabic countries had the level of knowledge in this field equivalent to that of some of their UK counterparts, their ability to monitor the quality of scientific evidence could have been improved.

Examining the court monitoring system by defence lawyers in Kuwait was one approach in investigating the reliability of evidence submitted by private sector forensic practitioners. However the present level of awareness of the forensic science practice amongst some of these lawyers could not possibly be effective to participate in such a system. It could not help in establishing competent preparation, representation and testing of courtroom science. The defendant's right for a fair trial is at risk as a consequence. Thus, in Kuwait, the lack of a system of professional registration, and the present quality systems within the private sector forensic practice along with the level of court monitoring system by some defence lawyers, continues to throw doubt on the reliability of defence expert evidence delivered in support of criminal justice. In order to ensure and instil confidence on the reliability of this type of evidence, there is a need for some guidelines and recommendations to support the activation of a mechanism to monitor the procedures and methodologies used by forensic practitioners acting for the defence in Kuwait and to regulate professional competence of these practitioners with special reference to proposals for reform in forensic science practice and expert evidence. This is the subject of the next Chapter.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

This chapter is in seven sections:

6.1 Overview

This Chapter provides an overview of the study of the reliability of defence expert evidence in the Kuwaiti criminal justice system, re-stating the main research questions and justify the interpretive methodology used to explore them. Before discussing the recommendations emerging from the study, the main findings will be summarised. Finally, limitation and difficulties encountered in this study and implications for future research are presented.

The mission of this study was to test the reliability of defence expert evidence in the Kuwaiti criminal justice system by focusing on two key elements. The professional standing and technical competence of these experts during crime scene investigation and throughout the laboratory examination is one element and the level of awareness of forensic science practice by defence lawyers is the second element. The objective is to identify any possible weakness in first, the defence experts' practices, especially in areas of quality assurance and control systems and secondly, the court monitoring system by defence lawyers as an approach providing a better support for the appropriate implementation of quality standards within forensic practices. The objective is met by following the methodology used in this study which allowed in-depth insights into the forensic practitioners' operational system in the process of the handling and the dealing with forensic evidence from crime scene to court and, into the legal participants' awareness of this process. The quantitative and qualitative data and their analysis in the use of a comparative interpretation have shown how forensic practitioners from public and private sectors were committed to a professional code of practice and have also provided a good understanding into the legal participants' ability to test courtroom science. The extensive in-person interviews allowed discovery of how forensic practitioners and the users of forensic science perceive the quality of expert evidence and, in the same time, provided a good support to assess the validity of the responses obtained from the quantitative data. The design of the questionnaires and questions asked in interviews are the product of an overview of protocols required for the appropriate implementation of quality control and quality assurance systems in forensic practice as

well as specifications needed for the establishment of competent expert witnesses. The review of criminal cases, related literature and documented files helped in the creation and development of this study. The findings are supported by survey responses, data from interviews, information gleaned from relevant criminal cases and studies on the use of expert evidence in criminal trials.

The findings and discussions of this study provides forensic scientists, expert witnesses and the users of forensic science services in Kuwait with the latest developments in connection to problems associated with the procedural rules of handling scientific evidence. In addition, since this type of study offers an insight into the extent and nature of quality management systems in various aspects of forensic practice amongst the Kuwaiti forensic service, this overview provided a basis for commentary on the use of expert evidence in particular in the Kuwaiti criminal justice system. It is believed that the recommendations emerging from this study will provide judges and lawyers in Kuwait with guidelines to raise central questions relevant to the reliability of expert evidence. In this way, the court monitoring system would be improved which in turn would develop serious attention to the quality of scientific and opinion evidence by forensic practitioners. It is also hoped that journalists will have access to this study in order to develop criticism when needed.

Three main research questions guided this study. They were introduced in Chapter three and each had subsidiary questions discussed and introduced in Chapters Four and Five. The main research questions were:

1) whether the private sector forensic practitioners who give opinion evidence in the Kuwaiti criminal court
   A) have a role in providing courts with reliable scientific evidence and to what extent they have succeeded in performing that role,
   B) have acquired the expertise necessary to give specialist opinion,
   C) were involved in specialist academic training courses before commencing casework,

D) were certified by professional organisations to undertake forensic casework,

E) were involved in continuing professional development through ongoing practical training, attendance at forensic conferences and regularly read well known journals in the field,

F) are at a level of technical competence which preserves the integrity of forensic scientific evidence from crime scene to court. This includes areas dealing with preventative steps against contamination and cross-contamination of forensic evidence during crime scene examination and the application of quality control and quality assurance programmes within laboratory practice,

2) whether there is a system of professional registration of forensic practitioners in Kuwait.

3) whether defence solicitors who use private sector forensic science services in Kuwait

A) were introduced to forensic science practice before carrying out criminal cases involving scientific evidence,

B) properly understand the quality procedures and methodologies used in forensic practice,

C) have the knowledge in the filed of forensic science sufficient to test the quality of scientific evidence and merits of opinion of their own experts, and to effectively cross-examine experts called by other parties.

6.2 Summary and discussion of findings

This study focused on criminal trials because of the severity of the sentence involved and especially in Kuwait where a death penalty applies. The review of criminal cases in Kuwait showed that forensic investigation, in many of these cases, ended up with prosecution. It has also been proven that courts decided the outcome of many criminal cases only on the basis of expert evidence. In Kuwait, there is an increased use of expert evidence by the prosecution in criminal trials and, the introduction of advanced techniques to forensic science has inevitably led to an increased reliance on expert witnesses by the court to assist in explaining sophisticated issues. In the scientific assessment of physical/trace evidence and, particularly in the use of DNA profiling for

the purpose of identification, errors in individualisations are common. This especially holds true when identifying that the present quality management system within the Kuwaiti police medico-legal practice at death scenes lacks anti-contamination precautionary measures. Therefore it is imperative that persons incriminated through this process should have complete access to competent experts to re-examine alleged identifications. The findings of this study along with the reviewing of criminal cases in Kuwait showed that defence lawyers started to use expert evidence in constructing their cases and courts accepted to include this type of evidence in the system of proof with the same level of trust given to expert evidence being introduced by prosecution. It has become clear that private sector forensic practitioners have a role in providing Kuwaiti courts with expert evidence. However whether they have succeeded in performing their role as expert witnesses depends on the level of their professional standing and, whether they have provided courts with reliable expert evidence depends on first, their awareness of quality procedures in the process of handling scientific evidence from crime scene to and throughout laboratory practices and secondly, the level of awareness of forensic science practice by defence lawyers.

The comparative approach to interpreting the findings of this study revealed that within all forensic practitioners' groups only respondents from the Egyptian private sector did not acquire the expertise necessary to give specialist opinion in courts. When professionals in this field set guidelines systemising the role of expert witnesses in the criminal justice system, lots of emphases was given to improving and maintaining specialist knowledge. This was instigated in order to assure the courts that the assistance they get from an expert is based on a high level of expertise and in a specific area. Forensic practitioners are mainly scientists who are expected to have developed their scientific knowledge through previous exposure to a number of years of academic study in the discipline of interest (chemistry, biology, medicine...etc.). Upon their involvement in the field of forensic science, they need to be exposed to extensive training courses in forensic practice covering all its disciplines along with the legal aspects of this field, intensive internal and external training courses in the speciality of choice and, for forensic practitioners who wish to act as expert witnesses, also need to be involved in

specialist courses relevant to giving evidence in court. These are basic requirements which need to be satisfied before carrying out casework. Of course years of experience combined with continuing professional development through ongoing practical and theoretical training courses, attendance at forensic proceedings to have the benefit of sharing expertise and reading relevant professional journals are also elements required to cultivate the skills necessary to achieve competence and ensure the maintaining of competence. Expert witnesses are expected to reach this level of standard before court appearance when their specialist knowledge is needed. The Egyptian private sector QDEs and medical practitioners (in this study) did not participate in specialist academic training courses before commencing casework. They have not been involved in any professional activity since they choose forensic science as a career and they assist the Kuwaiti and Egyptian criminal courts with opinion evidence which is based only on experience. The root of the problem is that they are not affiliated with any professional organisation. Holding a professional membership facilitates access to activities necessary to reach the highest level of professionalism in a specific area which in turn proves forensic speciality. It also ensures compliance with the code of practice and ethics set by the organisation. Certainly providing courts with expert testimony on matters outside the limits of immediate expertise and without being suitably qualified is not acceptable by professional organisations. The findings of this study and the review of criminal cases in Kuwait revealed that Egyptian private sector forensic practitioners not only were not qualified to undertake forensic casework but some assist courts with opinion evidence on matters not relevant to their supposed expertise. The private sector forensic practice in the UK is different as almost all of the respondents from all groups are members of forensic organisations and, unlike the medico-legal practice in Kuwait and Egypt, the UK respondents are specialised more narrowly in their defined field as the distinction in discipline of speciality was evident in their practices. In addition, although the respondents from the Kuwaiti and Egyptian public sector groups are part of forensic establishment, like their regional private sector counterparts, they did not participate in forensic conferences and were not involved in ongoing professional training courses including courses relating to their role as expert witnesses in courts.

It is known that forensic practitioners conduct a search in order to find clues linking culprits to their criminal act. In medico-legal practice, pathologists attend death scenes to give their preliminary findings and accordingly direct the forensic team to search for evidence relevant to the case in question. In the morgue, they conduct an autopsy to investigate the cause and manner of death. Depending on the nature of the case in question, they handle exhibits and send them to the relevant discipline for further analysis. In this study, investigating the standard of quality of forensic evidence handled and processed by the respondents was a means of measuring the reliability of the evidence they present in criminal proceedings. The quality of forensic scientific evidence was examined through the code of practice the respondents follow during gathering, collecting, transporting, analysing and preserving this type of evidence from crime scenes to and throughout laboratory practices. Studies revealed that indicators of quality forensic evidence should include the anti-contamination measures to be taken during crime scenes investigation and the implementation of standard operating procedures (SOPs) in laboratories. These were instigated in an attempt to lessen the risk of, and easily detect, errors in practice. The wearing of protective clothes at crime scenes is a vitally important measure which should be considered to prevent contamination and cross-contamination of physical/trace evidence. The findings of this study showed that, within the medical practitioners' groups, only the respondents from the UK take this measure during death scene examination. The findings of Chapter Four revealed that the crime scenes attended by medical practitioners from all groups were of a serious nature, and at which contamination was common. Given that state forensic pathologists have the opportunity to access death scenes promptly after an event and that they handle samples requiring further analysis during the initial autopsy, the present quality management system in relation to anti-contamination protocols within the Kuwaiti and Egyptian state medico-legal practice at death scenes suggests that there is a high risk that the evaluation of the significance of laboratory analytical results are adversely affected. Such weakness in practice requires competent defence experts who would instruct lawyers to question the reliability of prosecution expert evidence in court. The findings of this study showed that private sector medical respondents in practice in Kuwait are not aware of issues relating

to anti-contamination procedures and which they also do not apply in death scene practice. An alternative is to have defence lawyers who are aware of the rules of collecting and preserving scientific evidence at crime scenes and question these rules through effective cross-examination. However, this study showed that all of the respondents from the Kuwaiti public sector medical group did not experience questions of such nature in courts (Chapter Four- Section *4.2.2.3.2.3*).

