

CSI-JFK

Why Oswald Was Not Convictable Under 21st Century
Forensic Standards

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What do the following men have in common?

- ▶ anthony ray hinton
- ▶ Brandon Mayfield
- ▶ Lee Oswald

The Case Against Oswald

- ▶ Inadmissible Evidence-
 - ▶ Marina Oswald testimony
 - ▶ Illegally seized documents
 - ▶ Broken or suspect chain of custody
- ▶ Questionable Eyewitness Testimony
- ▶ Unreliable Circumstantial evidence
 - Fiber and Hair Evidence
 - Handwriting
 - Latent Fingerprint evidence
 - Neutron Activation Analysis (NAA)
 - Comparative Bullet-Lead Analysis (CBLA)

What is Forensic Evidence

- Examples of expert interpretation of observed patterns (subjective)
 - fingerprints
 - firearms examination
 - Toolmarks
 - bite marks
 - impressions
 - bloodstain pattern analysis
 - Handwriting
 - Hair
- Examples of Analytical Evidence
 - DNA
 - Fibers
 - Fluids

Who are the forensic experts?

- ▶ Frequently conducted by a sworn law enforcement officer with no scientific training or credentials, other than experience.
- ▶ In smaller jurisdictions, members of the local police or sheriff's department might conduct the analyses of evidence, such as latent print examinations

Role of Forensic Evidence

- developed in crime laboratories operated by law enforcement to aid in the investigation of evidence
- forensic evidence is offered to support conclusions about “individualization” (“matching” a specimen to a particular individual)
- Because accused parties in criminal cases are convicted on the basis of testimony from forensic science experts much depends upon reliability of such evidence. But:
 - Much such evidence has never been exposed to stringent scientific scrutiny.
 - no concerted effort to determine the reliability of these tests or understand limitations and foundations.
- 90% criminal cases end in plea bargains where forensic evidence only presented in a report signed by the primary analyst

What Have we learned about forensic evidence?

- ▶ Innocence project: 329 post-conviction DNA exonerations in United States
 - ▶ Leading cause of wrongful conviction is eyewitness testimony (72%)
 - ▶ Flawed forensic evidence is second leading cause (47%)
- ▶ Invalid Forensic Science Testimony and Wrongful Convictions, 95 Va. L. Rev. 1 (2009):
 - ▶ 60% of the forensic analysts called by the prosecution provided invalid testimony, “with conclusions misstating empirical data or wholly unsupported by empirical data”
 - ▶ 8% due to flawed fingerprint analysis
- ▶ FBI Microscopic Hair Analysis
 - ▶ First 500 cases of 3000 to be studied from 1970s to 2000
 - ▶ examiners’ testimony contained erroneous statements in at least 90% cases
 - ▶ 32 involved death penalty-- 9 executed and another 5 died in prison.

2009 NAS Report

“Strengthening Forensic Science in the United States: A Path Forward”

- ▶ “With exception of nuclear DNA analysis, however, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source”
- ▶ “applied with little or no scientific validation and with inadequate assessments of their robustness or reliability. “
- ▶ “forensic techniques that have been practiced for years - without the benefit of sufficient scientific research - conclusion not supported by empirical data.”
- ▶ “ they lacked scientifically acceptable standards for quality assurance and quality control”
- ▶ “Invalid testimony conclusions regarding the probative value of evidence that were unsupported by empirical data”

Some Key NAS Observations

- ▶ testimony based on faulty forensic science analyses may have contributed to wrongful convictions of innocent people;
- ▶ operational principles and procedures for many forensic science disciplines are not standardized or embraced;
- ▶ no uniform certification for individuals or labs;
- ▶ most jurisdictions do not require forensic practitioners to be certified;
- ▶ most forensic disciplines have no mandatory certification programs;
- ▶ crime lab accreditation not mandatory;
- ▶ no standard protocols and those in place often vague (“match”, consistent with”, “could have”, “more likely than not” “identical,” “similar in all respects tested,”);
- ▶ absence of adequate training and continuing education, rigorous mandatory certification and accreditation programs, adherence to robust performance standards, and effective oversight

