

**The Crucial Role
of
Forensic Evidence:
A Judicial Perspective**

The Hon. Ann C. Williams (Retired)

The Hon. Marian F. Gaston

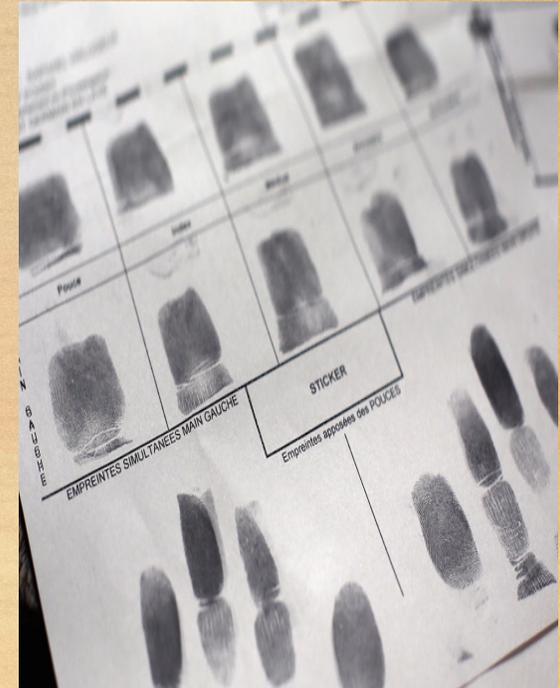
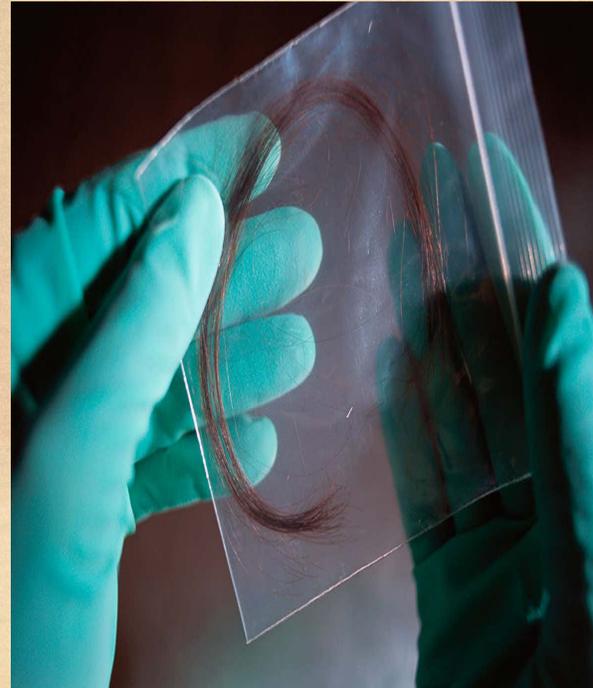




What is “forensic evidence?”

- DNA
- Toxicology/drug testing
- Sexual and physical assault exams
- Ballistics and firearms
- Digital forensics
- Fingerprint evidence
- Wildlife forensics
- Other areas: hair sample, footprint analysis, tire tracks, etc.

Forensic evidence can convict the guilty
and exonerate the innocent.



History of DNA

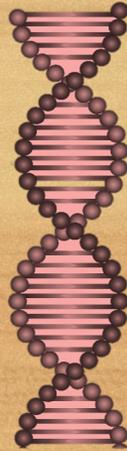
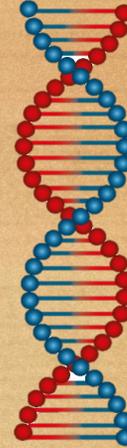
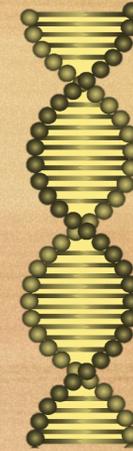
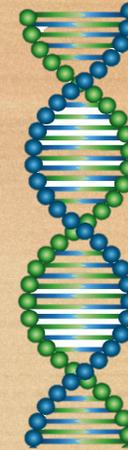
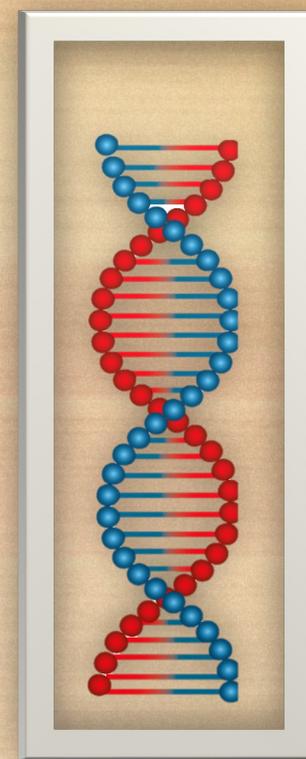
**DNA profiling first
used: 1986**