The present Kuwaiti and Egyptian police medico-legal practice at death scenes may suggest that having additional professional qualifications and training do not necessarily develop the competent handling of evidence. This is an area which would benefit from a professional registration system. Further, the findings of this study showed that only the respondents from the Arabic private sector groups lacked an operational monitoring system in their practices and, there were no indicators that they followed protocols which give rise to quality forensic evidence. In addition, unlike the other groups in this study, a quality assurance procedure in relation to peer review is also not present in their practices. It is clear that checking the quality of work products or management is not available for sole practitioners operating in Kuwait. This is a problem facing trial judges who are not being guided by direct rules to test the reliability of expert evidence and yet they are relied upon to ensure that the expert is competent on the issue in question, that the evidence given by that expert is of a high standard of quality and that his opinion is based on valid scientific research. The central cause of the problem is that the Kuwaiti Law of Criminal Procedures since its application have allowed judges alone to exercise complete discretion to carry out these duties and without regard to a reform in the law to control the use of expert evidence and especially after the recent introduction of problems associated with the use of sophisticated science in criminal trials. It is inevitable that as science evolves Kuwaiti judges rely more and more on expert witnesses to furnish scientific or technical data. The overturned convictions which recently occurred in the UK as a result of misleading and flawed expert evidence and criticisms raised in relation to these cases revealed that such trust should no longer be in place without professional registration of forensic practitioners who wish to assist courts with opinion evidence. Kuwait should not be apart from such a decision which was made in attempt to reassure

the courts that methodologies and opinion evidence given by experts is validated by professionals in this field. In view of the present level of competence and professional performance of private sector forensic practitioners who write reports and subsequently give opinion evidence in Kuwaiti criminal courts, such registration is particularly vital to assure the courts speciality in forensic practice, opinion testimony is given only on matters within professional competence, especially, for those claiming expertise in two unrelated forensic disciplines, such as document examination and medicine, the implementation of rigorous quality procedures throughout all stages of the practice and, by the very nature of the adversarial approach to presenting evidence in criminal trials, that the interpretation of scientific findings and the inferences experts reached are in the interest of justice end and not of the calling party.

Given that the laws of evidence do not apply in Kuwait along with the lack of a system of professional registration, an alternative for judges is to rely on the adversarial approach of testing the reliability of this type evidence in court. In this study, the level of understanding of forensic science practice by Kuwaiti defence lawyers was examined in order to shed light on their ability to participate in such a test. The increased use of expert evidence by the prosecution along with the lack of quality management system within the state forensic pathology practice at death scenes requires a greater understanding of forensic science by the defence in order to spot flaws and weaknesses in the practice. The recent introduction of private sector forensic science services into the Kuwaiti criminal justice system also requires that defence lawyers have the knowledge necessary to monitor the quality of evidence presented by their own experts and to properly understand the underlying scientific methodology behind their testimony.

The findings of this study showed that within the defence lawyers' groups only the respondents from Kuwait were not exposed to the field of forensic science before commencing criminal cases requiring scientific or medical expertise. Unlike the legal respondents from the UK, they with their Egyptian counterparts were not aware of central issues of the forensic practice. The most obvious was quality control in connection to chain of custody protocols. A number of these respondents did not check whether their experts rigorously follow these protocols before court appearance and as a result this was

an issue of debate by the prosecution. In addition, some of the respondents from the Egyptian private sector groups were not questioned on issues relating to the nature of their expertise either by the defence or prosecution lawyers in both Kuwait and Egypt. It is therefore not surprising that opinion evidence was allowed to be given on matters outside the immediate expertise of the witnesses in Kuwaiti and Egyptian criminal courts. Other vital information gleaned from this study is that none of the respondents from the Kuwaiti state medical group were asked in court to explain the procedures of collecting evidence at crime scenes and to explain the methods they used in their practice (see Table 4.25). This may explain the reason why precautionary measures against cross-contamination at crime scenes were not seriously considered by almost all of these respondents.

The findings of this study indicated that the legal respondents from the Arabic region often dealt with forensic scientific evidence by hiring experts in the field to explain and examine and then report the expert's conclusions without having enough information about this type of evidence.

6.3 Recommendations

The findings of this study reveal that there are weaknesses in the private sector forensic science practice in the State of Kuwait. In view of the present system concerning the level of competence of defence forensic experts, the code of practice they follow and the monitoring of this practice by defence lawyers, there is a high risk of introducing unreliable defence expert evidence in the Kuwaiti criminal justice system. On the basis of the success of this research recommendations can be made relating to the Ministry of Justice role, the private sector forensic practitioners' commitments and the defence lawyers' responsibilities. Recommendations are also made in connection to the police forensic practice in both Kuwait and Egypt.

6.3.1 Role of the Ministry of Justice

In Kuwait, the criminal justice system is organised by the Ministry of Justice which is funded by the government. The application of this system is trusted for being objective

and impartial with the principle role of applying fairness in society. The purpose of forensic science practice and expert evidence is to serve the administration of justice. This means that forensic science has a direct impact on society. In the short-term justice authority needs to have an inquiry into the competence of forensic practitioners. There should be a list under their control to register all of those who wish to assist criminal courts with expert evidence. In order to be listed, forensic practitioners must meet the following standards:

A) Have scientific background (university or equivalent). It is important that forensic scientists who give expert evidence in courts have developed scientific knowledge through exposure to undergraduate courses in a particular area of science and experienced other areas of science relevant to forensic practice. Forensic practitioners who gained specialist knowledge only through experience should ideally have experienced sciences relevant to forensic practice,
B) Attained a certificate proving forensic speciality in general and discipline of speciality in particular in order to ensure that expert evidence is based on specialist knowledge acquired through the involvement in relevant academic and practical training courses.
C) Their establishment has been accredited on a regular basis by a well known professional accreditation agency,
D) Are a part of a professional mandate to guarantee his involvement in continual developments in the discipline of choice and in forensic science in general and, that his work product is often subject to professional peer review,
E) Have not less than three years of experience,
F) Have participated in forensic proceedings and specialist publications.

In the near future, the role into the fitness to practice of forensic practitioners should be undertaken by a professional registration council. This council should be within the criminal justice building. This provides the council with an executive power and guarantees free registration fees. The duty of this council is to apply a competence

assessment procedure and ensure that experts are maintaining competence through assessment on a regular basis. All of those who wish to assist courts with opinion evidence must register with this council. The attention is to ensure forensic speciality and that written protocols and standards of quality set by international professional organisations are followed. Those who pass the assessment process should be listed as competent forensic practitioners. Those who do not pass the process should be given guidance to achieve the competence criteria. Funded and supported by the Ministry of Justice, the panel of the council should consist mainly of forensic experts of various types of specialities selected from private and public sectors, prosecution and defence lawyers and a judge. These experts should first prove their fitness to practice through registering with an external professional body and each expert should be assessed against the competence criteria set particularly for the claimed specialist knowledge. They then should be trained to become assessors of competence. These experts should maintain the highest standard of professionalism and it is through them that the rest of the panel gain the requisite knowledge and skills needed to effectively assess competence of candidates. The aim is to meet the UK professional registration of forensic practitioners which is based on review of a portfolio of previous casework and at regular intervals. Another task of this council is to develop a booklet, managed by the experts, explaining the investigation methods and techniques used in the forensic analysis and practice for non-scientists. This booklet is to be up dated frequently to cope with the rapid developments in science. Another task is to develop a specific forensic network as a communication channel to explain the procedures and techniques undertaken in each area of speciality separately including the possible errors which could occur in each stage of the forensic investigative process. This network should include the competence list of all specialities available.

The criminal justice authority should also have a role in the fair application of adversarial criminal trials. Kuwaiti legislators have chosen to include adversarial procedure in their criminal law in order to achieve fair trial for the accused. The fair justice system should surely demand complete access to forensic facilities and to different types of expertise by the defence. An easy and quick option to achieve this is through

changing authority control of the forensic science services in Kuwait. The General Department of Forensic Science Evidence should be under the control of the criminal justice department rather than the Ministry of Interior. Access to this department by defence experts should be regulated by judges on a case by case basis through a written request explaining the technical support needed. This change in control of the forensic science services should also ensure independent forensic investigation. It could be argued that in order to ensure impartiality the forensic science services should be converted into an agency. The problem rests on the charging policy of the services. Is it going to be by the case type, by the hour or by the day? If it is by case type there is a risk that a great attention will be given to more serious crimes as it require maximum charging. If it is by hour or day there is a risk of delaying turnaround to benefit from charging. Having the forensic science services under the control of the criminal justice authority is a better approach.

Further, private sector forensic practitioners and defence lawyers should be able to access classes, ongoing refresher training programmes and local, regional and international proceedings relevant to forensic science practice. These professional activities, in the short-term, should be regulated by the criminal justice authority through the Institution of Judicial and Legal Studies in Kuwait and this is an approach to overcome the ongoing problem of 'equality of arms'. The activities should focus on basic forensic science awareness and in depth the methods and quality systems implemented in practice with special reference to international standards. Private sector forensic practitioners and defence lawyers should also exchange information on issues relating to giving evidence in court. This can be organised by the Institution through providing practical experience of giving and presenting expert evidence in a mock trial scenario with experienced judges and experts who will instruct participants on how to address the court effectively and on the line of questioning focusing on the quality of forensic evidence. It is also vital to encourage judges and prosecutors to participate in the ongoing professional activities and mock trials arranged by the Institution. Such an approach by the Institution will promote sharing expertise amongst forensic practitioners and will

provide the users of forensic science services an insight on essential information in this field especially in connection to the quality of forensic scientific evidence.

A library of up to date texts and international forensic journals should be established as a priority by the Institution. This will facilitate continuing professional development of defence expert witnesses. A listing of textbooks and details of relevant journal subscriptions will be provided to the Institution. The setting of scientific meetings for forensic practitioners on a regular basis is also of great benefit to promote continuing development in this field. The Institution should be provided with all resources and help needed to facilitate the ongoing operational and organisational means of professional activities.

6.3.2 Commitments of forensic practitioners

There is in need for reform in the forensic science practice in both Kuwait and Egypt through regulating competence of forensic practitioners and the implementation of quality control and quality assurance programmes. Forensic practitioners are required to demonstrate the highest possible professional and personal standards and integrity through their commitment to the following operational guidelines:

6.3.2.1 *Private sector forensic practitioners*

A) A system of quality control concerning the maintaining of a chain of custody protocol from the time of receipt of exhibits to the time of release. A system of accountability should be applied.

B) A system of quality control in relation to anti-contamination precautionary measures throughout all stages of evidence handling and processing.

C) Programmes of quality assurance relating to blind testing, proficiency testing and writing protocols which should be according to international standards. This will be organised by the qualified experts from the professional registration council.

D) A policy of quality assurance in connection to peer review. This should be guaranteed through registering with the council.

E) A policy ensuring continual professional development and this will be guaranteed through involvement in professional activities facilitated and organised by the Institution of Judicial and Legal Studies.

F) A system of accountability through subscribing to a code of conduct and disciplinary regulations set by the council. The code should include the commitment to write a declaration with final reports implying that the opinion expressed is within professional competence and that the function and duties as an expert is to the Court. Failure to adhere with this code would result in removal from the registries list and the individual would no longer be recognised as competent forensic practitioner.

G) In the long-term, an independent forensic organisation should be established in Kuwait or in the Gulf region. This organisation will be responsible for regulating competence of defence expert witnesses. Defence experts should also be involved in research and development in order to broaden insights on all aspects of forensic science practice. Research and papers conducted by experts will be published through a specialist journal supported and issued by the organisation. This organisation will run its duties through charges required for professional membership.

6.3.2.2 *Police forensic practice*

A) To meet current code of medico-legal practice in the UK will require Kuwaiti and Egyptian forensic pathologists to perform death scenes examination and autopsies according to internationally accepted professional standards. More attention should be given to improve the quality management system at death scenes.

B) A system of auditing should be in operation such as that undertaken by the UK Royal College of Pathologists and Home Office in order to demonstrate the highest possible professional and personal standards and integrity.

C) There should be a distinction in discipline of specialty within the medico-legal practice in both Kuwait and Egypt. Forensic medical examiners should only have

the responsibility of examining living subjects and be removed from the autopsy role which should only be undertaken by qualified pathologists.

D) A system of quality assurance to ensure that written protocols are followed. There should be a departmental written protocol for the examinations of live subjects as well as for autopsy. The forensic medicine departments in Kuwait and Egypt should subscribe to an external quality assurance program in clinical forensic medicine and forensic pathology. The aim is to meet the accreditation criteria applied on the medico-legal practice of the UK and U.S.

