

# Culture Identity and Changes in Forensic Sciences



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## Abstract

In this present era of revolution, the advancement in technology has changed the mean of investigation in forensic field. The legal and judiciary systems are influenced and benefited by these changes of identification establishment and evidence detection techniques. The prior responsibility of the investigation is to convert the doubt into reasonable certainty of the suspect either guilty or the innocence which require a lot of efforts to discover the root cause of crime. Generally, the investigation ended up by the adoption of the unfair and illegal means. The traditional techniques have helped to be a great assistance in many cases in gathering the information from the suspects and proved their significance in areas of questioned documents, fingerprints etc. Now in this generation of digitalization and computer approach, changes have become essential for investigation. It can prove the crime of the suspect beyond all reasonable suspicion and can protect the innocent from wrong conviction in criminal jurisprudence.

**Keywords:** Identity; Crime; Questioned Documents; Fingerprints; Digital Evidences

## Introduction

With the passage of time, immemorial crime has been a part of human society and the requirement of various affectionate of legislations and law was felt. These laws and regulations which fight against the crime in society started the very existence of human society. Over the years with the advancement of the society, people have come across new methods in the field of forensic science in retort of as the criminals have also advanced their actions and way of carrying out the crime [1]. The evidentiary uses of the recent scientific techniques have perceived a spate in criminal exploration. Whenever the investigation proceeds, the investigator go through the specific scientific phase and try to get more information within convinced time extent.

Now a day, forensic science has become a necessity in every field of society, workplace and law enforcement agencies to answer the question of interest to the justice system. Over the last decade, the growth in the crime, emergence of terrorist activities, in addition of homicides and criminal offences made the advancement a necessity for investigation [2]. During the early phase of forensic science, the experts must have been quite confused to determine the sources of evidences involved in any crime [3].

Forensic science employs in several types of evidences to analyze and evaluate their correlation between the victim and

the crime scene. Often the evidences (physical, biological and chemical) are encountered in contaminated form from the scene of occurrence along with other valuable evidences and rest in a questionable form [4]. With the advancement and usage of nuclear forensics, it has been successfully removed from the physical and chemical process as a part of decontamination and radionuclides may be recovered. A numerous techniques exist for decontamination purpose although the selection of process depends upon the factors and condition of the evidences and the form of the radionuclides present. With these changes, investigators have invented more tools and resources at its disposal, which made it crucial for criminals to get away with their deals. Ever increasing demand of Forensic Science, the communal are also taking interest specially with the popularity of crime based event shows. The sensitivity and advancement in technology require good scientists adhering to rigorous procedures and standards to make certain outcome that are valid and dependable and could withstand inspection in court of law and community [5].

These types of advancement have changed the scenario of investigation and identification of the suspect/individual. The solicitation objective is to increase the extent of research, development, refinement and the improvement in the analytical techniques used by forensic examiners to collect the information

from complex evidences. The recent forensics can facilitate to expose concealed offense, convict the guilty and vindicate the innocent if it exercises with care. Forth coming time will be the witness of advancement in various types of fields of forensic science and dealt with evidences. The science fiction dreams we had in the past look like they might come true in the not-too-distant future.

### New Phase of Changes in Forensic Sciences

Present day the curiosity such as DNA, Nano-forensic and nuclear forensic, digitalization etc. Have changed the mode of investigation in easier and a conclusive form. A few of modern technologies which exists are LABRADOR, chemical forensics, blood spatter improvements, forensic ballistics, cyber hacking, alternative light in forensic nursing are recently developed and forthcoming points involved in investigation [6]. Light-weight analyzer for buried remain and decomposition odor recognition is a digital device which is used to sniff out various chemicals that are released by decaying bodies and frequently used for searching the missing persons now a day. Alternative light in forensic nursing is very specific concentration of forensics and this alternate method is used to care for patients while maintaining the integrity of evidences as well [7].