Bad Labs and Bad Professionals

- ▶ highly publicized cases involving faulty work at some of our nation's preeminent crime laboratories
 - ▶ Calls into question integrity of crime laboratories
 - ▶ Highlights sometimes lax standards of laboratories that have generated questionable or fraudulent evidence and that have lacked quality control measures that would have detected the questionable evidence
 - ▶ Examples include Houston, New York City, Oklahoma, West Virginia
 - ▶ Mass. High Court requires re-examination of 40,000 cases
- 350 crime laboratories in US most operated by law enforcement. Tendency to feel part of “team” results in human bias
- Perverted Incentives- Dozen states provide crime labs with fees per conviction
- Ignoring exculpatory evidence
- Simple Human error

Admissibility of Forensic Evidence

- Rule 702 of the Federal Rules of Evidence (and many state courts)
- scientific testimony or evidence admitted is relevant AND **reliable**
- Court may allow a witness qualified as an expert by knowledge, skill, experience, training, or education, to testify if the testimony is :
 - is based upon sufficient facts or data,
 - is the product of reliable principles and methods, and
 - the witness has applied the principles and methods reliably to the facts of the case
- Courts will consider if a theory or technique can be (and has been) tested, has been subjected to peer review and publication, the known or potential rate of error of a particular scientific technique, the existence and maintenance of standards controlling the technique's operation and degree of acceptance within a relevant scientific community
- Challenges to expert testimony may be raised by the parties pretrial, or during the course of trial, or by the trial judge
- Many courts now restricting what experts can say about certainty of the evidence and its linkage to the defendant/issue
- once admitted, subject to cross-examination and rebuttal to help fact finder determine how much weight to give the evidence (how reliable)

Fingerprint Evidence

- ▶ For nearly a century, fingerprint examiners have been comparing partial latent fingerprints found at crime scenes to inked fingerprints taken directly from suspects.
- ▶ Judges allowed testimony without empirical validation of the underlying theory and/or its particular application.
- ▶ Recently, however, the scientific foundation of the fingerprint field has been questioned, and the suggestion has been made that latent fingerprint identifications may not be as reliable as previously assumed
- ▶ When dealing with a single latent print, however, the interpretation task becomes more challenging and relies more on the judgment of the examiner Not question of uniqueness butif examiner can determine with adequate reliability that the finger that left an imperfect impression at a crime scene is the same finger that left an impression (with different imperfections) in a file of fingerprints
- ▶ NAS: claims that these analyses have zero error rates are not scientifically plausible. Analysis, Comparison, Evaluation, and Verification (ACE-V) does not guard against bias, is too broad to ensure repeatability and transparency; and does not guarantee that two analysts following it will obtain the same results
- ▶ Maryland state court recently ruled that the ACE-V process of latent print identification does not rest on a reliable factual foundation b/c lack of error rates, lack of research, and potential for bias and ruling that fingerprint evidence was inadmissible.
- ▶ clear fingerprint impression will contain anywhere from 85 to 125 such points. Some foreign law enforcement agencies require at least 16 common point. US has no minimum number of points.

NAS on Toolmarks

- ▶ ‘not enough is known about the variabilities among individual tools and guns, we are not able to specify how many points of similarity are necessary for a given level of confidence in the result. Sufficient studies have not been done to understand the reliability and repeatability of the methods.’
- ▶ “A fundamental problem with toolmark and firearms analysis is the lack of a precisely defined process. examiner may offer an opinion that a specific tool or firearm was the source of a specific set of toolmarks or a bullet striation pattern when “sufficient agreement” exists in the pattern of two sets of marks.”
- ▶ Insufficient precision on what constitutes “sufficient agreement”

NAS on Hair Analysis

- ▶ “No scientifically accepted statistics exist about the frequency with which particular characteristics of hair are distributed in the population. There appear to be no uniform standards on the number of features on which hairs must agree before an examiner may declare a “match.” In one study of validity and accuracy of the technique, the authors required exact agreement on seven “major” characteristics and at least two agreements among six “secondary” characteristics. The categorization of hair features depends heavily on examiner proficiency and practical experience.”
- ▶ “courts also have recognized that testimony linking microscopic hair analysis with particular defendants is highly unreliable”
- ▶ “no scientific support for the use of hair comparisons for individualization in the absence of nuclear DNA”
- ▶ 2009 Study: never has been any statistical basis for hair comparison. It does not lend itself to probability conclusion