E) The setting of new policy for regulating competence of forensic pathologists, forensic medical and documents examiners in both Kuwait and Egypt. There is a need for ongoing refresher training courses including courses relating to giving evidence in courts. These practitioners should be exposed to the latest professional training courses through ongoing visits to the FSS in the UK.

F) A training policy for new recruits. Apprentices should first experience all forensic disciplines for six months followed by six months practical specialist training in the area of interest by more experienced colleague before being eligible to carry out forensic casework. During the first three months of casework, they should be supervised and guided through the entire process by more experienced colleague. In this period a blind testing programme should be applied through the submission of contrived cases.

G) Forensic practitioners should be advised to register with the professional registration council.

H) The establishment of high quality standards to crime scene investigation in both Kuwait and Egypt. SOCOs need to be trained on how to give the best value for money and in need to raise their ability in the process of decision making at crime scenes. This requires continuous proficiency tests, meetings between SOCOs and forensic scientists on a regular basis and the development of refresher training courses focusing on the importance of proper handling of exhibits in the accuracy of the analytical results. Crime scene investigation department in both Kuwait and Egypt should be committed in providing SOCOs with advanced specialist training

programme through visits to the National Training Centre for Scientific Support to Crime Investigation at Harperely Hall, County Durham, UK. In Egypt, in order to achieve the highest levels of integrity and reliability of forensic scientific evidence recovered at the initial crime scene investigation, the process of handling this type of evidence should only be undertaken by qualified SOCOs rather than the present involvement of unauthorised personnel in this process. Finally, the managers of the Kuwaiti and Egyptian SOCOs department may need to test the aptitude of the staff towards crime scene investigation which is an important part in obtaining competent SOCO.

I) Every organisation seeks to achieve certain objective through its staff. This demands the training and development of the employees in a manner to fit the requirements needed to achieve the objective. The need for training forensic practitioners becomes urgent and especially expert witnesses as their role requires special specifications to meet the objective of criminal justice. In fact, training programmes raises the morale of trainees and provides the sense of importance which reflects on the quality, capability and efficiency of the level of performance. Therefore, it is important to establish whether the involvement in a specific training course in fact raised the level of professional performance targeted. In the end of each training course, trainees should write a report describing in detail the training they had, the new information they obtained, the benefits and contributions from attending such a course, deficiencies in the programme and what are the remedies for improvement. This approach not only ensures that the trainees benefited from attending the training course but also ensures sharing information with managers and individuals who did not attend such a course.

J) The establishment of a research and development department in the General Department of Forensic Science Evidence.

6.3.3 Responsibilities of defence lawyers

A system of professional registration and having additional qualifications in the field of forensic science or medicine may not be enough of a safeguard against unreliable expert evidence in courts. A vital component safeguarding the quality of scientific and opinion evidence is effective court monitoring system by defence lawyers. This can be achieved if these lawyers acquire the proper level of awareness in forensic practice. Therefore,

1) Authorities of law schools in Kuwait and Egypt will be advised to include in depth the protocols and quality procedures in forensic science and medicine studies during students' apprenticeship and that such course should be mandatory before graduation.

2) These lawyers should be involved in continuing education offered in the area of forensic science. This professional responsibility should be within the code of ethics set by the bar association.

6.4 Limitation and difficulties encountered in the study

The very nature of defence experts' duty and especially in cases involving document authentication and medical examination as both are the most common types of expertise currently available for the defence in Kuwait made the full investigation into the appropriate implementation of quality control procedures not possible. This represented a major limitation in the study. It is vitally important to discuss the use of reference standards, instrument calibration and control samples taken from crime scenes which were instigated in an attempt to ensure the accuracy of casework results. However, the limited range of services and case type available for the defence along with the basic instrumentation currently in operation within the private sector practice in Kuwait made this type of discussion impossible.

The private sector forensic practice in Kuwait is in its infancy and this encountered a major difficulty in the study. This involved the difference in sample size between the Arabic private sector groups and the other groups. The Fisher Exact Test was applied in an attempt to validate the findings of results despite the low number of samples which seem to be not representative. The distribution of questionnaires was another difficulty encountered in the study. In the UK defence experts were selectively chosen from the

Directory of Expert Witnesses. This Directory provided contact information of experts which facilitated the process of survey. In Kuwait and Egypt however, such a directory does not exist and the data was collected by visiting offices of individuals who operated in single-person organisations scattered throughout different areas in Cairo. Further, in Kuwait, Egypt and Scotland, the defence solicitors' questionnaires were distributed by visiting each lawyer's office separately. This was time consuming as waiting in law firms for lengthy hours asking for approval to conduct the research. However it is understandable that the very nature of lawyers' practice involve considerable time constrains and this may affect the time available to them to fill in the questionnaire or be available for interview.

6.5 Implications for future research

It is unlikely that this research project, which has a time limit, would have covered all the issues relevant to the area of study. It is of great interest to further investigate the level of awareness of forensic science practice by prosecution. This is important in order to complete the evaluation into the reliability of defence expert evidence in the Kuwaiti criminal justice system. Future research should also provide further insights into the level of understanding of forensic practice amongst judges in Kuwait and how do they perceive forensic scientific evidence in the process of deciding criminal cases. Further investigation is also needed to examine in-depth whether expert evidence-based experience only and without academic learning and formal specialist training courses could, in practice, lead to the competent handling of forensic scientific evidence.

6.6 Conclusion

In order to minimise the risk of unreliable defence expert evidence in the Kuwaiti criminal justice system, the quality of this evidence need to be assured first outside the court. The maintaining of high level of professional standing, the rigorous application of quality standards, and the commitment to professional registration system all are vital elements to ensure the quality of expert evidence. In court, there is in need to maintain an atmosphere of understanding of forensic practice to have the evaluative skills necessary

to confidently test the reliability of scientific and opinion evidence given by experts. This study explored significant developments in the proper use of defence expert evidence in Kuwaiti criminal trials. The findings have recommendations for raising standards of defence experts' witnesses in Kuwait and, in general, for the establishment of reliable expert evidence in Kuwaiti and Egyptian criminal courts. In this way, a clear picture should emerge at court for judges before admitting experts' opinion and scientific testimony or report into evidence. Finally and most importantly, judges in Kuwait should not rely solely on expert evidence in the determination of guilt or innocence but to consider such evidence in the light of all evidence offered.

APPENDIX A
Questionnaire Instrument Used by Forensic Practitioners

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Applied Chemistry
Forensic Science Unit
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204 George Street
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Tel: 0141 348 2237

Dear Sir or Madam:

I am a senior member at the Kuwaiti Police Force. I operated as a forensic toxicologist from 1987 until 1990 and, since then, as a crime scene officer at the General Department of Forensic Science Evidence. I am carrying out a Ph.D. research into the reliability of defence expert evidence in the Kuwaiti criminal justice system at the University of Strathclyde. As part of the research, I am making comparisons between Kuwait, Egypt and the UK in respect of the quality of forensic evidence. The aim is to identify any possible weakness in the defence expert's practices and recommend methods and procedures for improvement especially, in areas of quality assurance and quality control systems.

I would be very grateful if you could spare a little of your time to fill in the enclosed questionnaire. All the information gathered by the questionnaire will be treated in strict confidence, and your anonymity is assured at all times. The information is exclusively for research purposes.

Should you have any questions, comments or suggestions please do not hesitate to contact me at the above address, or by E-Mail:*Meshary1@Hotmail.com*

Thank you for your interest, and co-operation

Yours Sincerely

Jamal Al-Darweesh

Kuwait Police Force

Questionnaire for forensic scientists and forensic medical examiners

Please answer each question by ticking the appropriate box or, the one nearest to your opinion, or, in the few cases necessary, writing in your answer.

1. In which branch or unit do you work? (You can tick one or more boxes)

☐ Handwriting analysis & Document examination ☐ Biology
☐ Medical examination ☐ Pathology ☐ General practice
☐ Serology ☐ Others (please specify):.....

2. Qualifications

☐ Secondary school ☐ Diploma
☐ B.Sc. ☐ Master's
☐ Ph.D.
☐ Other (please specify):.....

3. Did you specialise in forensic science/medicine before being appointed to your current work?

☐ Yes ☐ No

4. If yes

a) What type of training? .....

b) And for how long? .....

5. How many years of experience do you have in your current job?

☐ Less than 5 ☐ 5-9 ☐ 10-14
☐ 15-20 ☐ 21 or more

6. Do you read periodicals, articles, and books related to your field?

☐ Nearly always ☐ Usually ☐ Sometimes
☐ Rarely ☐ Never

7. If yes, which of these periodicals do you read? (please tick all appropriate boxes)

☐ Science and Justice
☐ Experts and Evidence
☐ New Scientist (Al Dakheliah)
☐ Medicine, Science and Law
☐ FBI
☐ Journal of Forensic Science
☐ Analytical Chemistry
☐ Forensic Science Web. Page, Internet
☐ Forensic Science International
☐ Others (please specify):.....

8. Do you normally benefit from attending the scene of crime?

☐ Nearly always
☐ Usually
☐ Sometimes
☐ Rarely
☐ Never

9. If your answer is affirmative, please specify what benefits? (please tick all appropriate boxes?

☐ Location and gathering physical evidence
☐ Acquiring some knowledge and information about the case
☐ Preventing damaging/ contaminating physical evidence
☐ Others (please specify):.....

10. Have you been certified for the work of forensic science laboratory/ forensic medicine?

☐ Yes
☐ No

11. If yes, please specify by whom?.....

12. Are you normally required to attend scenes of the crime?

☐ Yes
☐ No

13. If yes, in what type of crimes? (please tick all appropriate boxes)

☐ Paternity/ Maternity cases
☐ Motor Vehicle theft
☐ Burglary
☐ Robbery
☐ Larceny
☐ Embezzlement

☐ Force entry and trespass
☐ Rape
☐ Child sexual abuse
☐ Other sexual offences
☐ Homicide/suspicious death
☐ Suicide
☐ Assault
☐ Aggravated assault and battery
☐ Drug abuse
☐ Arson/explosion/suspicious fire
☐ Road traffic accidents
☐ Forgery and/or alteration of documents
☐ Other (please specify):.....

14. If you attend the scene of crime, do you normally wear protective clothing?

☐ Yes ☐ No
☐ Only in serious crimes (e.g. homicide, rape, explosions, etc.)

15. Do you receive physical evidence, exhibits in your laboratory?

☐ Yes ☐ No

16. Who sends you these exhibits? (please tick all appropriate boxes)

☐ SOCOs ☐ CID ☐ Crown Prosecutors
☐ Customs ☐ Military Police ☐ Defence attorneys
☐ Hospitals ☐ Forensic Medicine Unit
☐ Others (please specify):.....

17. Do you have a quality control manual or standard operating procedures in your laboratory?

☐ Yes ☐No
☐ Don't know

18. If yes, please specify what procedures does the manual include?

.....

19. Are there any problems in the exhibits sent to you?

☐ Nearly always ☐ Usually ☐ Sometimes
☐ Rarely ☐ Never

20. If there are problems, what are they? (please tick all appropriate boxes)

☐ Lack of information (case no., item no.)
☐ Poorly packaged ☐ Exhibits are mixed together
☐ Break in chain of custody
☐ Others (please specify):.....

21. When you have a problem with such exhibits, what do you do?

☐ Refuse the exhibits, and return them back to the sender
☐ Do the forensic analysis, and notify the sender about the mistake
☐ Do the forensic analysis, and mention the mistake in the report
☐ Refuse the exhibits and inform supervisor
☐ Do the forensic analysis as normal
☐ Others (please specify):.....

22. Does another member of staff confirm the analytical results?

☐ Nearly always ☐ Usually ☐ Sometimes
☐ Rarely ☐ Never

23. If your results are approved by another member of staff, who is he/she?

☐ Head of the unit/branch
☐ Another colleague
☐ Others (please specify):.....