A chemist at Pacific Northwest National laboratory is devising a forensic technique that can detect the source of impurities within chemicals that will be able to lead to finding criminals in a terrorist attack. Blood spatter improvements has also very rapidly and a few recent advancements has been done by numerous scientists. A physicist at Washington State University has recently developed a mathematical way to analyze blood spatter and plotting how blood droplets will fall from a ceiling or wall. According to a new report of American Association for the advance of science, it has been reported that experts should no longer to use the terms like match, identification or individualization or other similar words such as imply, certainty or report concludes during the fingerprints investigation. As per the report- these claims were clearly over stated and are now widely recognized as identifiable. While latent print examiners may well be able to exclude the preponderance of the human population as possible sources of a latent print, there is no scientific basis for estimating the number of people who could not be excluded and, consequently, no scientific basis for determining when the pool of possible sources is limited to a single person [8].

In its restricted form, handwriting is considered as a written speech, every act of it becomes impressed with characteristics peculiar of an individual. This establish a distinguish style, customary phase in writing which may be more or less varied from time to time either by accidental causes such as haste carelessness, position of writing, disease or weakness. There is a transitory phase of maturation between the teenaged and adults handwriting because the teenager's handwriting (Formation

of letters) is much influenced by teacher's handwriting, while the adults create their own formation or standard formation of letters. Nuclear forensic signatures are a set or sets of data characteristics of a given sample of nuclear or other radioactive material that may enable the sample to be identified as being consistent with, or as not being consistent with, particular nuclear or other radioactive material used, produced or stored in a State by way of either exclusion or inclusion. These signatures may help to identify the processes that created the material and its subsequent history.

Reference (Exemplar or admitted) signatures for processes and facilities throughout the nuclear fuel cycle, as a basis for interpreting analytical results from samples, are established using both empirical approaches, involving results from previous analyses of nuclear and other radioactive material, and modeling approaches based on the chemistry and physics of nuclear fuel cycle processes [9]. Knowledge of analytical science can guide the selection of the appropriate methods to verify the presence or absence of specific nuclear forensic signatures.

In case of species determination from the blood rapid advancement has taken place and in the third generation of DNA analysis or current method of choice is STR analysis which is more effective, faster and cheaper. The development in this method continues such as some of the recent progresses made in the analysis are STPs, SNPs, low template DNA, and mitochondrial DNA & DNA methylation. Short tandem repeat analysis is used to amplify STR typing with highly polymorphic DNA sequence of repeating 2 to 7 base pairs of an individual which particularly focus on 5 to 10 alleles of a STRs in forensic profiling. Although for the species determination from blood, nanotechnology, micro-fluidic system from DNA analysis are also used in form of advancement [10]. Now a day, the digital crime is the advance and highly taking place in society. The analysis of digital evidence most often of binary form data has grown with the expansion in both the types of device that record such data and the numbers of such devices in use by individuals, businesses and government institutions. Digital instrumentation and control systems within a facility may also yield digital evidence.

In the context of an investigation of a nuclear security event, or such devices from which any information could be extracted, are recovered at or near the scene where nuclear or other radioactive material is seized, along routes that the material might have travelled, and from individuals suspected of association with events culminating in the seizure of the material. The prevalence of digital recording devices might enable the movement of nuclear and other radioactive material to be mapped chronologically and geographically [11]. The series of photographs from the crime scene and morgue are often hard for jurors and for other examiners, that's why 3-D photography technology emerged and facilitated the uses of image layering for investigators to get more evidences with details. Intricate details revealed on a corpse, like relevant internal damage that

may show signs of old or repeated injuries, but that can't be seen with regular photography, will now be available.

In modern era, with every passing moment crime is confronted in complex, newer models and different forms of perpetration. Whereas interrogation process is on evolvement, which encompasses three kinds of inquiries which maybe unswervingly to the case or the endeavor to elicit concealed facts notorious by the respondent and the third mode may be including the pertinent to the crime.

### Conclusion

In the recent time, criminals are exploiting the science and technologies for the crime accomplishments perpetrating. So, the law enforcement agencies are needed to be updated according to the communal decoration and criminal behavior and that can be possible solitary through the implementation of precise investigative progression. When the brain imaging will be accompanied with the existing evidences, it will provide the weigh in court of law. If the brain imaging of a suspect presents the evidence of a subsidiary prerogative of innocence then such denial will also be anunconscionable human rights violation. It will lead towards an enormous rivalry in the area of security that will expedite criminal justice system from other advancement technologies.

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