**After solving two cold-case
homicides, DNA profiling
rapidly adopted by US and
Europe**



DNA profiling mechanics

DNA profiling matches
unique genetic codes found
in human cells



US National Academy of
Sciences:

DNA is the most reliable
forensic technique

Judge Harry T. Edwards:

DNA is real science at work.

**It consistently produces results
that you can rely on.**

Reliability of Forensic Evidence Per United States National Academy of Sciences

-  DNA, toxicology, drug analysis
-  Fingerprinting, handwriting analysis, ballistics, hair and fiber analysis
-  Shoe print or tire track analysis, blood spatter, bite mark analysis

DNA Profiling's International Impact

- 120 countries use DNA profiling
- 54 national DNA databases
- 26 DNA databases on the way
- 70 countries have DNA forensic labs
- 552 exonerations (USA)



A poaching scene is a crime scene

Originally published February 9, 2018 at 4:00 pm | Updated February 9, 2018 at 4:18 pm



A pile of poached ivory is prepared for burning by the government to show their commitment to combat poaching, in Libreville, Gabon, in 2012. DNA databases holding samples from thousands... (TYLER HICKS/NYT) [More](#) ✓

DNA databases holding samples from thousands of rhinoceroses and elephants are helping to convict illegal traffickers.

“Science is only as reliable as the manner in which we use it.”

- Contamination of DNA at the scene or lab.
- Time-intensive and expensive analysis.
- Bias of analysts and departmental pressures.
- Contaminated test-kits from the factory.
- Ethical concerns.

A videotape of a police technician carelessly collecting blood samples drew the attention of a DNA expert testing HPD closes crime lab's DNA unit in wake of cheating probe

SPIEGEL International

Q-Tip-Off

Police Fear 'Serial Killer' Was Just DNA Contamination



DNA Databases Are Boon to Police But Menace to Privacy, Critics Say
way to go"

TOPICS PROJECTS FEATURES ABOUT GET INVOLVED SEARCH

Future directions?

- Increased use of information from commercial DNA databases
- Use of genetic genealogy/kinship inference to identify perpetrators
- Use of DNA to predict phenotype of offender

Lagos State DNA & Forensic Center



Good forensic work is not possible without a good lab.

An Innovative Practical Solution

- **Police officers preserve the scene**
- **Lab techs collect and process evidence from the scene**
- **Lab techs ensure evidence is stored properly**

State v. Bankole



After working until 9:00 p.m., Ms. Ali began walking to her car. She was approached by a masked man with a gun who ordered her to walk behind a building where he raped and robbed her.

At 9:45 p.m. she called her mother who picked her up and took her to the hospital.

They called the police.

State v. Bankole



Acting on a tip, police questioned Mr. Bankole, a young man who knew the victim. He said he had done nothing wrong and gave permission for police to look in his house and car. In his car, police found an unloaded semi-automatic gun.

As the police or prosecution, you want to use the gun as evidence.

Challenge #1: evidence has to be reliable

- Why should the judge trust the evidence?
- How do you know the evidence hasn't been tampered with?
- Who gathered and identified the evidence?
- Where did the evidence come from?