24. Do you write reports for prosecution/ defence attorneys?

☐ Nearly always ☐ Usually ☐ Sometimes
☐ Rarely ☐ Never

25. If you write reports, do you keep records of these reports?

☐ Yes ☐ No

26. Have you given evidence at criminal trials where your reports were discussed?

☐ Nearly always ☐ Usually ☐ Sometimes
☐ Rarely ☐ Never

27. If you have given evidence at criminal trials, what type of information were you mainly asked about?

☐ Methods used for collecting physical evidence ☐ Methods of analysis
☐ Findings and interpretation
☐ Others (please specify):.....

28. Is the laboratory using new technology and new technical equipment for analysing exhibits?

☐ Yes ☐ No ☐ Don't know

29. If yes, please specify the kind of equipment you are using in your unit or branch?

.....

30. Who supplies you with periodicals, articles, and books related to your field?

☐ Self subscription ☐ Department or Unit
☐ Department Library ☐ Through the internet
☐ Research and Development Unit ☐ Connection with other Chemists
☐ Colleagues
☐ Others (please specify):.....

31. This question is for those who work in a public sector forensic science/ medicine laboratory

(A) What do you think about the work of private forensic science/medicine laboratories in respect of quality and expertise?

Please specify your answer:.....

(B) What do you think about the work of scene of crime investigators in respect of packaging physical evidence and writing information needed on each exhibit?

Please specify your answer:.....

32. This question is for those who work in private sector forensic science/medicine laboratories

(A)What do you think about the work of public forensic science/medicine laboratories in respect of quality and expertise?

Please specify your answer:.....

(B) Do you think that items received from public forensic science/medicine laboratories are adequate for further analysis?

☐ Yes ☐ No

If your answer is no, please sustain your opinion

.....

Thank you for your time and co-operation

APPENDIX B

Questionnaire Instrument Used by Defence Solicitors

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Forensic Science Unit
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Glasgow G1 1XW
Scotland
Tel: 0141 348 2237

Dear Sir or Madam:

I am a senior member at the Kuwaiti Police Force. I operated as a forensic toxicologist from 1987 until 1990 and, since then, as a crime scene officer at the General Department of Forensic Science Evidence. I am carrying out a Ph.D. research into the reliability of defence expert evidence in the Kuwaiti criminal justice system at the University of Strathclyde. As part of the research, I am making comparisons between defence solicitors in Kuwait, Egypt and the UK in respect of their awareness of forensic science practice. The aim is to identify any possible weakness in the court monitoring system of expert evidence by the defence in Kuwait and recommend guidelines for effective testing of courtroom science.

I would be very grateful if you could spare a little of your time to fill in the enclosed questionnaire. All the information gathered by the questionnaire will be treated in strict confidence, and your anonymity is assured at all times. The information is exclusively for research purposes.

Should you have any questions, comments or suggestions please do not hesitate to contact me at the above address, or by E-Mail:*Meshary1@Hotmail.com*

Thank you for your interest, and co-operation

Yours Sincerely
Jamal Al-Darweesh
Kuwait Police Force

Questionnaire for defence solicitors

Please answer each question by ticking the appropriate box or, the one nearest to your opinion, or, in the few cases necessary, writing in your answer.

1. How many years have you been practicing?

☐ Less than 5 ☐ 5-9 ☐ 10-14
☐ 15-19 ☐ 20 or more

2. What type of cases do you usually represent your clients in?

☐ Criminal cases ☐ Civil cases ☐ Both criminal and civil cases

3. In criminal cases, what kind of case do you represent your clients in at trials?

☐ Paternity/ Maternity cases
☐ Motor Vehicle theft
☐ Burglary
☐ Robbery
☐ Larceny
☐ Embezzlement
☐ Force entry and trespass
☐ Rape
☐ Child sexual abuse
☐ Other sexual offences
☐ Homicide/suspicious death
☐ Suicide
☐ Assault
☐ Aggravated assault and battery
☐ Drug abuse
☐ Arson/explosion/suspicious fire
☐ Road traffic accidents
☐ Forgery and/or alteration of documents
☐ Driving under the influence of drugs or alcohol
☐ Other (please specify):.....

4. Do you have knowledge about the forensic work (forensic science laboratory and crime scene investigation)?

☐ Yes ☐ No

5. Was the field of the forensic science a part of your Law degree?

☐ Yes ☐ No

6. Did you attend forensic science seminar(s)?

☐ Yes ☐ No

7. If yes, what was the main focus of the seminar(s)?

☐ Crime scene investigation
☐ Forensic science laboratory
☐ Both Crime scene investigation and forensic science laboratory
☐ Other (please specify):.....

8. What the types of cases do you use scientific experts in?

☐ Comparison of fingerprints and/or shoe prints
☐ Paternity/ Maternity cases
☐ Motor Vehicle theft
☐ Burglary
☐ Robbery
☐ Larceny
☐ Embezzlement
☐ Force entry and trespass
☐ Rape
☐ Child sexual abuse
☐ Other sexual offences
☐ Homicide/suspicious death
☐ Suicide
☐ Assault
☐ Aggravated assault and battery
☐ Drug abuse
☐ Arson/explosion/suspicious fire
☐ Road traffic accidents
☐ Forgery and/or alteration of documents
☐ Driving under the influence of drugs or alcohol
☐ Other (please specify):.....

9. Have you rigorously cross-examined a scientist about his/ her work?

☐ Yes ☐ No

10. If yes, what was the nature of the cross-examination? (You can tick all appropriate boxes)

☐ The way of collecting physical evidence ☐ The quality of their work
☐ Irrelevant evidence lifted ☐ Break in the chain of custody
☐ Control samples ☐ Conflict in the analytical results
☐ Contamination of evidence ☐ Poor packaging
☐ Other (please specify):.....

11. From your experience, do you know the procedure of chain of custody?

☐ Yes ☐ No

12. If yes, please explain:.....

13. In your career, have you experienced a case in which the prosecution challenged the quality of scientific evidence presented by your expert(s)?

☐ Yes ☐ No

14. If yes, please explain the reason? (You can tick all appropriate boxes)

☐ The method of lifting ☐ Irrelevant evidence lifted
☐ Break in chain of custody ☐ Control samples
☐ Contradiction in the analytical results
☐ Contamination
☐ Type of packaging
☐ Other (please specify).....

15. From your experience, do you think that private sectors forensic practitioners are qualified and subscribe to a code of practice?

☐ Yes ☐ No

16. If no, please sustain your answer.....

17. From your experience, do think that public sectors forensic practitioners are qualified and subscribe to a code of practice?

☐ Yes ☐ No

18. If no, please sustain your answer

……

Thank you for your time and co-operation

APPENDIX C

Tables Containing Quantitative Data of Questionnaires

1) Forensic Practitioners' Questionnaire

Table 4.1: Which branch, or unit do you work in?

In this question the respondents were asked to pick more than one box.

	Kuwait-public	Egypt-public	Egypt-private	UK-private
Responses of QDEs				
Handwriting analysis & Document examination *Frequency* *Percent*	13 100%	10 100%	6 100%	17 100%
Other *Frequency* *Percent*	0	0	2 33.3%	7 41.2%
Responses of medical practitioners				
Biology *Frequency* *Percent*	0	0	0	0
Questioned documents *Frequency* *Percent*	0	0	2 33.3%	0
Medical examination *Frequency* *Percent*	13 100%	12 100%	6 100%	7 53.8%
Pathology *Frequency* *Percent*	13 100%	12 100%	0	6 46.2%
General practice *Frequency* *Percent*	0	0	0	0
Serology *Frequency* *Percent*	0	0	0	0
Other *Frequency* *Percent*	0	0	0	0

Table 4.2: Qualifications of the respondents

	Diploma	BSc	Master	PhD	other	Total
Responses of QDs						
Egypt-public *Frequency* *Percent*	1 10%	6 60%	3 30%	0	0	10 100%
Kuwait-public *Frequency* *Percent*	3 23%	9 69.3%	0	1 7.7%	0	13 100%
Egypt-private *Frequency* *Percent*	0	3 50%	0	3 50%	0	6 100%
UK-private *Frequency* *Percent*	0	6 35.3%	5 29.4%	5 29.4%	1 5.9%	17 100%
Responses of medical practitioners						
Egypt-public Frequency *Percent*	0	0	1 8.3%	1 8.3%	12 100%	14 116.6%
Kuwait-pubic Frequency *Percent*	0	0	3 23.1%	4 30.8%	7 53.8%	14 107.6%
Egypt-private Frequency *Percent*	0	0	0	6 100%	6 100%	12 200%
UK-private Frequency *Percent*	0	0	8 61.5%	1 7.7%	13 100%	22 169.2%

Table 4.3: Did you specialise in forensic science before being appointed to your current work?

	Yes	No	Total
Responses of QDs. One respondent from the UK did not participate in this question.			
Egypt-public *Frequency* *Percent*	8 80%	2 20%	10 100%
Kuwait-public *Frequency* *Percent*	6 46.1%	7 53.9%	13 100%
Egypt-private *Frequency* *percent*	5 83.3%	1 16.7%	6 100%
UK-private *Frequency* *Percent*	14 82.3%	2 11.7%	16 94%

Responses of medical practitioners			
Egypt-public *Frequency* *Percent*	11 91.7%	1 8.3%	12 100%
Kuwait-public *Frequency* *Percent*	10 76.9%	3 23.1%	13 100%
Egypt-private *Frequency* *Percent*	6 100%	0	6 100%
UK-private *Frequency* *Percent*	10 76.9%	3 23.1%	13 100%

Table 4.4: How many years of experience do you have in your current job?

Years	<5	5-9	10-14	15-20	21>	Total
Responses of QDs						
Egypt-public *Frequency* *Percent*	2 20%	7 70%	0	0	1 10%	10 100%
Kuwait -public *Frequency* *Percent*	1 7.7%	1 7.7%	4 30.8%	6 46.1%	1 7.7%	13 100%
Egypt-private *Frequency* *Percent*	0	0	0	2 33.4%	4 66.6%	6 100%
UK-private *Frequency* *Percent*	0	1 5.9%	2 11.8%	3 17.6%	11 64.7%	17 100%
Responses of medical practitioners						
Egypt-public *Frequency* *Percent*	9 75%	0	1 8.3%	2 16.7%	0	12 100%
Kuwait-public *Frequency* *Percent*	2 15.4%	1 7.7%	2 15.4%	5 38.4%	3 23.1%	13 100%
Egypt-private *Frequency* *Percent*	0	0	0	1 16.6%	5 83.3%	6 100%
UK-private *Frequency* *Percent*	0	3 23%	0	6 46.2%	4 30.8%	13 100%

Table 4.5: Do you read periodicals, articles, and books related to your field?

	Nearly always	Usually	Sometimes	Rarely	Never	Total
Responses of QDs						
Egypt-public *Frequency* *Percent*	6 60%	0	3 30%	0	1 10%	10 100%
Kuwait-public *Frequency* *Percent*	2 15.4%	1 7.7%	5 38.4%	4 30.8%	1 7.7%	13 100%
Egypt-private *Frequency* *Percent*	0	2 33.3%	1 16.7%	0	3 50%	6 100%
UK-private *Frequency* *Percent*	7 41.2%	4 23.5%	6 35.3%	0	0	17 100%
Responses of medical practitioners						
Egypt-public *Frequency* *Percent*	4 33.3%	4 33.3%	3 25%	0	1 8.4%	12 100%
Kuwait-public *Frequency* *Percent*	4 30.8%	4 30.8%	2 15.4%	2 15.4%	1 7.6%	13 100%
Egypt-private *Frequency* *Percent*	0	1 16.7%	1 16.7%	4 66.6%	0	6 100%
UK-private *Frequency* *Percent*	5 38.5%	5 38.5%	3 23%	0	0	13 100%

Table 4.6: If yes, which of these periodicals do you read? Respondents were asked to tick all appropriate boxes. Only those who participated in the last question were counted to 100%.

