



# Twenty-Three Facts Make the Fingerprint at the Top of Scientific Evidences for the Human Identification in the Courts



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## Short Communication

After reading a recent 'Forensic report' about the validity of fingerprint evidence titled "Fingerprint Source Identity Lacks Scientific Basis for Legal Certainty" Which raise many doubts about the fingerprint as a scientific evidence, it's validity and its reliability. As a fingerprint expert, I found myself responsible to clarify some points. From a scientific view, no two ridge characteristic points are identical, even though similarities occur, no doubt about the science. Some practical points to be extremely careful about in order to get solid identification:

- a) The study of fingerprint evidence must be done by at least 3 examiners, they should be well studied the fingerprint science, certified and periodically examined.
- b) ACE-V methodology must be rigorously respected.
- c) Blind verification must be applied in practice.
- d) No statistics or other investigative information are allowed to support the conclusions.
- e) Attention must done to the weight of each ridge characteristic, i.e. ridge ending does not have the same weight as intersection, trifurcation or hook-up.
- f) In sensitive cases, as well as, in any doubt, the third level must be seriously appreciated, i.e. microscopic level details, where other types of individual characteristic points are found.
- g) At the crime scene and Lab: special attention has be done to the rapid respond to the crime scene.
- h) Attention must done to the bad behaviour at the crime scene from the curious persons , witnesses as well as the first responders.
- i) The chain of custody must be highly respected.

j) The interpretation of FPE must take into consideration all the possibilities; movable objects don't always proof the existence at the scene, the prints of the seller or any clients who tried to buy the product and didn't do, or the carrier...

k) Attention must do to the age of the fingerprint, when it was deposited. It's highly significant to determine the exact date in order to be able to interpret such evidence. Recently, many researches have taken place in such matter, like the distinguished one of German scientist Stephanie Pleik who demonstrated her findings during the 8th symposium of fingerprint at the Interpol headquarter in 2004. For example: age of the fingerprint might be determined by using GC/MS to measure the changes occur to the deposited secretions of the finger, namely the Oleic acid which has specific changes during the time.

l) The fingerprint trace is the most founded trace at the crime scenes, as the statistics of the traces collected from about 6000 crime scene investigations during three years.

m) The fingerprint has the biggest database among all other evidences, to build a solid identification of persons, Rather than DNA or faces.

n) The fingerprint is not only individual as a whole, but each point is individual, try to examine the third level details, certainly by a scientific microscope.

o) The fingerprint evidence is the fastest way to identify suspects and criminals, using wireless devices to send live scan prints directly from the crime scene to the AFIS system, it will take between 5 and 15 minutes to have an identification.

p) The fingerprint evidence doesn't cost expensive amounts of money in analysis and making research against the database.

q) The altered fingerprints are able to be detected by the experts using third level details study: poroscopy and edgeology.

r) The rules of procedures "SOP" at the Fingerprint Lab must be seriously written, validated, ratified, adopted and controlled by quality control division.

s) The fingerprint is the less sensitive trace lifted at the crime scenes, against pollution, humidity, water, lights: Sun light, UV,IR....., dust, rain..... thanks to dozens of development ways like: SPR, VMD, TFD2, CYANOACRYLATE, MAGNETIC POWDER, STICKY SIDE, Ninhydrine, DID.. .....

t) For each case the fingerprint development experts choose the adequate steps of procedures to reveal the prints, which might contains more than 15 steps in a right consequence. When no positive result, the crime scope lights and coloured filters must be used.

u) Due to plenty of the materials found in the deposited secretions of the finger, the fingerprint lasts for an unlimited time. The /346/ material found at the secretions of the finger, consist a wide variety of solutions which help the experts to make it appears. Some researches has developed fingerprints deposited on porous surfaces from more than 100 years.

v) The bad conduct at the crime scene, negligence of the chain of custody, the absence of quality control at the Fingerprint Lab, the human bias of the fingerprint experts, as well as the inappropriate interpretation of the fingerprint evidence lead to bad results and mistaken identification.

w) The fingerprint science is above all the human faults mentioned in the last paragraph, it will still at the top means of human identification, as well as scientific physical evidence.

### Conclusion

As a conclusion, the forensic community is called to raise the awareness about the importance of fingerprint evidence, responding to the crime scene, application of the chain of custody, the importance of training and evaluation of the fingerprint experts, the SOP and quality control at the Fingerprint Lab, the admission of the third level details at all the fingerprint Labs, the correct application of the ACE-V methodology, blind verification and above all the comprehensive and proper interpretation of the fingerprint evidence, which are solid answer to all the doubts raised against it.



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