Traditional Chain of Custody

EVIDENCE

Agency: _____
Item No.: _____ Case No.: _____
Date of Collection: _____ Time of Collection: _____
Collected By: _____
Description of Evidence: _____

Location of Collection: _____

Type of Offense: _____
Victim: _____
Suspect: _____

CHAIN OF CUSTODY

Received From: _____ By: _____
Date: _____ Time: _____
Received From: _____ By: _____
Date: _____ Time: _____
Received From: _____ By: _____
Date: _____ Time: _____

CHAIN OF CUSTODY

Received From: _____
Received By: _____
Date: _____ Time: _____ am/pm

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Date: _____ Time: _____ am/pm

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Date: _____ Time: _____ am/pm

Received From: _____
Received By: _____
Date: _____ Time: _____ am/pm

Received From: _____
Received By: _____
Date: _____ Time: _____ am/pm

TRITECH FORENSICS
803.438.7884 • info@tritechforensics.com
Recorder No.: TAGCC4X6

- EVIDENCE -

Submitting Agency: _____
Case No.: _____
Item No.: _____
Date of Collection: _____
Time of Collection: _____
Collected by: _____
Badge No.: _____
Description of Enclosed Evidence: _____

Location Where Collected: _____

Type of Offense: _____
Victim's Full Name: _____
Suspect's Full Name: _____

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- EVIDENCE -

Submitting Agency: _____
Case No.: _____ Item No.: _____
Date of Collection: _____ Time of Collection: _____
Collected by: _____
Badge No.: _____
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Type of Offense: _____
Victim's Full Name: _____
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- CHAIN OF CUSTODY -

Received From: _____
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Received By: _____
Date: _____ Time: _____ am/pm

TRITECH FORENSICS
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Recorder No.: TAGEV4X6

08-12345 Item #: SGT

ASSAULT - ASSAULT

Avery, Craig (422)

Avery, Craig (422)

TURNER

JOHN

223 Delafield

Richland

WA ZIP: 54901

(920)555-1234

02/04/1966

PURSE/WALLET/BACKPACK

Label Preview

ATLANTA POLICE DEPT
Case #08-12345

200600004

Item #SGT13 Recovered on 12/20/2006
By Officer: Avery, Craig (422)
From: Bushes behind fence
Desc: blue coach purse with contents

Training Tip
Choose Label Size
Customized for Your Agency

< Page 1 of 1 > Zoom 100%

Cutting-edge Chain of Custody



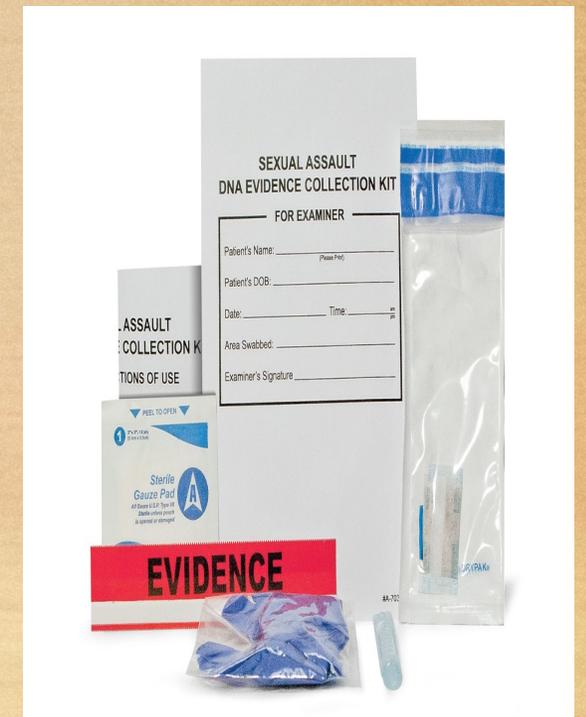
If you can't prove the evidence is reliable . .

NOT GUILTY

Bankole's Saliva Sample

After finding the gun, police arrested Mr. Bankole and took a saliva swab. The Lagos DNA lab determined that the DNA from Mr. Bankole's saliva matches the DNA from the attacker whose semen was collected from Ms. Ali.

You want the judge to hear the DNA evidence.



Challenge #1: The evidence has to be reliable

- Why should the judge trust the evidence?
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Bad Police Work + Bad Lab Work =

NOT GUILTY

Not just good police work – you need good labs!

Common errors in labs:

- 1. Cross contamination**
- 2. Labelling errors**
- 3. Losses of evidence**



900 DUI Defendants Notified About Errors

November 7, 2013 at 4:13 pm Filed Under: [Drunk Driving](#), [DUI](#), [Orange County Crime Lab](#)

[Crime](#) | [Local News](#)

107 DNA swabs mistakenly destroy Police Department evidence warehouse

Sep. 18, 2019 at 8:35 pm | Updated Dec. 23, 2020

DC forensic lab under

errors discovered in murder cases

NEW YORK CITY AGENCY HAS UNDERREPORTED LAB ERRORS IN DNA DATABASE IT OVERSEES

wtop.com
pherty@wtop.com
AM

U.S.