	Science & Justice	**Journal of Forensic Sciences**	**Experts & Evidence**	**Analytical chemistry**	**New Scientist/ Al-Dakheliah**	**Medicine Science & Law**	**Forensic Science International**	**FBI**	**Other**
Responses of QDs									
Egypt-public *Frequency* *Percent*	4 44.4%	5 55.5%	3 33.3%	0	4 44.4%	0	2 22.2%	2 22.2%	1 11.1%
Kuwait-public *Frequency* *Percent*	1 8.3%	2 16.6%	0	5 41.6%	10 83.3%	0	1 8.3%	0	0
Egypt-private *Frequency* *percent*	0	0	0	1 33.3%	2 66.6%	1 33.3%	0	0	0
UK-private *Frequency* *Percent*	14 82.3%	15 88.2%	0	0	0	1 5.9%	13 76.5%	0	5 29.4%
Responses of medical practitioners									
Egypt-public *Frequency* *Percent*	0	0	0	0	0	9 81.8%	1 9%	1 9%	5 45.4%
Kuwait-public *Frequency* *Percent*	1 8.3%	1 8.3%	1 8.3%	0	9 75%	7 58.3%	2 16.6%	1 8.3%	2 16.6%
Egypt-private *Frequency* *Percent*	0	0	0	1 16.7%	3 50%	4 66.7%	0	0	0
UK-Private *Frequency* *Percent*	4 30.7%	8 61.5%	0	0	1 7.7%	11 84.6%	5 38.5%	1 7.7%	8 61.8%

Table 4.7: Do you normally benefit from attending the scene of crime?

	Nearly always	Usually	Sometimes	Rarely	Never	Total
Responses of QDs. Three of the UK respondents did not participate in this question.						
Egypt-public *Frequency* *Percent*	2 20%	1 10%	5 50%	1 10%	1 10%	10 100%
Kuwait-public *Frequency* *Percent*	6 46.2%	3 23%	2 15.4%	0	2 15.4%	13 100%
Egypt-private ***Frequency*** *Percent*	2 33.4%	0	2 33.4%	1 16.6%	1 16.6%	6 100%
UK-private ***Frequency*** *Percent*	8 47%	1 5.9%	3 17.6%	2 11.8%	0	14 82.3%
Responses of medical practitioners. One medical practitioner from Kuwait did not participate in this question.						
Egypt-public ***Frequency*** *Percent*	3 25%	5 41.7%	4 33.3%	0	0	12 100%
Kuwait-public ***Frequency*** *Percent*	4 30.7%	5 38.4%	3 23%	0	0	12 92.1%
Egypt-private ***Frequency*** *Percent*	1 16.7%	2 33.3%	1 16.7%	0	2 33.3%	6 100%
UK-private ***Frequency*** *Percent*	4 30.8%	5 38.5%	3 23%	1 7.7%	0	13 100%

Table 4.8: If your answer is affirmative, please specify what benefits?

Respondents were asked to pick all appropriate boxes, and those who did not participate in table 4.7 were excluded from these results.

	Locating & gathering evidence	**Acquiring knowledge**	**Preventing contamination**	**Other**
Responses of QDs				
Egypt –public *Frequency* *Percent*	6 66.7%	2 22.3%	3 33.4%	1 11.1%
Kuwait –public *Frequency* *Percent*	10 90.9%	9 81.8%	3 27.3%	1 9%
Egypt-private *Frequency* *Percent*	4 80%	5 100%	0	0
UK-private *Frequency* *Percent*	5 35.7%	2 14.3%	8 57.1%	3 21.4%
Responses of medical practitioners				
Egypt-public *Frequency* *Percent*	11 91.7%	11 91.7%	10 83.3%	0
Kuwait-public *Frequency* *Percent*	8 66.6%	11 91.6%	2 16.6%	0
Egypt-private *Frequency* *Percent*	2 50%	4 100%	2 50%	0
UK-private *Frequency* *Percent*	5 38.5%	6 46.1%	6 46.1%	1 7.7%

Table 4.9: Have you been certified for your current work?

	Yes	No	Total
Responses of QDs			
Egypt-public *Frequency* *Percent*	10 100%	0	10 100%
Kuwait-public *Frequency* *Percent*	8 61.5%	5 38.5%	13 100%
Egypt-private *Frequency* *Percent*	2 33.4%	4 66.6%	6 100%
UK-private *Frequency* *Percent*	12 70.6%	5 29.4%	17 100%
Responses of medical practitioners			
Egypt-public *Frequency* *Percent*	10 83.3%	2 16.7%	12 100%
Kuwait-public *Frequency* *Percent*	9 69.2%	4 30.8%	13 100%
Egypt-private *Frequency* *Percent*	3 50%	3 50%	6 100%
UK-private *Frequency* *Percent*	7 53.9%	6 46.1%	13 100%

Table 4.10: Are you normally required to attend the scene of the crime?

	Yes	No	Total
Responses of QDs			
Egypt –public *Frequency* *Percent*	0	10 100%	10 100%
Kuwait –public *Frequency* *Percent*	0	13 100%	13 100%
Egypt-private *Frequency* *Percent*	0	6 100%	6 100%
UK-private *Frequency* *Percent*	4 23.5%	13 76.5%	17 100%

Responses of medical practitioners				
Egypt-public *Frequency* *Percent*	12 100%	0		12 100%
Kuwait-public *Frequency* *Percent*	12 92.3%	1 7.7%		13 100%
Egypt-private *Frequency* *Percent*	3 50%	3 50%		6 100%
UK-private *Frequency* *Percent*	9 69.3%	4 30.7%		13 100%

Table 4.11: If you attend crime scenes, in what type of crimes? Respondents were asked to pick all appropriate boxes, and only those who participated in table 4.10 were included.

	Kuwait-public	**Egypt-public**	**Egypt-private**	**UK-private**
Responses of medical practitioners				
Paternity/maternity *Frequency* *Percent*	0	0	2 66.6%	0
Robbery *Frequency* *Percent*	0	0	0	0
Sexual assaults *Frequency* *Percent*	6 50%	3 25%	0	2 22.2%
Motor vehicle theft *Frequency* *Percent*	0	0	0	0
Burglary *Frequency* *Percent*	0	0	0	0
Larceny *Frequency* *Percent*	0	0	0	0
Force entry & trespass *Frequency* *Percent*	0	0	0	0
Rape *Frequency* *Percent*	8 66.6%	5 41.6%	3 100%	3 33.3%
Child sexual abuse *Frequency* *Percent*	6 50%	2 16.6%	3 100%	2 22.2%
Embezzlement *Frequency* *Percent*	0	0	0	0
Suicide *Frequency* *Percent*	11 91.6%	3 25%	1 33.3%	6 66.6%
Assaults *Frequency* *Percent*	5 41.6%	4 33.3%	0	3 33.3%

Homicide/ suspected death *Frequency* *Percent*	12 100%	12 100%	3 100%	6 66.6%
Aggravated assaults & battery *Frequency* *Percent*	11 91.6%	2 16.6%	3 100%	3 33.3%
Drug abuse *Frequency* *Percent*	0	0	0	2 22.2%
Arson/suspicious fire/explosion *Frequency* *Percent*	5 41.6%	6 50%	0	2 22.2%
Road traffic accidents *Frequency* *Percent*	0	0	1 33.3%	8 88.8%
Forgery &or alteration of documents *Frequency* *Percent*	0	0	2 66.6%	0
Other *Frequency* *Percent*	0	12 100%	0	0

Table 4.12: If you attend the scene of crime, do you normally wear protective clothing? Only those who participated in table 4.10 were counted to 100%.

	Yes	**No**	**Only in serious crimes**	**Total**
Egypt-public *Frequency* *Percent*	0	12 100%	0	12 100%
Kuwait -public *Frequency* *Percent*	1 8.3%	9 75%	2 16.7%	12 100%
Egypt-private *Frequency* *Percent*	0	3 100%	0	3 100%
UK-private *Frequency* *Percent*	6 66.6%	0	3 33.4%	9 100%

Table 4.13: If your answer is yes, or only in serious crimes, which type of protective clothing do you wear? Respondents were asked to pick all appropriate boxes, and only those who participated in table 4.10 were included.

	Protective overalls	**Footwear**	**Headgear**	**Rubber gloves**	**Respiratory mask**	**Other**
Egypt-public *Frequency* *Percent*	0	0	0	0	0	0
Kuwait-public *Frequency* *Percent*	2 66.6%	1 33.3%	0	3 100%	1 33.3%	0
Egypt-private *Frequency* *Percent*	0	0	0	0	0	0
UK-private *Frequency* *Percent*	7 77.7%	8 88.8%	2 22.2%	8 88.8%	1 11.1%	0

Table 4.14: Do you receive physical evidence, exhibits in your laboratory?

	Yes	**No**	**Total**
Responses of QDs			
Egypt-public *Frequency* *Percent*	10 100%	0	10 100%
Kuwait –public *Frequency* *Percent*	13 100%	0	13 100%
Egypt-private *Frequency* *Percent*	6 100%	0	6 100%
UK-private *Frequency* *Percent*	17 100%	0	17 100%
Responses of medical practitioners. One of the Kuwaiti medical group did not participate in this question.			
Egypt-public *Frequency* *Percent*	4 33.3%	8 66.7%	12 100%
Kuwait-pubic *Frequency* *Percent*	5 38.5%	7 53.8%	12 92.3%
Egypt-private *Frequency* *Percent*	6 100%	0	6 100%
UK-private *Frequency* *Percent*	10 76.9%	3 23.1%	13 100%

Table 4.15: Who sends you these exhibits? Respondents were asked to tick all appropriate boxes, and only those who participated in table 4.14 were counted to 100%.

	SOCO	**CID**	**Crown prosecutors**	**Custom**	**Military police**	**Hospital**	**Defence attorneys**	**others**
Responses of QDs								
Egypt-public *Frequency* *Percent*	0	2 20%	10 100%	0	0	0	0	1 10%
Kuwait–public *Frequency* *Percent*	4 30.7%	8 61.5%	13 100%	2 15.4%	0	0	0	0
Egypt-private *Frequency* *Percent*	0	0	1 16.7%	0	1 16.7%	0	6 100%	0
UK-private *Frequency* *Percent*	10 58.8%	13 76.5%	8 47%	12 70.6%	7 41.2%	0	14 82.3%	11 64.7%
Responses of medical practitioners								
Egypt-public *Frequency* *Percent*	0	0	4 100%	0	0	0	0	0
Kuwait-public *Frequency* *Percent*	4 80%	3 60%	5 100%	0	0	0	0	1 20%
Egypt-private *Frequency* *Percent*	0	1 16.6%	3 50%	0	3 50%	0	6 100%	0
UK-private *Frequency* *Percent*	1 10%	2 20%	6 60%	2 20%	2 20%	4 40%	9 90%	1 10%

Table 4.16: Do you have a quality control manual or standard operating procedures in your laboratory?

	Yes	No	I don't know	Total
Responses of QDs				
Egypt-public *Frequency* *Percent*	7 70%	0	3 30%	10 100%
Kuwait -public *Frequency* *Percent*	0	4 30.7%	9 69.3%	13 100%
Egypt-private *Frequency* *Percent*	0	5 83.3%	1 16.7%	6 100%
UK-private *Frequency* *Percent*	12 70.6%	5 29.4%	0	17 100%
Responses of medical practitioners. 30.7% of the UK medical respondents did not participate in this question.				
Egypt-public *Frequency* *Percent*	7 58.3%	0	5 41.7%	12 100%
Kuwait-public *Frequency* *Percent*	6 46.2%	2 15.4%	5 38.4%	13 100%
Egypt-private *Frequency* *Percent*	0	4 66.7%	2 33.3%	6 100%
UK-private *Frequency* *Percent*	8 61.5%	0	1 7.7%	9 69.2%

Table 4.17: Are there any problems in the exhibits sent to you?