NAS on Fiber Evidence

- ▶ “synthetic fibers such as nylon, polyester and acrylic as well as botanical fibers can be examined microscopically in the same way as hairs, and with the same limitations”
- ▶ none of these [tools] is suitable for individualizing fibers (associating a fiber from a crime scene with one, and only one, source) and that fiber evidence can be used only to associate a given fiber with a class of fibers
- ▶ no set standards, for the number and quality of characteristics that must correspond in order to conclude that two fibers came from the same manufacturing batch.
- ▶ Because the analysis of fibers is made largely through well-characterized methods of chemistry, it would be possible in principle to develop an understanding of the uncertainties associated with those analyses. However, to date, that has not been done

Marina Oswald Testimony

- ▶ None of her testimony would have been admissible under spousal immunity rule. Among her key evidence:
 - ▶ She authenticated photos of LHO holding rifle
 - ▶ She said LHO admitted to shooting Walker
 - ▶ She said rifle was stored in blanket in garage
 - ▶ She heard him working bolt action in New Orleans
 - ▶ She provides evidence of “possession” of rifle.
- ▶ Without her testimony, there is insufficient evidence that LHO actually possessed rifle and that she is key to implicating LHO in Walker shooting.
- ▶ WC used Walker shooting to establish LHO capability of committing violence

Discovery of Rifle

- ▶ Rifle found by Sheriff Eugene Boone. He, Deputy Constable Seymour Weitzman and Capt. Will Fritz identified as Mauser. Mooney said he heard it was a Mauser.
 - ▶ Boone and Weitzman signed affidavits that was Mauser.
 - ▶ Deputy Sheriff Roger Craig said “Mauser” was stamped on rifle.
- ▶ But none of the men closely examined rifle and bolt-action commonly referred to mauser.
- ▶ Lieutenant Day removed rifle and remained in his office until released to the FBI at 11:45 p.m. Day was first to identify rifle as Mannlicher-Carcano by looking at the stamp in police car enroute to the police station.
 - ▶ Rifle markings: "CAL. 6. 5," "MADE ITALY," "TERNI," and "ROCCA"; "1940" and "40"; the serial number C2766; the letters "R-E," "PG," and "TNI."
 - ▶ 4 x 18 power scope marking: "ORDNANCE OPTICS INC. ," "HOLLYWOOD CALIFORNIA," and "MADE IN JAPAN'.
 - ▶ Clip Marking: "SMI" (manufacturer) and the number "952“.
 - ▶ sling consisting of two leather straps. Not standard rifle sling.
- ▶ Probably Admissible with conflicting testimony going to weight.

Linking Rifle To LHO

- ▶ FBI traced rifle to postal order to Klein's Sporting Goods using alias of Hidell.
 - ▶ Ad was for C20-T750 (36" Rifle) for \$12.78 was not same as delivered (40 inches with scope) which Kleins sold for \$19.95 (\$21.45 with postage).
 - ▶ Kleins said to only have 36" rifles from June 62 to June 63.
 - ▶ Klein rifle unsighted
 - ▶ LHO said to walk 12 blocks to downtown purchase money order .LHO was at work at JCS all day and worked on 9 jobs.
 - ▶ FBI handwriting expert says money order was LHO handwriting
 - ▶ Envelope with money order stamped 10:30 from zone 12 PO-several miles west of downtown and across Trinity River
 - ▶ Sorted, bagged and placed on plane from Love Field at noon (very efficient for PO!) and received by Klein's next morning.
 - ▶ Kleins endorsed money order on March 13th but no bank routing stamps/endorsements (First National Bank of Chicago, the Federal Reserve Bank of Chicago, the Federal Postal Money Order Center in Kansas City all missing).
 - ▶ Klein's deposit slip presented to WC was dated Feb. 13th!
 - ▶ Evening of Nov 23rd, Robert Jackson of National Archives found \$21.45 undeposited/unendorsed money order at Arlington, Va. PO facility. Perhaps explains why money order serial number inconsistent with downtown PO. Number very high.
 - ▶ No original money order. Just photocopies. FBI obtained originals of Crescent(importer), Harborside (bonded warehouse , Rupp (rifle reconitioner), and Lifschutz (transported to Kleins) but after photocopying, originals appeared to have been destroyed.
 - ▶ More than one rifle had the same serial number due to Italian manufacturing procedures

