Scientific Evidence: Its Value in Criminal Justice System

“Every touch leaves the evidence”
Dr. Edmond Locard.

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Introduction

Constitution is an ideology which we have adopted long ago with an objective to develop the leaving standard of people that’s why we want to resolve and constitute India into a…democratic…and want to secure to its citizen justice, equality, dignity. It was only an idea to secure all these and it will remain mere idea and can never be achieved until we (our criminal justice system) have better reasoning capacity, methodology, scientific techniques to provide better results. Constitution does not have wheels; it is the people’s intention which animates it. This paper will tries to explain the old methods (“from confession to evidence”)1 used in criminal justice system, their exhaustiveness, disadvantages, and new method (“from evidence to confession”)2. And how scientist evidence is helpful in criminal cases?

Tan Yock Lin in his research paper explained the value attached with the oral evidence in criminal cases he cited Bloch who said "we all are most imperfect recording cameras of unfolding events because both observation and memory are encumbered". Our observations, retention, recollection, coloured by our circle (community). No narrative is far from being...vestige of prejudicial judgement. Many witnesses to an event lend themselves to personal judgement and thus account of an event become mixture of narrative and judgement. Error in observation or compounding judgement is harder to detect3. However, Bentham called “witnesses the eyes and ears of justice” but when either witnesses do not appear before the court or deposited false or erroneous testimony, the criminal justice system find itself in helpless situation (…finding the truth hide underground), in such a situation scientific evidence can play important role to reach at certain conclusion.

Problem as to narrative of witnesses in the courtroom:

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2 Ibid.
I. Personal judgement as to event.
II. Problem of lying (with assumption to protect someone) it bend the truth.
III. Sly alteration... fear of own exposure.
IV. Pathological liars...they preserve truth on their mind and do not disclose unless there is complexity, the hate simplicity.
V. Nobler... illness to hide a secret (Hamlet).

Every trial court in the world had faced the above problems while examining and admitting the witness’s testimony. Some countries had developed their science and started its active use during investigation and trial but in India police officers abstain to take help of science during investigation, the reason are obvious the mostly police officers are 10th, 12th standard exceptionally B.A. and the corrupt practice as to manipulation of evidence keeps the science thousands of miles away from helping criminal justice system. So it is the government willingness to prevent corrupt practice and installation of scientific institution to find out the truth. The question when and how the government will take steps to purify the criminal justice system yet to be decided.

Scientific Evidence’s Value

When the prosecution failed to find the true facts and the trial resulted in wrongful conviction the question of responsibility as to destruction of life of victim arise, it is up to the criminal justice system how it responds to illness of wrongful conviction. Convicting innocent is considered as wrongful conviction, data on wrongful we hardly find in India because here generally perception is that what the court decided is conclusive proof of allegation made by the prosecution. There are less opportunities to review the criminal court decision (conviction cases), one of the routine method to challenge the judgement of trial court is filling appeal in higher court but in appellate court neither facts change nor evidence change so it is not easy to reverse the finding of trial court.

The world criminal justice system’s experience shows that there are numbers of wrongful conviction which leading in the destruction of life of innocent person⁴. The data disclose by

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innocent projects\(^5\) shows that there are thousands innocent person who have been convicted for various reason\(^6\), some of them are as under:

I. Mistaken identification.
II. Ineffective representation by defence counsel.
III. Police and prosecution misconduct.
IV. Perjured testimony specifically by the government servant.
V. Corrupt practice in scientific evidence.

Post-conviction DNA examination resulted in acquittal of thousands of innocent person\(^7\) convicted for any of above reason, even when first generation evidence as discussed below proved unreliable, DNA analysis weaken the perception of criminal judgement reliability\(^8\). Justice report on Miscarriage of Justice,1981, says “No criminal justice system is or can be perfect, nevertheless, the manner in which a society concerns itself with wrongfully convicted must be one of the yardsticks by which civilization is measured”. Hence, wrongful conviction is not only concerned with innocent person but it is concern of all \(\textit{Civilization}\).