	Nearly always	Usually	Sometimes	Rarely	Never	Total
Those who did not participate in table 4.14 were not counted to 100%.						
Responses of QDs						
Egypt-public *Frequency* *Percent*	0	1 10%	8 80%	1 10%	0	10 100%
Kuwait-public *Frequency* *Percent*	1 7.7%	0	5 38.5%	6 46.1%	1 7.7%	13 100%
Egypt-private *Frequency* *Percent*	0	1 16.7%	4 66.6%	1 16.7%	0	6 100%
UK-private ***Frequency*** *Percent*	0	2 11.8%	11 64.7%	3 17.6%	1 5.9%	17 100%

Responses of medical practitioners

Egypt-public *Frequency* *Percent*	0	0	5 83.3%	1 16.7%	0	6 100%
Kuwait-public *Frequency* *Percent*	0	0	3 60%	2 40%	0	5 100%
Egypt-private *Frequency* *Percent*	0	0	4 66.7%	2 33.3%	0	6 100%
UK-private *Frequency* *Percent*	0	0	0	4 40%	6 60%	10 100%

Table 4.18: If there are problems, what are they? Respondents were asked to tick all appropriate boxes. Those who did not participate in the previous question were not included.

	Lack of Information	**Poorly packed**	**Exhibits are mixed together**	**Break in chain of custody**	**Other**
Responses of QDs					
Egypt-public *Frequency* *Percent*	8 80%	4 40%	0	2 20%	2 20%
Kuwait-public *Frequency* *Percent*	11 84.6%	4 30.7%	0	3 23%	0
Egypt-private *Frequency* *Percent*	6 100%	3 50%	1 16.7%	0	0
UK-private *Frequency* *Percent*	13 76.5%	4 23.5%	4 23.5%	2 11.8%	7 41.2%
Responses of medical practitioners. Only one respondent from UK participated in this question.					
Egypt-public *Frequency* *Percent*	6 100%	6 100%	6 100%	5 83.3%	0
Kuwait-public *Frequency* *Percent*	2 40%	5 100%	4 80%	3 60%	0
Egypt-private *Frequency* *Percent*	5 83.4%	5 83.4%	3 50%	1 16.7%	0
UK-private *Frequency* *Percent*	0	0	0	0	1 25%

Table 4.19: When you have a problem with such exhibits, what do you do?
Respondents were asked to tick all appropriate boxes, and only those who participated in table 4.17 were counted to 100%.

	Refuse & Return	Do analysis & notify the sender	Do analysis & mention mistakes in report	Reject exhibit & inform head of unit	Do analysis As usual	Others
Responses of QDs						
Egypt-public *Frequency* *Percent*	3 30%	2 20%	2 20%	3 30%	0	0
Kuwait-public *Frequency* *Percent*	3 25%	1 8.3%	1 8.3%	8 66.6%	1 8.3%	0
Egypt-private *Frequency* *Percent*	2 33.3%	1 16.7%	4 66.7%	0	0	0
UK-private *Frequency* *Percent*	0	8 50%	4 25%	0	0	10 62.5%
Responses of medical practitioners						
Egypt-public *Frequency* *Percent*	0	0	0	6 100%	0	0
Kuwait-public *Frequency* *Percent*	2 40%	0	2 40%	5 100%	0	0
Egypt-private *Frequency* *Percent*	3 50%	1 16.7%	2 33.3%	0	0	0
UK-private *Frequency* *Percent*	0	4 100%	4 100%	0	0	0

Table 4.20: Does another member of staff confirm the analytical results?

	Nearly always	Usually	Sometimes	Rarely	Never	Total
Responses of QDs						
Egypt-public *Frequency* *Percent*	10 100%	0	0	0	0	10 100%
Kuwait-public *Frequency* *Percent*	11 84.6%	2 15.4%	0	0	0	13 100%
Egypt-private *Frequency* *Percent*	1 16.7%	0	1 16.7%	0	4 66.6%	6 100%
UK-private *Frequency* *Percent*	11 64.7%	0	4 23.5%	0	2 11.8%	17 100%

Responses of medical practitioners

Egypt-public *Frequency* *Percent*	11 91.7%	1 8.3%	0	0	0	12 100%
Kuwait-public *Frequency* *Percent*	9 69.2%	2 15.4%	2 15.4%	0	0	13 100%
Egypt-private *Frequency* *Percent*	1 16.7%	2 33.3%	0	0	3 50%	6 100%
UK-private *Frequency* *Percent*	13 100%	0	0	0	0	13 100%

Table 4.21: If your results are approved by another member of staff, who is he/she?

The respondents were asked to pick all appropriate boxes. Of those who did not participate in the previous question were not included.

	Head of the unit	**Colleague**	**Other**
Responses of QDs			
Egypt-public *Frequency* *Percent*	10 100%	0	0
Kuwait-public *Frequency* *Percent*	13 100%	6 46.1%	0
Egypt-private *Frequency* *Percents*	0	2 100%	0
UK-private *Frequency* *Percent*	0	15 100%	0
Responses of medical practitioners			
Egypt-public *Frequency* *Percent*	9 75%	12 100%	0
Kuwait-public *Frequency* *Percent*	3 23%	13 100%	0
Egypt-private *Frequency* *Percents*	0	3 100%	0
UK-private *Frequency* *Percent*	0	13 100%	0

Table 4.22: Do you write reports for prosecution/ defence attorneys?

	Nearly always	Usually	Sometimes	Rarely	Never	Total
Responses of QDs.						
Egypt-public *Frequency* *Percent*	10 100%	0	0	0	0	10 100%
Kuwait-public *Frequency* *Percent*	11 84.6%	2 15.4%	0	0	0	13 100%
Egypt-private *Frequency* *Percent*	3 50%	3 50%	0	0	0	6 100%
UK-private *Frequency* *Percent*	13 76.4%	2 11.8%	2 11.8%	0	0	17 100%
Responses of medical practitioners.						
Egypt-public *Frequency* *Percent*	12 100%	0	0	0	0	12 100%
Kuwait-public *Frequency* *Percent*	9 69.3%	3 23%	1 7.7%	0	0	13 100%
Egypt-private *Frequency* *Percent*	3 50%	3 50%	0	0	0	6 100%
UK-private *Frequency* *Percent*	8 61.6%	3 23%	2 15.4%	0	0	13 100%

Table 4.23: If you write reports, do you keep records of these reports?

	Yes	No	Total
Responded of QDs			
Egypt-public *Frequency* *Percent*	10 100%	0	10 100%
Kuwait-public *Frequency* *Percent*	12 92.3%	1 7.7%	13 100%
Egypt-private *Frequency* *Percent*	6 100%	0	6 100%
UK-private *Frequency* *Percent*	17 100%	0	17 100%

Responses of medical practitioners

Egypt-public *Frequency* *Percent*	12 100%	0	12 100%
Kuwait-public *Frequency* *Percent*	10 76.9%	2 15.4%	12 92.3%
Egypt-private *Frequency* *Percent*	5 100%	0	5 100%
UK-private *Frequency* *Percent*	13 100%	0	13 100%

Table 4.24: Have you given evidence at criminal trials where your reports are discussed?

	Nearly always	**Usually**	**Sometimes**	**Rarely**	**Never**	**Total**
Responses of QDs						
Egypt-public *Frequency* *Percent*	0	2 20%	8 80%	0	0	10 100%
Kuwait-public *Frequency* *Percent*	1 7.7%	0	6 46.2%	4 30.7%	2 15.4%	13 100%
Egypt-private *Frequency* *Percent*	2 33.3%	2 33.3%	2 33.3%	0	0	6 100%
UK-private *Frequency* *Percent*	6 35.3%	1 5.9%	8 47%	1 5.9%	1 5.9%	17 100%

Responses of medical practitioners. One of the medical practitioners from Kuwait did not participate in this question.

Egypt-public *Frequency* *Percent*	1 8.3%	0	11 91.7%	0	0	12 100%
Kuwait-public *Frequency* *Percent*	0	0	7 53.8%	4 30.8%	1 7.7%	12 92.3%
Egypt-private *Frequency* *Percent*	5 83.3%	0	1 16.7%	0	0	6 100%
UK-private *Frequency* *Percent*	4 30.8%	6 46.2%	3 23%	0	0	13 100%

Table 4.25: If you have given evidence at criminal trials, what type of information are you mainly asked about? Respondents were asked to tick all appropriate boxes, and those who did not participate in table 4.24 were not included.

	Collecting method	Methods used in Analysis	Findings & Interpretation	Examine other Expert's reports	other
Responses of QDs					
Egypt-public *Frequency* *Percent*	1 10%	4 40%	10 100%	0	0
Kuwait-public *Frequency* *Percent*	0	8 72.7%	11 100%	0	0
Egypt-private *Frequency* *Percent*	0	0	6 100%	6 100%	0
UK-private *Frequency* *Percent*	1 6.25%	10 62.5%	16 100%	5 31.2%	3 18.7%
Responses of medical practitioners. Two of the Kuwaiti respondents did not participate in this question.					
Egypt-public *Frequency* *Percent*	6 50%	7 85.3%	12 100%	0	0
Kuwait-public *Frequency* *Percent*	0	0	11 100%	0	0
Egypt-private *Frequency* *Percent*	0	0	6 100%	6 100%	0
UK-private *Frequency* *Percent*	5 38.5%	0	11 84.6%	5 38.4%	3 23%

Table 4.26: Is the laboratory using new technology and new technical equipment for analysing exhibits?

	Yes	No	I don't know	Total
Responses of QDs				
Egypt-public *Frequency* *Percent*	10 100%	0	0	10 100%
Kuwait –public *Frequency* *Percent*	11 84.6%	0	2 15.4%	13 100%
Egypt-private *Frequency* *Percent*	2 33.3%	4 66.7%	0	6 100%
UK-private *Frequency* *Percent*	9 52.9%	8 47.1%	0	17 100%

Responses of medical practitioners. 30.8% of the Kuwaiti respondents and 92.3% of the UK respondents did not answer this question.

Egypt-public *Frequency* *Percent*	4 33.3%	8 66.4%	0	12 100%
Kuwait –public *Frequency* *Percent*	3 23.1%	6 46.1%	0	9 69.2%
Egypt-private *Frequency* *Percent*	2 33.3%	4 66.7%	0	6 100%
UK-private *Frequency* *Percent*	0	1 7.7%	0	1 7.7%

Table 4.27: Who supplies you with periodicals, articles, and books related to your field? Respondents were asked to tick all appropriate boxes. Those who did not participate in table 4.5 were not included.

	Self participation	**Department or unit**	**Department library**	**Internet**	**Research & development unit**	**Connection with other chemists**	**Colleagues**	**Other**
Responses of QDs. One respondent from the Egyptian private group did not participate in this question.								
Egypt-public *Frequency* *Percent*	1 11.1%	2 22.2%	7 77.7%	1 11.1%	0	2 22.2%	4 44.4%	0
Kuwait-public *Frequency* *Percent*	1 8.3%	8 66.6%	3 25%	4 33.3%	0	0	1 8.3%	0
Egypt-private *Frequency* *Percent*	2 66.6%	0	0	2 66.6%	0	0	0	0
UK-private *Frequency* *Percent*	14 82.3%	2 11.8%	0	4 23.5%	0	0	6 35.3%	2 11.8%

Responses of medical practitioners

Egypt-public *Frequency* *Percent*	2 18.2%	2 18.2%	8 72.7%	5 45.4%	0	0	4 36.3%	0
Kuwait-public *Frequency* *Percent*	1 8.3%	8 66.6%	1 8.3%	3 25%	3 25%	0	2 16.6%	0
Egypt-private *Frequency* *Percent*	5 83.3%	0	0	5 83.3%	0	0	0	0
UK-private *Frequency* *Percent*	11 84.6%	0	0	5 38.4%	0	0	0	0

2) Defence Solicitors' Questionnaire

Table 5.1: How many years have you been practicing?