Untested Rape Kits Hid 817 Serial Predators In Detroit, Tens Of Thousands More Concealed In Backlog Across U.S.

BY JOSH SAUL ON 12/19/17 AT 11:48 AM EST



[News](#) 05.09.07

Fingerprint errors found in Florida crime lab

Or Worse—False Convictions

Man exonerated 15 years after overlooked DNA evidence emerges



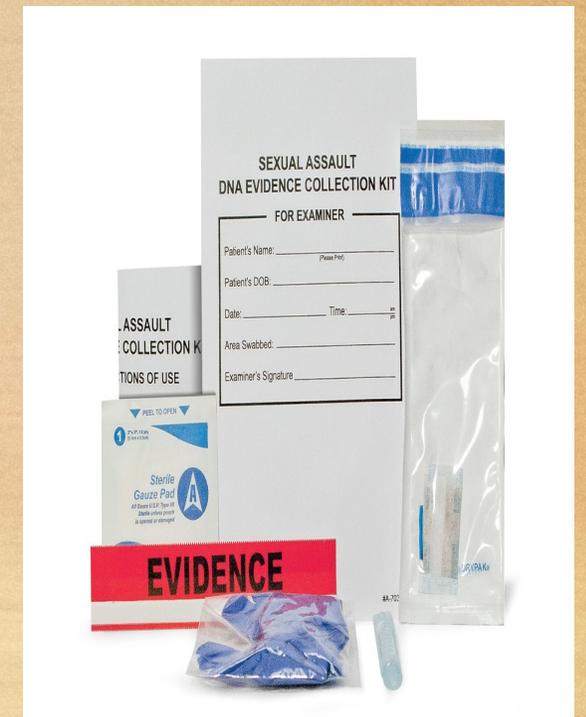
By [Lindsey Bever](#)

April 28, 2022 at 6:26 p.m. EDT

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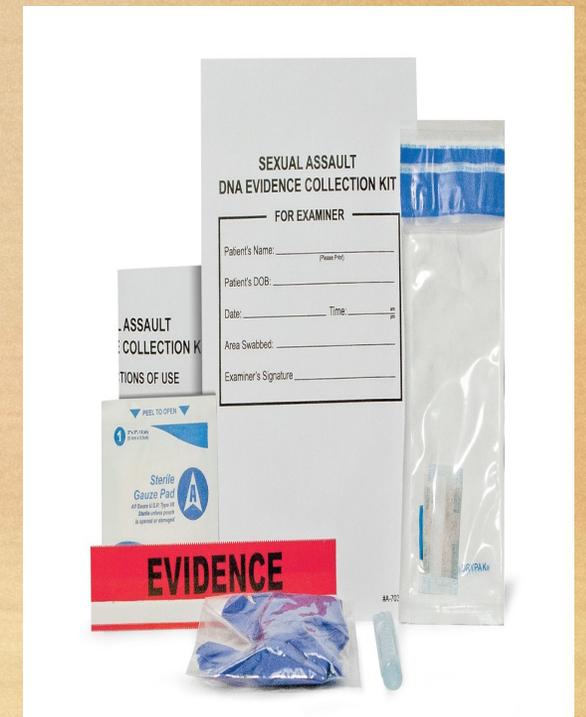
You want the judge to hear the DNA evidence.



Bankole's Saliva Sample

After finding the gun, police arrested Mr. Bankole and took a saliva swab. The Lagos DNA lab determined that the DNA from Mr. Bankole's saliva **did not match** the DNA from the attacker whose semen was collected from Ms. Ali.

Now what?



Challenge #2: If judge trusts the evidence, what should judge do with it?

- Why is the evidence relevant to a fact at issue?
- What new information does the evidence prove?
- How much weight should a judge give the evidence?
- How does *this* evidence relate to *other* evidence?



An effective and fair criminal justice system requires well-trained lawyers.



An effective and fair criminal justice system requires well-trained experts.