**First and second generation scientific evidence**

Erin Murphy has very well explained the traditional use of scientific evidence and new use of scientific evidence, he categorised the results of forensic techniques into ‘first generation scientific evidence’ (handwriting, ballistics, hair and fibre analysis, voice sampler, fingerprinting) and ‘second generation scientific evidence’ (Biometric technology, location tracking, data mining, NDA typing, iris or facial recognition,)\(^9\). Many these methods (new) are more reliable and will play central and independent role in future administration of justice, they exposed the tradition techniques are unreliable and criminal justice system failed to keep out such illegitimate evidence\(^10\).

He browed the Michael’s words “criminal justice system historically failed to prevent government from expanding fictitious science, faulty and fraudulent evidence which become

\(^7\) http://innocenceproject.org/causes/index.php.
\(^8\) http://www.jstor.org/stable/30038498.
\(^10\) \textit{Ibid.}
the important cause of wrongful conviction”11 and thus explained the criminal justice system failed to stop the abuse of untested and faulty forensic evidence, it might be ill equipped to safeguard from the use of more complex and complicated forms of such evidence.

Erin very well tried to explain the difference between nature, techniques, and use of both kind of evidence (‘First and second generation scientific evidence’).

First generation scientific evidence

I. Easy methodology and general conclusion.
II. Tools use magnifying glass, microscope, basic chemicals.
III. It supplies narrow information, limited to the facts and circumstance of the case.
IV. Layperson can compare most of results matching fingerprint ridge, handwriting slants, bullet grooves), accuracy of comparison by layman cannot fully relied in court.
V. Suspect identification is required to use it.
VI. Limited in use, (Only fit to certain offences like handwriting when writing in issue, bullets when firearms is discarded, bullets to be recovered, hair and fibre may lost) also used as to support the witness testimony.

Second generation scientific evidence’

I. Sophisticated methods and highest level of confidence (data mining).
II. Tools use chemicals kit, satellite, software, image scanner, cell towers.
III. More durable, not easily accessible to layman.
IV. Rigorous science supports their probative value.
V. It provides suspect identification (CCVT footage).
VI. It applies to wide varied offence from theft to murder.
VII. Helpful in modern criminal activities because cell phone, computers, EZ pass card are frequently used in crime and source of information.

In both cases (‘First and second generation scientific evidence’ ) probative value attached with the evidence, but the methods used in storing information and comparison are different latter is considered more reliable that former. First generation scientific evidence as illustrated above do not reveal information as to biological, demographic characterises, family relation, mental

or physical health but it can be possible by second generation techniques. Second generation Evidence based on computerized databases, *ab intio* identify the accuse, sometime even resulted in conviction of accuse on the bases of genetic information alone\textsuperscript{12}(Diana Clare Murder Case, 22 year old girl visited India in 1997 from New Zealand, she was killed by strangulation and her dead body was buried and only skeleton was recovered, with help of her father’s [Jack Routly] DNA victim was identified and accuse was convicted).

**Scientific evidence helps in preventing offence against animal.**

Samuel K. Wasser, Bill, Cathy tried to explain issue of ivory in a research paper “The Ivory Trial” and how the NDA is useful in tracing out the smuggling of ivory, it also helpful in searching out the offenders. Slaughter of elephant for ivory mostly reported in Africa specifically in 1980, One data shows 7,00000 elephant killed only in Selous(Africa), During 2006, 25000-29000 kg. ivory seized different rout of Africa. This only because ivory price is $ 200per kg. in 2004, $ 850 per kg., it demand is in China, Japan (important status symbol), USA and some other wealthy nation for different purpose\textsuperscript{13}.

**Science help in dealing with issue.**

I. Mapping elephants’ population by using DNA in their scat.
II. DNA extracted from scat while match the DNA extracted from ivory (Using pulverization technique) help in tracing illegal shipment back to their source.
III. Poachers provide clues as to the geographic origin of elephant.

**Constitutional validity**

Constitution provide certain safeguard against the arbitrary execution of criminal law, criminal laws are very clear like punishment according to penal laws, prosecution, trial, and admissibility of evidence according to criminal procedure code and evidence act respectively.