	< 5	5-9	10-14	15-19	20 & >	Total
Kuwait *Frequency* *Percent*	6 16.7%	8 22.2%	10 27.8%	5 13.9%	7 19.4%	36 100%
Egypt *Frequency* *Percent*	4 17.4%	7 30.4%	3 13%	2 8.7%	7 30.4%	23 100%
UK *Frequency* *Percent*	5 16.1%	5 16.1%	6 19.3%	13 41.9%	2 6.4%	31 100%

Table 5.2: What type of cases do you usually represent your clients in?

	Criminal	Civil	Both	Total
Kuwait *Frequency* *Percent*	3 8.3%	6 16.7%	27 75%	36 100%
Egypt *Frequency* *Percent*	6 26.1%	3 8.7%	14 60.9%	23 100%
UK *Frequency* *Percent*	23 74.2%	0	8 25.8%	31 100%

Table 5.3: In criminal cases, what kind of case do you represent your clients in at trials? In this section the respondents were asked to tick all appropriate boxes

	Kuwait	Egypt	UK
Paternity/maternity *Frequency* *Percentage*	14 38.9%	9 39.1%	4 12.9%
Sexual assaults *Frequency* *Percent*	12 33.3%	3 13%	28 90.3%
Force entry &trespass *Frequency* *Percent*	14 38.9%	10 43.5%	24 77.4%
Motor vehicle theft *Frequency* *Percent*	15 41.7%	10 43.5%	28 90.3%
Larceny *Frequency* *Percent*	7 19.4%	2 8.7%	18 58%
Robbery *Frequency* *Percent*	26 72.2%	14 60.9%	30 96.7%
Embezzlement *Frequency* *Percent*	23 63.9%	4 17.4%	25 80.6%
Burglary *Frequency* *Percent*	17 47.2%	8 34.8%	29 93.5%
Rape *Frequency* *Percent*	22 61.1%	7 30.4%	27 87%
Child sexual abuse *Frequency* *Percent*	13 36.1%	6 26.1%	25 80.6%
Homicide/suspected deaths *Frequency* *Percent*	22 61.1%	11 47.8%	24 77.4%
Suicide *Frequency* *Percent*	4 11.1%	2 8.7%	5 16.1%

Assaults *Frequency* *Percent*	17 47.2%	3 13%	30 96.7%
Aggravated assault & battery *Frequency* *Percent*	27 75%	13 56.5%	27 87%
Drug abuse *Frequency* *Percent*	26 72.2%	16 69.6%	30 96.7%
Arson/suspicious fire/explosion *Frequency* *Percent*	12 33.3%	2 8.7%	26 83.8%
Road traffic accidents *Frequency* *Percent*	20 55.6%	10 43.5%	30 96.7%
Forgery &or documents alteration *Frequency* *Percent*	29 80.6%	21 91.3%	26 83.8%
Other *Frequency* *Percent*	8 22.2%	4 17.4%	0

Table 5.4: Do you have knowledge about forensic work (forensic science laboratory and crime scene investigation)?

	Kuwait	Egypt	UK
Yes *Frequency* *Percent*	19 52.8%	21 91.3%	22 71%
No *Frequency* *Percent*	17 47.2%	2 8.7%	9 29%
Total *Frequency* *Percent*	36 100%	23 100%	31 100%

Table 5.5: Was the field of the forensic science a part of your Law degree? Two of the respondents from the Kuwaiti defence solicitors did not participate in this question

	Kuwait	Egypt	UK
Yes *Frequency* *Percent*	10 27.8%	10 43.5%	13 42%
No *Frequency* *Percent*	24 66.7%	13 56.5%	18 58%
Total *Frequency* *Percent*	34 94.4%	23 100%	31 100%

Table 5.6: Did you attend forensic science seminar(s)?

	Kuwait	Egypt	UK
Yes *Frequency* *Percent*	14 38.8%	8 34.7%	18 58%
No *Frequency* *Percent*	22 61.1%	15 65.2%	13 42%
Total *Frequency* *Percent*	36 100%	23 100%	31 100%

Table 5.7: If yes, what was the main focus of the seminar(s)? Only those who participated in table 5.6 answered this question

	Examining crime scenes	Forensic lab.	Both	Other	Total
Kuwait *Frequency* *Percent*	4 28.5%	5 35.7%	4 28.5%	1 7.1%	14 100%
Egypt *Frequency* *Percent*	4 50%	2 25%	1 12.5%	1 12.5%	8 100%
UK *Frequency* *Percent*	1 5.5%	2 11.1%	11 61.1%	4 22.2%	18 100%

Table 5.8: What types of cases do you use scientific experts in? The respondents were asked to tick all appropriate boxes

	Kuwait	Egypt	UK
Fingerprints/footwear impression			
Frequency	28	18	24
Percent	77.8%	78.3%	77.4%
Paternity/maternity			
Frequency	27	12	7
Percent	75%	52.2%	22.6%
Motor vehicle theft			
Frequency	17	6	8
Percent	47.2%	26.1%	25.8%
Robbery			
Frequency	25	9	11
Percent	69.4%	31.1%	35.5%
Burglary			
Frequency	14	5	11
Percent	38.9%	21.7%	35.5%
Sexual assaults			
Frequency	11	1	17
Percent	30.6%	4.3%	54.8%
Larceny			
Frequency	1	0	6
Percent	2.7%		19.3%
Embezzlement			
Frequency	6	4	9
Percent	16.7%	17.4%	29%
Force entry & trespass			
Frequency	7	6	9
Percent	19.4%	26.1%	29%
Rape			
Frequency	27	10	23
Percent	75%	43.5%	74.2%
Child sexual abuse			
Frequency	24	9	21
Percent	66.7%	39.1%	67.7%
Homicide/suspected deaths			
Frequency	22	12	22
Percent	61.1%	52.2%	71%
Suicide			
Frequency	9	4	3
Percent	25%	17.4%	9.7%
Assaults			
Frequency	1	0	16
Percent	2.7%		51.6%
Aggravated assaults & battery			
Frequency	19	7	13
Percent	52.8%	30.4%	41.9%
Drug abuse			
Frequency	23	15	22
Percent	63.9%	65.2%	71%
Arson/suspicious fire/ explosion			
Frequency	25	12	15
Percent	69.4%	52.2%	48.4%
Road traffic accidents			
Frequency	16	13	20
Percent	44.4%	56.5%	64.5%

Forgery & or alteration of documents *Frequency* *Percent*	31 86.1%	18 78.3%	21 67.7%
Other *Frequency* *Percent*	5 13.8%	1 4.3%	0

Table 5.9: Have you rigorously cross-examined a scientist about his/ her forensic work?

	Kuwait	**Egypt**	**UK**
Yes *Frequency* *Percent*	17 47.2%	13 56.5%	21 67.7%
No *Frequency* *Percent*	19 52.8%	10 43.5%	10 32.3%
Total *Frequency* *Percent*	36 100%	23 100%	31 100%

Table 5.10: If yes, what was the nature of the cross-examination? The respondents were asked to tick all appropriate boxes. All of the respondents, who participated in table 5.9, answered this question, and were counted to 100%.

	Way of lifting	**Quality of work**	**Evidence lifted**	**Break in chain of custody**	**Control samples**	**Conflict in analytical results**	**Contamination**	**Type of packaging**	**Other**
Kuwait *Frequency* *Percent*	9 52.9%	8 47%	9 52.9%	5 29.4%	5 29.4%	11 64.7%	1 5.8%	1 5.8%	0
Egypt *Frequency* *Percent*	7 53.8%	4 30.7%	5 38.4%	1 7.6%	4 30.7%	13 100%	3 23%	5 38.4%	0
UK *Frequency* *Percent*	16 76.2%	13 61.9%	6 28.6%	14 66.6%	7 33.3%	13 61.9%	15 71.4%	9 42.8%	1 4.8%

Table 5.11: From your experience, do you know the procedure of chain of custody?

	Kuwait	Egypt	UK
Yes *Frequency* *Percent*	1 2.8%	0	15 48.4%
No *Frequency* *Percent*	32 88.9%	22 95.7%	16 51.6%
Total *Frequency* *Percent*	33 91.7%	22 95.7%	31 100%

Table 5.12: Have you experienced a case in which the prosecution challenged the quality of scientific evidence presented by your expert(s)?

	Kuwait	Egypt	UK
Yes *Frequency* *Percent*	15 41.7%	13 56.5%	2 6.4%
No *Frequency* *Percent*	21 58.3%	10 43.4%	27 93.6%
Total *Frequency* *Percent*	36 100%	23 100%	31 100%

Table 5.13: If yes, please explain the reason? The respondents were asked to tick all appropriate boxes, and only those who participated in Table 5.12 answered this question.

	Way of lifting	Irrelevant Evidence lifted	Break in chain of custody	Control samples	Contradiction in analytical results	Contamination	Type of packaging	Other
Kuwait *Frequency* *Percent*	7 46.6%	6 40%	4 26.6%	4 26.6%	11 73.3%	4 26.6%	5 33.3%	0
Egypt *Frequency* *Percent*	6 46.1%	2 15.3%	4 30.7%	3 23%	9 69.2%	2 15.3%	5 38.4%	0
UK *Frequency* *Percent*	1 50%	0	1 50%	1 50%	1 50%	1 50%	1 50%	0

APPENDIX D

Questions Constructed for the Interviewees

Questions introduced to senior forensic practitioners from both public and private sectors

1) Are the scientists in your department certified to work in the field of forensic science?
2) In your establishment, are there forensic scientists qualified to act as expert witnesses? Who qualified them?
3) Is the department providing refresher training programmes for its staff?
4) What are the contents of the training courses?
5) Are scientists being provided by specialist training courses on how to give evidence in court?
6) Who was paying for these training programmes?
7) Is there a library within the department? Are there journals, articles and books relevant to the forensic practice for the staff to read?
8) Is there a research and development unit in your establishment?
9) Do forensic practitioners participate in forensic proceedings? Who organises such proceedings?
10) Is it importance to have quality assurance and quality control systems within the forensic science practice?
11) Are they being applied in your establishment?
12) Is your establishment accredited? By which agency?
13) What are the indicators that give rise to quality evidence?
14) Do you subscribe to a 'Code of Practice' for forensic practitioners?
15) Would you be prepared to be registered as a competent forensic practitioner and subscribe to a Code of Practice?
16) What is chain of custody in the forensic practice? Is it applied in your work?
17) Is there a special unit within the forensic laboratory that receives forensic evidence?
18) What are the qualifications of individuals operating in this unit?
19) Are they properly trained on how to handle forensic evidence?
20) What type of information do you require when receiving and releasing exhibits?
21) Who are the users of the services provided by your department?
22) Do you think that you are getting paid enough for your consultancy?
23) Is the public forensic science laboratory in Kuwait providing its services for both the prosecution and the defence attorneys equally?
24) Is it true that the State forensic laboratory in Kuwait is always presenting results to the prosecution favour? Please explain.

25) Is it true that private sector forensic practitioners always give expert evidence in favour of the hiring party? Please explain.

Questions introduced to judges, prosecution and defence attorneys

1) Could you please describe your knowledge in the field of forensic science, and explain how did you gain this knowledge?
2) Are you in favour of training courses in the field of forensic science for judges and lawyers? Why?
3) How do you deal with new techniques and developments in the forensic scientific evidence?
4) How do you deal with problems relating to the use of forensic scientific evidence such as contamination?
5) How do you deal with reports and opinions of forensic experts presented by the parties in court?
6) What action do you take if you are not convinced with the final findings of any forensic report presented to you?
7) Do you think that there is a room for partial expert opinion in Kuwait court?
8) In your opinion, is there a need for defence experts? Why?
9) Do you agree that quality assurance system within the forensic practice is paramount to lessen the risk of and detect potential errors in forensic practice?
10) In your opinion, what should be done in order to ensure that expert evidence is validated and is being given competently and objectively?
11) Do you think that a peer review system within the forensic practice is important? Why?
12) Do you think that a system of professional registration for forensic practitioners is needed in Kuwait? Why?