Linking Rifle To LHO Cont'd

- ▶ No documentation Mannlicher rifle was in the possession of Dallas postal authorities, as the proof of mailing by the mail order house doesn't get the rifle past Chicago.
- ▶ PO Box application page showing who authorized to pick up never found. Postal records require parcel addressed to anyone other than the box holder to be stamped "addressee unknown" and "returned to sender."
- ▶ No documentation postal form 2162 required to be signed by shipper or receiver of a firearm sent thru the US mail and retained for four years (postal regulation 846.53a).
- ▶ LHO completed PO application. Third part of application providing instructions who may entitled to use box/pick up deliveries not produced.
- ▶ No documentation that Oswald as renter of PO Box 2915 given notice by the Dallas post office to pick up the Mannlicher rifle
- ▶ No evidence rifle package ever picked up by anyone at the Dallas post office.
- ▶ No PO employees remembered delivery of rifle.
- ▶ Marina testimony key to establishing LHO possessed rifle but inadmissible as explained earlier
- ▶ No evidence LHO purchased the ammo clip or ammo despite exhaustive search by FBI.

The Paper Bag Forensics

- ▶ WC- “presence of the bag in the southeast corner is cogent evidence that it was used as the container for the rifle.” But was it?
- ▶ Oswald said bag contained curtain rods. Mrs. Paine stored curtain rods in brown paper in garage.
- ▶ Frazier said bag in car was “2 feet long, give or take a few inches.” Bag in sixth floor was 38 inches long and 8 inches wide
- ▶ Frazier said Oswald carried bag tucked between cup of hand and armpit. Dissambled rifle was 34 inches so could not have been carried in this manner
- ▶ No other employee saw LHO with bag inside TSBD. Employees moving around cartons on sixth floor for floor laying never saw bag.
- ▶ FBI says bag and tape consistent with paper and tape dispenser from shipping department. Gary Shaw found lab report that said no match.
- ▶ FBI Cadigan did not find any oil on bag or other evidence that could link bag to rifle.

Paper Bag Forensics Cont'd

- ▶ Day was unable to find a fingerprint or a palmprint on the paper bag.
- ▶ the FBI Lab found a palmprint and fingerprint of Lee Oswald on the bag
- ▶ Weak chain of evidence-
 - ▶ Fritz didn't see bag. "It was recovered later. I wasn't down there when that was found."
 - ▶ Luke Mooney, who found the hulls, didn't see this sack which was supposed to be two feet away from the hulls.
 - ▶ Jerry Hill and Bill Senkel present at the finding of the hulls did not mention bag.
 - ▶ Detective Elmer Boyd didn't see any wrapping paper. The report of Boyd and Sims said nothing about the bag
 - ▶ no photo of the bag taken at the crime scene. The WC was forced to use a dotted-line picture of an imaginary bag in WE 1302 photo.
 - ▶ Studebaker testified bag found on floor and drew diagram used to locate bag in WE 1302.
 - ▶ Day testified brown paper bag found folded between pipes and wall to east of sniper window
 - ▶ Conflicting testimony who picked up bag. Marvin Johnson said bag was in southeast corner past pipes and that Det. Leslie Montgomery picked it up and unfolded it. Montgomery says Studebaker picked it up.

Oswald Fiber Evidence

- ▶ One of key links to establishing he “possessed” rifle
- ▶ Stombaugh said he single brown delustered viscose fiber and several light-green cotton fibers in the paper bag
- ▶ The brown viscose fiber found in the bag “matched” some of the brown viscose fibers from the blanket in all observable characteristics (shade, diameter, and size and distribution of delustering agent).
- ▶ The green cotton fibers found in the bag were, like those from the blanket, of varying shades, but of a uniform twist. Each green cotton fiber from the bag matched some of the green cotton fibers from the blanket. in all observable characteristics (shade and degree of twist). Like the blanket cotton fibers, the cotton fibers found in the bag were unmercerized
- ▶ But what was his conclusion?
 - ▶ “unable to render an opinion that the fibers which he found in the bag had probably come from the blanket.”
 - ▶ “All I would say here is that it is possible;” and “the possibility exists, these fibers could have come from this blanket.”