However, sometime these laws are unable to meet the certain issues arise during investigation and trial of criminal cases, specifically when prosecution want to rely on scientific evidence,

in such a situation it is the higher court who can play important role in responding the issues, let’s see some important judgements which say yes to the scientific evidence.

India

There are procedural laws which allow the use of minimum force to collect blood, heir, nail samples\(^{14}\), collection of physical evidence do not violate Art. 20(3) …Constitution\(^{15}\). And it does not come under the purview of “to be witness”, where testimony is recorded under influence of drugs (narco) the consent of witness is required (Salvi case 2010)\(^{16}\). There are some other issues which yet to be decide by the court. One recent judgement of Rajasthan High court had concluded that when criminals use sophisticated techniques in commission of an offence why not the investigation officers can use it\(^{17}\) (*recording of voice sample was in issue in this case and court allowed to record the voice sample*). It show that we (our criminal justice system) are till now fighting to use ‘first generation scientific evidence’ and is passive in using ‘second generation scientific evidence’ which are more reliable\(^{18}\).

USA

Initially the scientific evidence value depends upon the court ruling in *Frye v. United States*\(^{19}\) (*Principal of general acceptance*), thereafter the Daubert case’s mandates that inquiry to be conducted by the court before admitting the result of scientific evidence\(^{20}\) and expert opinion under rule 702\(^{21}\) has to comply the Daubert ruling. In India section 45 of Evidence Act having same provision and the trial court require same inquire to be conducted as mandated in Daubert\(^ {22}\).

**Conclusion**

Our criminal justice system is passive, it is not utilising the scientific evidence in criminal cases consequently there is delay in trial, wastage of public money, sometime the trial resulted in wrongful conviction. No doubt that there are certain difficulties (lack of resources, funds,
trained staff, technical knowledge) to utilise the scientific evidence in criminal trial but we can’t deny justice to victim on these grounds. We are living in a country where most of the states having lack of legal education, like in Haryana, there is no Law College to provide legal education to the public, only some universities having facilities to provide legal education on subsidised bases and that is not sufficient, in such a situation the responsibility of criminal justice system become more to take every steps to prevent injustice to the public. Large population does not its rights so it is up to the prosecution, investigation agencies and trial court that how they can protect the individuals. The government should also take active steps (establishment of forensic lab, training to the investigation officers as to how to collect scientific evidence from crime scene) to strengthen the criminal justice system.

References


Daubert v. Merrell Dow Pharmaceuticals Inc., 509 US 579 (1993), (trial court has to check out while admitting the scientific evidence? The first step according to Daubert ruling. To see “whether the reasoning or methodology adopted for testimony is scientifically valid and can be applied to the facts in issue”. Other things are “Whether the theory or technique has been or can be tested”. “It’s error rate, it maintenance and controlling standard, its widespread acceptance among the scientific community”. The above inquiry should be flexible and focus on principles and methodology used, not on the conclusions that they generate. The above reasoning and conditions also applied while the Indian courts admits the scientific evidence. As above stated in guideline no fifth that the manner how information has been received, what procedure had been adopted should be on record).


Federal Rules of Evidence in 1975, (“If scientific, technical, or other specialized knowledge will assist the trier of fact…a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise”).


Marvin Zalman, “Criminal Justice System Reform and Wrongful Conviction” 17 (4) C J P Rev. 468-492 (2006), (This article was presented as a paper at the 2005 annual meeting of the American Society of Criminology. The author thanks Jean Bottcher, Randall Grometstein, Richard Leo, Chris Mumma, Will Oliver, Sam Walker, Chris Zimmerman, and the anonymous reviewers for helpful comments, and Khari Brown, Ron Brown, Charlie Elder, and John Strate for information about resources, but takes responsibility for errors, interpretations, and conclusions)

Michael J. Saks, “Scientific Evidence and the Ethical Obligation of Attorneys, 49 Clev. L. Rev. 421-424 (2001), (Citing statistics from the Innocence Project indicating that unintentional, as opposed to fraudulent, forensic science errors play a factor in 63% of wrongful conviction cases); see also id. at 424 (observing that one-fourth of the cases involved fraudulent forensic science error).