Questions introduced to members of the Council for the Registration of Forensic Practitioners in the United Kingdom

1) Is the government funding the Council?
2) Why the trend is going towards professional registering rather than accrediting technical testing?
3) Since the Council strategy is to determine competence based on review of a portfolio of previous casework, how can the newly recruited forensic practitioners be assessed? Is the assessment based on expertise, experience or both?
4) Are the candidates going to be known as competent in a specific area of speciality? What about those who give expert evidence on matters outside the area of professional competence?

5) Is registration with the Council mandatory?
6) For those who operate in State forensic laboratories, who would pay their registration fee? How much is the fee? What about 'equality of arms' and who is going to pay for defence experts?
7) Given that defence experts' investigation is often restricted to reviewing the work product of police experts, mainly their final reports, is the Council following a certain policy to assess competence of defence experts?
8) What about forensic pathologists and forensic medical examiners, do they have to register, after knowing the fact that they are already authorised?
9) What does the assessment process involve and what are the standards required for candidates to be on the competence list?
10) It is known that the difference between competent forensic practice and competent professionalism is that the later need to be involved in publication, presenting papers in conferences and arranging seminars, however, how can those who operate in State laboratories reach professionalism in the light of the increase of caseload in practice?
11) In your opinion, does professional registration guarantee ethical conduct?
12) How can the Council assess ethical conduct? And what about those who operate in single-person organisations, how can the council ensure that they comply with a code of ethics in their practice?
13) As a part of the assessment, forensic practitioners need to prove that they follow a recognised standard operational procedure in their practice, what if a practitioner invented his own procedure which was found to be effective for specific analysis?
14) What is the assessment strategy for giving expert evidence in court? Are the assessors ongoing officers?
15) Who are the assessors and how are they being elected?
16) What is your respond to those who say 'who assess the assessors', and is there any regulation within the Council policy for assessors to maintain professional competence?
17) In Scotland experts are being authorised by the Secretary of the State for Scotland, do you think that this type of authorisation proves professional competence? Why?

APPENDIX E
Names of Individuals Who were Interviewed and Contacted

Personal interviews

Abdah, Nawal, publicly funded forensic scientist, Quality Control Unit, Forensic Science Laboratory Department, General Department of Forensic Science Evidence, Ministry of Interior, Kuwait, 15 April 2001, 1:35 pm.

Abdul Satar, Dr Sami, Histopathologist, Forensic Medicine Department, General department of Forensic Science Evidence, Ministry of Interior, Kuwait, 15 July 2002, 10:00 am.

Ablett, Peter, Director of the National Training Centre For Scientific Support To Crime Scene, Harperley Hall, County Durham, U.K., 18 June 2001, 1:18 pm.

Abo Al-kasem, General Dr. Ahmed, private forensic document expert, Secretary and Legal Expertise House, Cairo, Egypt, 4 December 2001, 3:00 pm.

Ahmed, Dr Ramzy, private forensic medical examiner, Cairo, Egypt, 8 January 2001, 6:30 pm.
Ahmed, Dr. Ramzy, 5 December 2001, 7:00 pm.

Al-Alousi, Dr. Louay, senior lecturer in forensic pathology, Department of Forensic Medicine and Science, University of Glasgow, Glasgow, Scotland, 04 February 2002, 2:00 pm.
Al-Alousi, Dr. Louay, 20 March 2002, 1:30 pm.

Al-Bader, Khayal, private question documents examiner , Kuwait, 24 December 2001, 1:30 pm.

Al- be'ejan, Judge Abdul Salam, Criminal Trial Division, Justice Palace, Kuwait, 13 February 2002, 9:30 am.

Al-Dakheel, Sir Abdul Azeez, private legal consultant, Kuwait, 22 January 2001, 9:30 am.

Al-Dusri, Col. Dr Fahad, Director of the Scene of Crime Officers Department, General Department of Forensic Science Evidence, Ministry of Intrior, Kuwait, 22 January 2001, 11:30 am.
Al-Dusri, Dr Fahad, 30 March 2001, 8:00 pm.
Al-Dusri, Dr Fahad, 12 July 2002, 1:30 pm.

Al-Essa, Judge Adel, Kuwait Institute of Judicial and Legal Studies, Kuwait, 10 January 2002, 11:00 am.

Al-Fahad, Romi, defence attorney, Al-Sharq, Kuwait, 10 January 2001, 9:30 pm.

Al-Hussaini, Ahmed, prosecutor, Criminal Trial Division, Justice Palace, Kuwait, 6 January 2002, 10:30 am.

Al-Jaser, Judge Adnan, judge in criminal trial in the Justice Palace, Kuwait, 25 January 2001, 9:30 pm.

Al-Jaser, Salah, prosecutor, Criminal Trial Division, justice Palace, Kuwait, 17 February 2002, 11:00 pm.

Al-Khalifa, Col. Dr Bader, Director of Forensic Science Laboratory, General Department of Forensic Science Evidence, Ministry of Interior, Kuwait, 15.4.2001, 11:47 am.

Al-Mutairat, Judge Nayef, judge in criminal trials in the Justice Palace, Kuwait, 19 April 2001, 9:45 pm.

Al-Raqem, Yousef, defence attorney, Kuwait, 24 April 2001, 8:25 pm.

Al-Sane'a, Reyadh, defence attorney, President of the Bar Association, Kuwait, 7 January 2001, 9:00 pm.

Al-Shareef, Abdul Azeez, defence attorney and consultant in legal disputes, Faris Al-Weqayan Office for Criminal Litigations, Al-Sharq , Kuwait, 17 January 2001, 7:30 pm.

Al-Qutami, Qutami, Manager Assistance of the Forensic Science Services, Manama, Bahrain, 5 January 2002, 1:00 pm.

Baghdadi, Lieutenant Col. Sayed, Chief of the Criminal Investigation Department, Police Centre of Imbabah, Cairo, Egypt, 11 January 2001, 10:00 pm.

Ben Najy, Judge Mohammed, Kuwait Institute of Judicial and Legal Studies, Kuwait, 14 January 2002, 12:30 pm.

Bo-Resly, Judge Adel, Kuwait Institute of Judicial and Legal Studies, Kuwait, 14 January 2002, 10:00 am.

Bushell, Sandie, instructor in the National Training Centre For Scientific Support To Crime Scene, Harperley Hall, County Durham, U.K., 18 June 2001, 3:10 pm.

Clark, Dr. John, senior lecturer in forensic pathology, Department of Forensic Medicine and Science, University of Glasgow, Glasgow, Scotland, 1 February 2002, 2:00 pm.

Dickson, Judge Robert, Sheriff Court, Airdrie, Scotland, 25 February 2002, 12:35 pm.

Findlay, Donald, Q.C., advocate acting for the defence, the interview took place in the High Court Judiciary, Glasgow, Scotland, 17 April 2002, 1:00 pm.

Geraghty, Brian, defence solicitor, Ross Harper Solicitors, Glasgow, Scotland, 13 February 2002, 4:30 pm.

Ghaboor, Major General Faris, private ballistics expert, Secretary and Legal Expertise House, Egypt, Cairo, 4 December 2001, 1:00 pm.

Gray, David, private fire and explosives investigator, Manama, Bahrain, 5 January 2002, 11:00 pm.

Hendi, Ahmed, prosecutor, Criminal Trial Division, Justice Palace, Kuwait, 24 January 2001, 11:45 am.

Kershaw, Alan, Chief Executive of the Council for the Registration of Forensic Practitioners, Burlington House, Piccadilly, London, UK, 17 April 2002, 10:30 am.

Khalaf, Khalid, retired defence solicitor, Kuwait, 30 September 2001, 5:00 pm.

Khaleel, Mohammed, prosecutor, Criminal Trial Division, Justice Palace, Kuwait, 24 January 2001, 1:30 pm.

Kopp, Prof. Ingvar, Director of the Statens Kriminaltekniska Laboratoriet (SKL), Sweden, the interview took place in Glasgow, Scotland, 28 September 2001, 1:00 pm.
Kopp, Prof. Ingvar. 29 September 2001, 12:00 am.

Linacre, Dr. Adrian, senior lecturer in forensic science, Forensic Science unit, University of Strathclyde, Glasgow, Scotland, 29 February 2002, 1:00 pm.

Meeham, David, defence solicitor, BelTrami & CO., Glasgow, Scotland, 4 February 2002, 4:00 pm.

Murphy, Sean, advocate for the defence, the interview took place in the High Court Judiciary, Glasgow, Scotland, 21 March 2002, 4:55 pm.

Mc Caffery, Desmond, defence solicitor, Russells Gibson Mc Caffery Solicitors & Notaries, Glasgow, Scotland, 20 March 2002, 11:00 am.

Nic Daeid, Dr Niamh, university lecturer in forensic sciences, Forensic Science Unit, University of Strathclyde, Glasgow, Scotland, 21 February 2001, 11:25 am.
Nic Daeid, Dr Niamh. 25 June 2001, 11:30 am.
Nic Daeid, Dr Niamh. 03 April 2002, 10:00 am.

Ramsees, Dr Ashraf, forensic medical examiner, General Department of Forensic Science Evidence, Ministry of Interior, Kuwait, 12 July 2002, 11:30 am.

Reid, Paul, defence solicitor, the interview took place in the Sheriff's Court, Glasgow, Scotland, 25 March 2002, 11:00 am.

Reyadh, General/ Abdul Fatah, private expert in questioned documents and forensic photography, Cairo, Egypt, 10 January 2001, 9:00 pm.

Shoqeer, Ahmed, defence attorney, Head of the Bar Association, Cairo, Egypt, 7 January 2001, 9:30 pm.

Taher, Dr As 'ad, forensic medical examiner, General Department of Forensic Science Evidence, Kuwait, 12 July 2002, 10:30 am.

Thorndycraft, Kathryn, independent forensic handwriting analyst and document examiner, Stonehaven, Kincardineshire, UK, 5 April 2002, 11:20 am

Thorpe, Dr Jim, senior lecturer in forensic sciences, Forensic Science Unit, University of Strathclyde, Glasgow, Scotland, 2 February 2001, 12:28 pm.
Thorpe, Dr Jim. 17 May 2001, 11:00 am.
Thorpe, Dr Jim. 04 February 2002, 11:30 am.
Thorpe, Dr Jim. 31 February 2002, 12:00 am.
Thorpe, Dr Jim. 04 February 2002, 2:00 pm.
Thorpe, Dr Jim. 20 March 2002, 1:30 pm.

Ward-Gandy, Maureen, private sector forensic document and handwriting expert, West Sussex, UK, 2 April 2002, 2:30 pm

Watson, Dr Nigel, university lecturer in forensic sciences, Forensic Science Unit, University of Strathclyde, Glasgow, Scotland, 13 February 2001, 12:30 pm.
Watson, Dr Nigel. 2 April 2002, 12:30 pm.

White, Dr Peter, senior forensic scientist, Director of the Department of Pure and Applied Chemistry, University of Strathclyde, Glasgow, Scotland, 4 February 2002, 11:30 am.

Youngson, Alastair, principle procurator fiscal depute, Regional Procurator Fiscal, Glasgow, Scotland, 25 March 2002, 4:00 pm.

Personal contacts

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Susan Wallace, PhD, Associate Professor of Anthropology, Forensic Science Program Coordinator, Baylor University, Waco, TX, USA.

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APPEAL NO.	CRIMINAL TRIAL	DATE	PLACE
1/76	"	7.6.76	Kuwait
188/85	"	20.1.85	"
227/85	"	3.2.85	"
9/86	"	10.2.86	"
65/86	"	30.6.86	"
72/86	"	27.10.86	"
114/86	"	3.11.86	"
41/87	"	13.4.87	"
152/87	"	5.10.87	"
36/88	"	11.4.88	"
240/88	"	19.12.88	"
323/89	"	27.3.89	"
35/89	"	10.4.89	"
64/90	"	28.5.90	"
116/90	"	24.6.90	"

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