LHO Fiber Evidence Cont'd

Tuft on Rifle

- ▶ Stombaugh found that a tiny tuft of “fresh” fibers had caught on a jagged edge on the rifle's metal butt plate where it met the end of the wooden stock.
 - ▶ tuft was composed of six or seven orange-yellow, gray-black, and dark-blue cotton fibers. These fibers “matched” the comparable shirt fibers in all “observable” characteristics (shade and twist)
 - ▶ The three dark-blue fibers matched two of the three shades of the dark-blue shirt fibers, and also matched the dark-blue shirt fibers in degree of twist
 - ▶ "could easily" have come from the shirt, and that "there is no doubt in my mind that these fibers could have come from this shirt. There is no way, however, to eliminate the possibility of the fibers having come from another identical shirt."
- ▶ 11/23/63 FBI memo to Chief of Police Jesse Curry said the tuft included grey-black, dark blue and orange-yellow cotton fibers that were matched "in microscopic characteristics" the cotton fibers composing Oswald's shirt But the memo goes on to caution that " fibers do not exhibit sufficient individual microscopic characteristics to be positively identified as originating from a particular source to the exclusion of all others."

LHO Hair Evidence

- ▶ FBI said found in green bag number of limb, pubic, and head hairs, all of which had originated from persons of the Caucasian race.
- ▶ Several of the limb and pubic hairs matched samples of Oswald's limb and pubic hairs obtained by the Dallas police in all “observable characteristics” including certain relatively unusual characteristics.
 - ▶ both Oswald's pubic hairs and some of the blanket pubic hairs, the color was a medium brown, which remained constant to the tip, where it changed to a very light brown and then became transparent, due to lack of color pigment
 - ▶ the diameters were identical, and rather narrow for pubic hairs
 - ▶ the hairs were very smooth, lacking the knobiness characteristic of pubic hairs, and the upper two-thirds were extremely smooth for pubic hairs;
 - ▶ the tips of the hairs were sharp, which is unusual for pubic hairs;
 - ▶ the cuticle was very thin for pubic hairs; the scales displayed only a very small protrusion;
 - ▶ the pigmentation was very fine, equally dispersed, and occasionally chained together, and displayed only very slight gapping;
 - ▶ cortical fuse were for the most part absent; the medulla was either fairly continuous or completely absent; and the root area was rather clear of pigment, and contained only a fair amount of cortical fuse, which was unusual

LHO Hair Evidence Cont'd

- ▶ Oswald's limb hairs and some of the limb hairs from the blanket the color was light brown through its entire length;
- ▶ the diameter was very fine and did not noticeably fluctuate;
- ▶ the tips were very sharp, which is unusual;
- ▶ the scales were of medium size, with very slight protrusion;
- ▶ there was a very slight gapping of the pigmentation near the cuticle;
- ▶ there was an unusual amount of cortical fuse, equally distributed through the hair shaft; and
- ▶ the medulla was discontinuous, granular, very bulbous, and very uneven.
- ▶ Other limb, pubic, and head hairs on the blanket did not come from Oswald

Oswald Fingerprints

- ▶ No latent prints of value were developed on the clip of the rifle
- ▶ Lt. Day said found latent print on portion of rifle barrel only exposed when rifle disassembled. No other prints. FBI said no prints when rifle received night of 22nd. FBI says it received palm print "lifted" by rifle several days later.
- ▶ DPD said if found partial some partial fingerprints on the Carcano's magazine housing (trigger guard). Photographed. 3 points of identity. FBI said inadequate for identification purposes.
- ▶ No legible print after dusting with metallic magnetic powder by Lt. Day on the "paper sack." FBI developed a palmprint and a fingerprint on the paper bag by silver nitrate. Said were made by LHO right palm and the left index finger
- ▶ No latent prints on any shells found on sixth floor

LHO Latent prints Cont'd

- ▶ Carton A- FBI developed nine identifiable latent fingerprints and four identifiable latent palmprints on Box A. One of the fingerprints was identified as the LHO right index fingerprint and one of the palmprints was LHO. All remaining prints were from law enforcement
- ▶ Carton B-seven identifiable fingerprints and two identifiable palmprints on Box B belonged to law enforcement but one palmprint unidentifiable
- ▶ Carton C- two identifiable fingerprints and one identifiable palmprint belonged to law enforcement.
- ▶ Carton D-FBI developed two fingerprints that belonged to law enforcement and DPD developed a palmprint said to be LHO right palmprint.

