Fingerprint Identification
The Role of Research in Fortifying the Forensic Sciences

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What are the barriers to maximizing the usefulness of fingerprints?

- Starts at the crime scene with the lack of Police resources (crime scene response) to gather latent prints, especially from non-violent offenses like auto theft and burglary
  - Awareness of the value of prints has increased but lack of Police resources many times prevents adequate response
  - Additional training is needed to locate and recover these prints in greater numbers on a consistent basis
  - More sensitive methods to locate and recover latent prints off of textured surfaces and prints that are older or less fresh need to be developed (NIJ is sponsoring some of this now)
- Quality of the original arrest fingerprint cards submitted that will create the data bases of known prints to be searched against in the future must be improved
  - This problem greatly effects the chances of an AFIS system helping the examiner find the suspects prints in the data base
  - “Garbage in – Garbage out!” effect is present
  - Live Scan and automation have not improved the quality of the prints submitted. They have allowed the 10 Print operations such as the FBI CJIS system to provide “real-time identification” on both criminal and civil submissions but have not increased the quality of the prints
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- Lack of submissions throughout the criminal justice system of known Palm Prints, Major Case prints and in some state’s juvenile arrest cards or cards from “minor arrests”
  - Approximately 30% - 35% of all latents submitted for searching and comparison come from the palms and the tips and sides of the fingers which are not recorded on a traditional fingerprint card – too many agencies no longer submit palm print cards on all arrests. All of the vendors now have AFIS systems capable of searching palm prints but if palms are not routinely submitted they can not be added to the data bases and once the AFIS is upgraded with the new palm technology the AFIS will be underutilized and criminals will go unidentified.
  - The juveniles you arrest today account for 70% - 80% of your crime over the next 10 year period, failing to add their prints to the AFIS data base greatly diminishes your ability to identify suspects and solve future crime.
  - Lack of adding arrest prints from so called “minor offenses” means future latent prints recovered from the crimes they continue to commit will remain unidentified. The prints of someone arrested on a minor drug charge will be left behind when they climb through someone’s window to support their drug habit or rape the woman they find asleep when they entered to commit a burglary.
- Recent, long overdue additions of non-sexual offenders to several DNA data bases have begun to produce the majority of hits in several data bases just as they do in the long standing AFIS data bases.
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- Lack of sufficient crime laboratory resources to search prints for “investigative leads” on all crimes but particularly on property crimes
  - Many labs primarily concentrate on “major” cases or cases that are already going to court
  - Local law enforcement needs to know who is responsible for committing crimes, especially the property crimes that plague every jurisdiction and they need those answers much sooner that the current level of resources is capable of providing – “today’s burglar is tomorrow’s rapist”
  - Local law enforcement agencies should be taught how to best “process” evidence for latent prints themselves in order to free up the crime laboratory resources to search and identify the latent prints that come off of the evidence recovered at the scene – especially in states where the lab has the only AFIS access and searching abilities
- Lack of sufficient access to any AFIS data base by local law enforcement agencies for searching and solving of their crime problems – much too dependant on the already overburdened crime laboratory to make a serious dent in solving their property and other crimes in a meaningful time frame
  - Recent NIJ sponsored “180 Study” showed that over 65% of the fingerprint identification services are being provided by local law enforcement personnel, many of whom have no direct access to an AFIS terminal for searching
- Lack of a sufficient number of trained and experienced examiners to meet the current needs, much less an increased level of need for examination services if local law enforcement had better access to AFIS capabilities
- Lack of access to quality training for examiners, especially those from local agencies
- Lack of connectivity to IAFIS by local law enforcement in general – greatly limits the “nationwide search” power of the FBI AFIS system provides - Michigan case
What does it take to be a good fingerprint examiner?

- Desire tops my list, followed by......
- Access to a structured training program
- Strong mentorship by seasoned examiner
- Aptitude for working with fine detail helps
- Access to additional training courses to deepen your understanding of the science
- Opportunity to analyze and compare as many prints as possible to develop a “good eye”. As with most things experience counts for a lot
- Good “quality assurance programs” in place with rigid “verification procedures” as part of the agency policies
- Good eyesight sure helps as well...........ha ha
How do we better share AFIS Technology

- My answer would be to “regionalize” the use of this technology as much as possible
  - Current technology makes this very possible to accomplish. Live scan units combined with the availability of desk top AFIS systems (or terminals into the state AFIS that can be set up on a regional basis in some states) and the additional manpower at the local agency level where the crime is being committed to take advantage of the power of an AFIS search for solving crime. Too massive a need to expect it to all be solved at the lab level or FBI level do to funding issues
  - Pull together at the local and state level to provide access to local law enforcement agencies of AFIS system capabilities and power. Spread the wealth and share the responsibility where it most needs to be at the local level, without any diminishment of the state or federal systems and services
  - Manage the data base locally to ensure better quality of the “knows” – this will have a trickle up effect for the state and FBI systems with the use of live-scan technology
How do we better share AFIS Technology

- In smaller population centers, several counties could form a combined system where their criminal prints could be added to a common data base centered around County Sheriff lock-up facilities submitting the prints to a common data base electronically. In a larger county, they would do this for themselves through their jail.
  - Local criminals commit local crime
  - High recidivist rates mean multiple opportunities to solve future crime
  - Reduce the lag time waiting for a response from the state and catch them sooner before they strike again
  - Opportunity to control the quality of the AFIS data base with local control and responsibility for your own fate
  - Ability to search any print, for any crime, at any time of the day or night - even right as you return from the crime scene. You control more of your own destiny by not having to rely on someone else to decide if they can or will help you solve your crime
  - Reliance on smaller sized AFIS data bases to search against increases the accuracy in many cases rather than trying to find the match in much larger state and FBI data bases - more crimes solved
  - When much better interoperability becomes available, local law enforcement will be in a position to take full advantage of that horsepower and add to their local capabilities. Local AFIS systems can also be configured to access the FBI IAFIS system with the cooperation of their state and their vendor.
What are the emerging practical techniques and improvements

- AFIS provides large numbers of known offenders to search against in every state.
- Some local data bases already add to the crime solving ability of fingerprints and additional focus on expanding local and regional systems will greatly impact crime at the local level (see below comment).
- Additional resources like the Western Identification Network and solid regional data bases like the King County Regional AFIS system greatly add to the ability of fingerprints and AFIS to solve crime.
- FBI IAFIS system has the largest collection of known criminals in the world. They are in the process of beginning an upgrade to the IAFIS system that will provide even better services for fingerprint identification at both the 10 Print and Latent Print levels.
- All three levels of AFIS data bases (local, state and FBI) provide infinitely more opportunity than DNA will for many, many years to come to identify suspects.
- DNA must be done at a state of federal laboratory level with very limited capacity – use of AFIS technology can be spread to a much broader user level to allow much greater access to crime solvability.
- Live scan capture at 1000 dpi will allow the use of “Third Level Detail” searching and matching with AFIS technology that is being engineered as part of future AFIS systems already.
- Increased use of chemistry to develop older prints and prints on porous surfaces continues as additional techniques are developed.
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