Bullets and empty shells

- ▶ No evidence LHO ever purchased ammo despite exhaustive search by FBI of Dallas gunshops
- ▶ Two of the cartridges (closest to the window and identified as CE 544 and 545), had similar markings consistent with the chamber and bolt of the rifle (Hoover letter at 26H449-450).
- ▶ CE 544 (FBI C7), one set of marks was linked to the chamber and another set of marks by contact with the bolt of the Oswald rifle. However, the FBI could not say if these marks were produced by one or two loading operations.
- ▶ CE 545 (FBI C8) had two sets of marks from the magazine follower (the spring-tension lever that pushes the last cartridge in the clip into place). Only the last shell in chamber will have a magazine follower mark yet a live round was found in the Oswald rifle.
- ▶ The third cartridge (CE543) was much further away and had a sharp dent in its lip that would have prevented it from being fired.
 - ▶ There was a marking consistent with impact from the bolt (Ballistic Frazier testimony at 3H519) but it lacked the chambering marks on the side of the two other cartridges.
 - ▶ WC thought this round had been loaded and extracted at least three times (26H449). A ballistics expert testified that the anomalous marks were possibly caused by "dry firing run

Hulls Cont'd

- ▶ There were also marks said to be from the "magazine follower" (the spring-loaded lever at the bottom of the clip). Yet the magazine follower only marks the last round and there was a live round in the clip.
- ▶ The HSCA Firearms Panel could not duplicate the dent on the lip of CE-543.
- ▶ Chain of Evidence Problems
 - ▶ TV Cameraman Tom Alyea said Capt Fritz picked up shells to let him film them and then put them back down. He said original appearance different from that in photos.
 - ▶ Inconsistent testimony on who and how many shells initialed. Carl Day first says he initialed 3 shells at 1 pm (CE 2011), then testifies he didn't at the time of discovery but only two shells at night. (vol IV)
 - ▶ Detective Sims said he dropped three shells into envelope and handed unsealed envelope to Capt. Fritz. Unsealed envelope containing two hulls given to Day at night before he initialed and gave them to FBI Vincent Drain.

Linking Limo Fragments to Rifle

- ▶ Limo unsecured at Parkland from 12:30 to 2:30, and was washed out by bucket of water.
- ▶ Limo brought to WH at 9 pm. Secret Service Fragments discovered at 10pm
- ▶ Two fragments with insufficient markings tested using NNA to compare with bullet found in rifle. This is no longer valid test
- ▶ Limo was crime scene. Failure to secure meant no assurance evidence was not tampered with or planted. Good grounds for excluding evidence found in limo.

Magic Bullet

- ▶ Chain of evidence problems
- ▶ Darrell Tomlinson found bullet by stretcher, gives to security director O.P. Wright who delivers to Richard Johnsen around 1:30 pm. Johnsen's initials are not on bullet.
- ▶ Johnsen handed it to the chief of the Secret Service Rowley at Andrews Air Force Base at about 7:30 pm, who didn't initial it either. Tomlison, Wright, Johnsen and Rowley could not identify bullet when shown it later. Tomlison says it was more pointed and resembled 30-30.
- ▶ FBI agent Elmer Todd received the bullet from Rowley and delivered it to Robert Frazier at the crime lab. Todd said he initialed bullet but only initials on the bullet are those of Frazier and the other crime lab examiners.
- ▶ Todd has a written receipt from Rowley dated at 8:50 pm which conflicts with written evidentiary history. Latter also conflicts with Johnson memo that says he delivered to Rowley at 7:30 pm.

Paper Bag Cont'd

- ▶ Motorcycle cops Clyde Haygood and E.D. Brewer said bag was found in SE corner.

The Blanket

- ▶ No gun oil or other evidence found on blanket
- ▶ LHO body hairs found on blanket
- ▶ Recall FBI textile expert unable to render an opinion that the fibers found in the bag had probably come from the blanket. “All I would say here is that it is possible;” and “the possibility exists, these fibers could have come from this blanket.”
- ▶ Marina identification critical to linking blanket to rifle.

Paraffin Test

- ▶ FBI Considers Paraffin Test unreliable because of FALSE Positives, not negative results.
- ▶ No nitrates found on right cheek.
- ▶ Positive test on hands but could have been from ink and other materials from cartons he moved as part of job

Possible Exculpatory Evidence Never Developed

- ▶ Rifle not tested to see if it had been fired